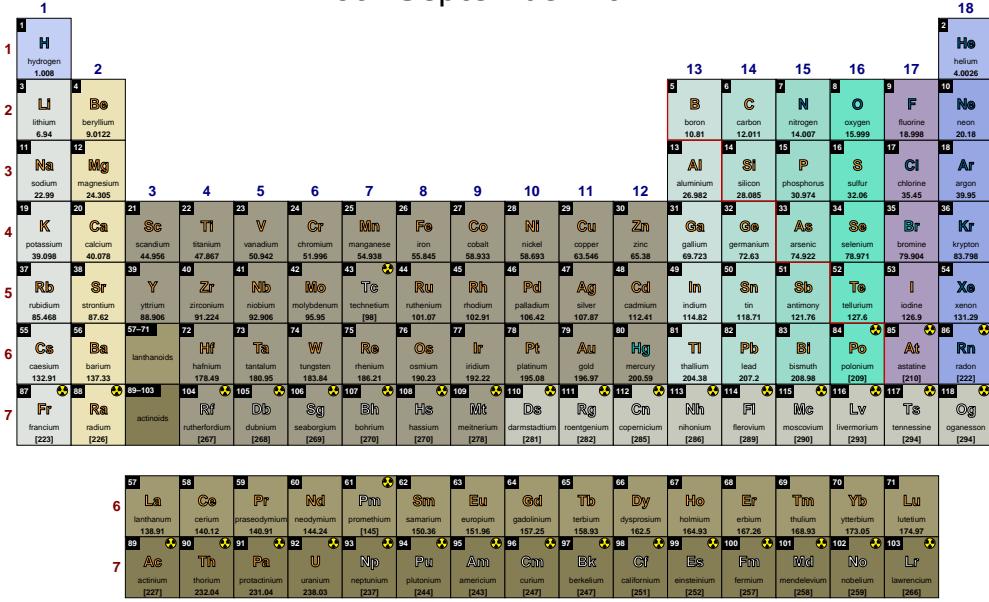


Manual for pgf-PeriodicTable 2.1.4

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\pgfPT[show title=false, show legend=false]

Abstract

The purpose of this package is to provide the Periodic Table of Elements in a simple way. It relies on pgf/TikZ to offer a full or partial periodic table with a variety of options and displaying the desired data. The data available, from all the actual 118 elements, is: atomic number, element name, chemical symbol, relative atomic mass, standard relative atomic mass, radioactivity, atomic radius (empirical), covalent radius, ionic radius, first ionization energy, electronegativity (Pauling), electroaffinity, oxidation states, melting point (in Kelvin and Celsius degrees), boiling point (in Kelvin and Celsius degrees), electron distribution, electronic configuration (increasing n and increasing $n + \ell$), density, specific heat capacity, thermal conductivity, lattice structure, lattice constants (a , b , c and c/a ratio), discovery year, discovery country and visible range spectral lines. It is possible to get the Periodic Table in different languages: English, French, German, Portuguese (from Portugal and from Brazil), Spanish, Italian and translations provided by user contributions – currently in Dutch only.

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Getting started

Installation

`pgf-PeriodicTable` is placed under the terms of the L^AT_EX Project Public License, version 1.3 or later (<http://www.latex-project.org/lppl.txt>). `pgf-PeriodicTable` loads and requires the `TikZ` and `fontenc` or `fontspec` (at least v2.7h – 2020/02/03) packages.

You need to put the package files (`pgf-PeriodicTable.sty` & *friends*) in a location where PDFL^AT_EX, L^AuL^AT_EX or XeL^AT_EX can find them. According to the TDS conventions this may be a subdirectory named `tex/latex/pgf-PeriodicTable/` or `tex/latex/misc/` in your (site specific) installation tree (insert your appropriate directory delimiter instead of /, if needed).

Package loading and options

If you are using PDFL^AT_EX, L^AuL^AT_EX or XeL^AT_EX you can just simply include the style file without any option via the `\usepackage` command, `\usepackage{pgf-PeriodicTable}`

It can also be loaded with a comma separated list of *options* to select the desired default language or to use Devanagari or Mandarin numerals in the Atomic Number, Periods and/or Groups.

Language Option

There are six *built-in* languages – English, French, German, Portuguese (from Portugal and Brazil), Spanish and Italian. The default language used in the package may be selected at package loading:

```
\usepackage[language flag]{pgf-PeriodicTable}
```

The *language flags* available are:

-
- | | |
|--|--------------------------------------|
| ✓ en for English (default), | ✓ br for Portuguese (Brazil), |
| ✓ fr for French, | ✓ es for Spanish and |
| ✓ de for German, | ✓ it for Italian. |
| ✓ pt for Portuguese (Portugal), | |
-

A *user language* can also be chosen as default language loading the package with the following option syntax:

```
\usepackage[userlang=<ISO 639-1 CODE>]{pgf-PeriodicTable}
```

In the present version only a Dutch translation is available. It can be loaded by:

```
\usepackage[userlang=nl]{pgf-PeriodicTable}
```

Anyone who wishes to contribute with translations for use in this package can go to the [pgf-periodictable](#) project page.

Note that the *built-in* languages are always available for the *languages* option of the `\pgfPT` command, but the *user language* is only available if loaded with the package.

Devanagari numerals

It is possible to get some numbers in the Periodic Table with Devanagari numerals: the atomic number and the numeration of periods and groups. To get this feature enabled the package must be loaded with the option *numerals* set to **dvn**:

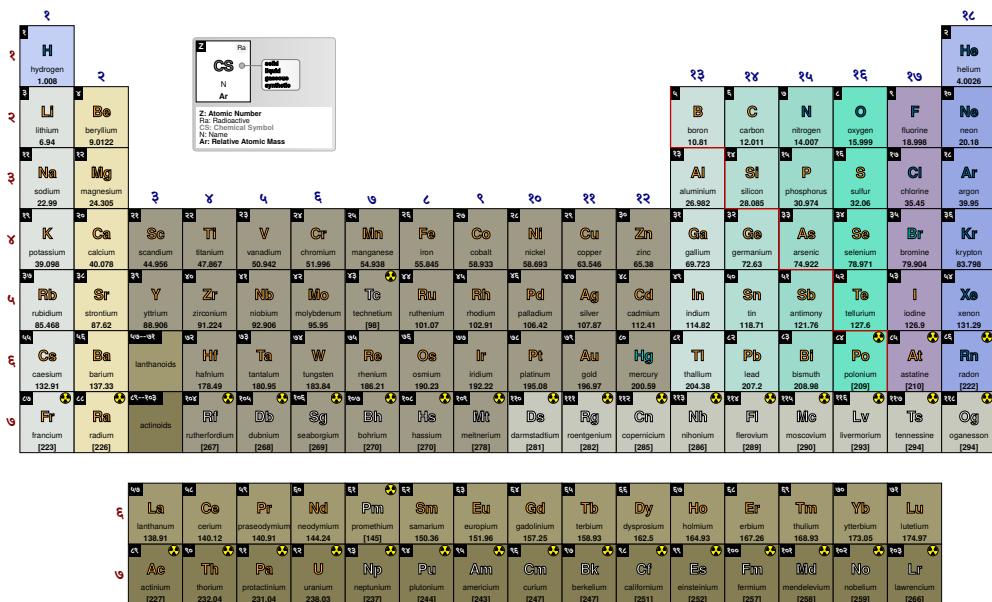
```
\usepackage[numerals=dvn]{pgf-PeriodicTable}
```

This option requires the Xe^LA_TE_X engine to typeset the document.

```
% \usepackage[numerals=dvn]{pgf-PeriodicTable}
```

```
\pgfPT
```

Periodic Table of Elements



It is also possible to load a font for the Devanagari numerals using the following command:

```
\pgfPTdvnfont[font options]{font name}
```

The default font is *Eczar*.

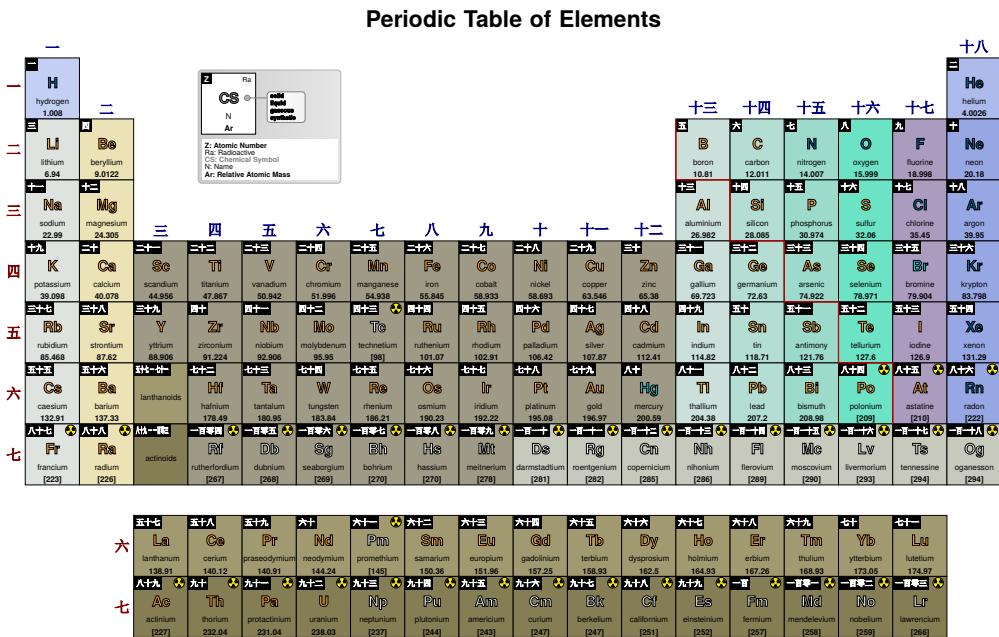
Mandarin numerals

To get some numbers of the Periodic Table with Mandarin numerals (the atomic number and the numeration of periods and groups) the package must be loaded with the above option *numerals* set to **zh**:

```
\usepackage[numerals=zh]{pgf-PeriodicTable}
```

This option works with the Xe^LA_TE_X and Lu^LA_TE_X engines to typeset the document and requires the zhnumber package, which is automatically loaded.

```
% \usepackage[numerals=zh]{pgf-PeriodicTable}
\pgfPT
```



Interaction with other packages

fontspec

To correctly set the font in each cell contents the command `\fontspec` must be used. For example if you want to use *Arial* for the `name font`, it must be set using `name font=\fontspec{Arial}\selectfont`.

All other font selection commands, e.g., `\large`, `\itshape`, are used as usual. For example if you want to use *Arial* in *large* size and *bold* weight for the `name font`, then you type `name font=\large\bfseries\fontspec{Arial}\selectfont` or `name font=\fontspec{Arial}\large\bfseries\selectfont`.

ragged2e

Using `\usepackage[document]{ragged2e}` and `\usepackage{pgf-PeriodicTable}` together, the Periodic Table will be completely fractured and out of the page.

Solution:

Use a local group: `{\justifying\pgfPT}`

The data

The data available in `pgf-PeriodicTable` was mainly compiled with selected and filtered data from Wikipedia, taken from November 2021 to July 2022.

acronym	description	unit	remarks (compiled from @date)
<code>Ar</code>	Relative Atomic Mass		(Wikidata @09/jan/2022)
<code>Arstar</code>	Standard Relative Atomic Mass		STANDARD ATOMIC WEIGHTS 2021, Commission on Isotopic Abundances and Atomic Weights, © CIAAW, 2007–2022 (https://ciaaw.org/impressum.htm)
<code>radio</code>	Radioactivity		(gperiodic-3.0.3, Dec 26 2018)
<code>R</code>	Atomic Radius	pm	Calculated (Wikidata @04/jul/2022)
<code>Rcov</code>	Covalent Radius	pm	Single bond, Wikidata @04/jul/2022)
<code>Rion</code>	Ionic Radius	pm	(Wikidata @04/jul/2022)
<code>Ei</code>	First Ionization Energy	$\text{kJ} \cdot \text{mol}^{-1}$	(Wikidata @04/jul/2022)
<code>eneg</code>	Electronegativity (Pauling)		(Wikidata @04/jul/2022)
<code>eaff</code>	Electroaffinity	$\text{kJ} \cdot \text{mol}^{-1}$	(Wikidata @04/jul/2022)
<code>O</code>	Oxidation States		(Wikidata @09/jan/2022)
<code>Tmelt</code>	Melting Point	K	at standard pressure (Wikidata @21/dez/2021)
<code>TmeltC</code>	Melting Point	°C	at standard pressure (Wikidata @21/dez/2021)
<code>Tboil</code>	Boiling Point	K	at standard pressure (Wikidata @21/dez/2021)
<code>TboilC</code>	Boiling Point	°C	at standard pressure (Wikidata @21/dez/2021)
<code>eDist</code>	Electron Distribution		(Wikidata @01/nov/2021)
<code>eConfign</code>	Electronic Configuration (increasing n)		(Wikidata @01/nov/2021)
<code>eConfignl</code>	Electronic Configuration (increasing n + ℓ)		(Wikidata @01/nov/2021)
<code>d</code>	Density	$\text{g} \cdot \text{dm}^{-3}$ for gases $\text{g} \cdot \text{cm}^{-3}$ all other physical states	physical state at 25°C, 1 atm (Wikidata @01/nov/2021)
<code>Cp</code>	Specific heat capacity	$\text{J} \cdot \text{mol}^{-1} \cdot \text{K}^{-1}$	at 25°C and 100 kPa (Wikidata @20/nov/2021)
<code>kT</code>	Thermal Conductivity	$\text{W} \cdot \text{m}^{-1} \cdot \text{K}^{-1}$	at 25°C (Wikidata @21/nov/2021)
<code>ls</code>	Lattice Structure		(Wikidata @20/dez/2021 and University of Bielefeld)
<code>lsa</code>	Lattice constant: a	pm	(University of Bielefeld @21/dez/2021)
<code>lsb</code>	Lattice constant: b	pm	(University of Bielefeld @21/dez/2021)
<code>lsc</code>	Lattice constant: c	pm	(University of Bielefeld @21/dez/2021)
<code>lsca</code>	Lattice c/a ratio		Calculated from available data and rounded to two digits
<code>DiscY</code>	Discover Year		(Wikidata @22/dez/2021)
<code>DiscC</code>	Discover Country		(Wikidata @22/dez/2021)
<code>spectra</code>	Visible range spectral lines		Elements spectrum made with <code>\pgfspectra</code> . See the <code>pgf-spectra</code> manual for more details

The utilization of the *acronyms* will be explained in [Designing cells with \pgfPTbuildcell](#).

The commands

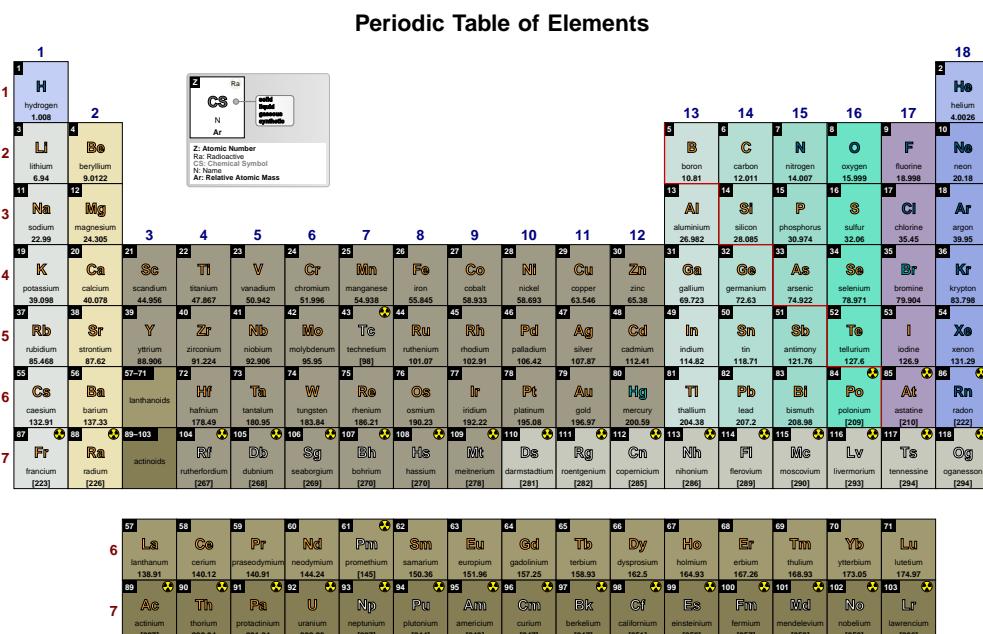
The commands to achieve the Periodic Table of Elements are:

- `\pgfPT` or `\pgfPT[options list]` – draws a full or partial graphical Periodic Table controlled by the optional keys.
- `\pgfPTstyle[options list]` – sets the global style for the Periodic Table.
- `\pgfPTresetstyle` – resets the style for the Periodic Table with the default values.
- `\pgfPTbuildcell(nrows,ncolumns)[entries]` – builds the contents of each cell in the Periodic Table.
- `\pgfPTresetcell` – resets the cell to its default layout.
- `\pgfPTbuildcellstyle{name}(nrows,ncolumns)[entries]` – builds the contents of each cell in the Periodic Table and stores it in a named style.
- `\pgfPTpreviewcell` or `\pgfPTpreviewcell[scale factor]` – preview the last unnamed built cell with an optional scale factor. If no cells have yet been built, the default cell is shown.
- `\pgfPTpreviewcellstyle{name}` or `\pgfPTpreviewcellstyle[scale factor]{name}` – preview the named builded cell with an optional scale factor.
- `\pgfPTnewcolorscheme[trailing color]{name}{color list}` – makes a color scheme to fill the cells along the Periodic Table.
- `\pgfPTnewZlist{name}` – create a user defined atomic numbers (Z) **named** list.
- `\pgfPTsetLanguage{language flag}` – globally change the default language.

► Utilization of `\pgfPT`

Use this command to draw the Periodic Table of Elements in the language selected at package inclusion (`\usepackage[language flag]{pgf-PeriodicTable}`):

```
\pgfPT
```



This command can also be used with options – as described in section Options for \pgfPT: creating a «Periodic Table» – to modify, for instance, the font of the Periodic Table or the colors of the cells:

```
\pgfPT[font=pnc,back color scheme=pgfPTMNM]
```

Periodic Table of Elements

1	H	2	He
1	hydrogen 1.008	2	helium 4.0026
2	Li	Be	Ne
3	lithium 6.94	beryllium 9.0122	neon 20.18
4	Na	Mg	Ar
3	sodium 22.99	magnesium 24.305	argon 39.95
5	K	Ca	Kr
4	potassium 39.098	calcium 40.078	krypton 83.798
6	Rb	Sc	Xe
5	rubidium 85.468	scandium 44.956	xenon 131.29
7	Fr	Ti	Og
6	francium [223]	titanium 47.867	oganeson [294]
8	Sr	V	
7	strontium 87.62	vanadium 51.996	
9	Y	Cr	
8	yttrium 91.224	chromium 52.042	
10	Zr	Mn	
9	zirconium 92.906	manganese 54.938	
11	Nd	Fe	
10	neodymium 95.95	iron 55.845	
12	Mo	Co	
11	molybdenum [98]	cobalt 58.933	
13	Tc	Ni	
12	technetium 101.07	nickel 58.693	
14	Ru	Cu	
13	ruthenium 102.91	copper 63.546	
15	Rh	Zn	
14	rhodium 106.42	zinc 65.38	
16	Pd	Ga	
15	palladium 107.87	gallium 69.723	
17	Ag	Ge	
16	silver 112.41	germanium 72.63	
18	Cd	As	
17	cadmium 114.82	arsenic 74.923	
19	In	Se	
18	indium 118.71	selenium 78.971	
20	Sn	Br	
19	tin 121.76	bromine 79.904	
21	Sb	Kr	
20	antimony 127.6	krypton 83.798	
22	Te	Xe	
21	tellurium 128.9	xenon 131.29	
23	I	Og	
22	iodine 131.29	oganeson [294]	
24	Po		
23	polonium [209]		
25	At		
24	astatine [210]		
26	Rn		
25	radon [222]		
27	La		
26	cerium 140.12		
28	Ce		
27	praseodymium 140.91		
29	Pr		
28	neodymium 144.24		
30	Nd		
29	promethium [145]		
31	Pm		
30	samarium 150.36		
32	Sm		
31	europium 151.96		
33	Eu		
32	gadolinium 157.25		
34	Gd		
33	terbium 158.93		
35	Tb		
34	dysprosium 162.5		
36	Dy		
35	holmium 164.93		
37	Ho		
36	erbium 167.26		
38	Er		
37	thulium 168.93		
39	Tm		
38	ytterbium 173.05		
40	Yb		
39	ytterbium 174.97		
41	Lu		
40	lutetium 174.97		
42	La		
41	lanthanum 138.91		
43	Ce		
42	cerium 140.12		
44	Pr		
43	praseodymium 140.91		
45	Nd		
44	neodymium 144.24		
46	Pm		
45	promethium [145]		
47	Sm		
46	samarium 150.36		
48	Eu		
47	europium 151.96		
49	Gd		
48	gadolinium 157.25		
50	Tb		
49	terbium 158.93		
51	Dy		
50	dysprosium 162.5		
52	Ho		
51	holmium 164.93		
53	Er		
52	erbium 167.26		
54	Tm		
53	thulium 168.93		
55	Yb		
54	ytterbium 173.05		
56	Lu		
55	lutetium 174.97		
57	La		
56	lanthanum 138.91		
58	Ce		
57	cerium 140.12		
59	Pr		
58	praseodymium 140.91		
60	Nd		
59	neodymium 144.24		
61	Pm		
60	promethium [145]		
62	Sm		
61	samarium 150.36		
63	Eu		
62	europium 151.96		
64	Gd		
63	gadolinium 157.25		
65	Tb		
64	terbium 158.93		
66	Dy		
65	dysprosium 162.5		
67	Ho		
66	holmium 164.93		
68	Er		
67	erbium 167.26		
69	Tm		
68	thulium 168.93		
70	Yb		
69	ytterbium 173.05		
71	Lu		
70	lutetium 174.97		
72	La		
71	lanthanum 138.91		
73	Ce		
72	cerium 140.12		
74	Pr		
73	praseodymium 140.91		
75	Nd		
74	neodymium 144.24		
76	Pm		
75	promethium [145]		
77	Sm		
76	samarium 150.36		
78	Eu		
77	europium 151.96		
79	Gd		
78	gadolinium 157.25		
80	Tb		
79	terbium 158.93		
81	Dy		
80	dysprosium 162.5		
82	Ho		
81	holmium 164.93		
83	Er		
82	erbium 167.26		
84	Tm		
83	thulium 168.93		
85	Yb		
84	ytterbium 173.05		
86	Lu		
85	lutetium 174.97		
87	La		
86	lanthanum 138.91		
88	Ce		
87	cerium 140.12		
89	Pr		
88	praseodymium 140.91		
90	Nd		
89	neodymium 144.24		
91	Pm		
90	promethium [145]		
92	Sm		
91	samarium 150.36		
93	Eu		
92	europium 151.96		
94	Gd		
93	gadolinium 157.25		
95	Tb		
94	terbium 158.93		
96	Dy		
95	dysprosium 162.5		
97	Ho		
96	holmium 164.93		
98	Er		
97	erbium 167.26		
99	Tm		
98	thulium 168.93		
100	Yb		
99	ytterbium 173.05		
101	Lu		
100	lutetium 174.97		
102	La		
101	lanthanum 138.91		
103	Ce		
102	cerium 140.12		
104	Pr		
103	praseodymium 140.91		
105	Nd		
104	neodymium 144.24		
106	Pm		
105	promethium [145]		
107	Sm		
106	samarium 150.36		
108	Eu		
107	europium 151.96		
109	Gd		
108	gadolinium 157.25		
110	Tb		
109	terbium 158.93		
111	Dy		
110	dysprosium 162.5		
112	Ho		
111	holmium 164.93		
113	Er		
112	erbium 167.26		
114	Tm		
113	thulium 168.93		
115	Yb		
114	ytterbium 173.05		
116	Lu		
115	lutetium 174.97		
117	La		
116	lanthanum 138.91		
118	Ce		
117	cerium 140.12		
119	Pr		
118	praseodymium 140.91		
120	Nd		
119	neodymium 144.24		
121	Pm		
120	promethium [145]		
122	Sm		
121	samarium 150.36		
123	Eu		
122	europium 151.96		
124	Gd		
123	gadolinium 157.25		
125	Tb		
124	terbium 158.93		
126	Dy		
125	dysprosium 162.5		
127	Ho		
126	holmium 164.93		
128	Er		
127	erbium 167.26		
129	Tm		
128	thulium 168.93		
130	Yb		
129	ytterbium 173.05		
131	Lu		
130	lutetium 174.97		
132	La		
131	lanthanum 138.91		
133	Ce		
132	cerium 140.12		
134	Pr		
133	praseodymium 140.91		
135	Nd		
134	neodymium 144.24		
136	Pm		
135	promethium [145]		
137	Sm		
136	samarium 150.36		
138	Eu		
137	europium 151.96		
139	Gd		
138	gadolinium 157.25		
140	Tb		
139	terbium 158.93		
141	Dy		
140	dysprosium 162.5		
142	Ho		
141	holmium 164.93		
143	Er		
142	erbium 167.26		
144	Tm		
143	thulium 168.93		
145	Yb		
144	ytterbium 173.05		
146	Lu		
145	lutetium 174.97		
147	La		
146	lanthanum 138.91		
148	Ce		
147	cerium 140.12		
149	Pr		
148	praseodymium 140.91		
150	Nd		
149	neodymium 144.24		
151	Pm		
150	promethium [145]		
152	Sm		
151	samarium 150.36		
153	Eu		
152	europium 151.96		
154	Gd		
153	gadolinium 157.25		
155	Tb		
154	terbium 158.93		
156	Dy		
155	dysprosium 162.5		
157	Ho		
156	holmium 164.93		
158	Er		
157	erbium 167.26		
159	Tm		
158	thulium 168.93		
160	Yb		
159	ytterbium 173.05		
161	Lu		
160	lutetium 174.97		
162	La		
161	lanthanum 138.91		
163	Ce		
162	cerium 140.12		
164	Pr		
163	praseodymium 140.91		
165	Nd		
164	neodymium 144.24		
166	Pm		
165	promethium [145]		
167	Sm		
166	samarium 150.36		
168	Eu		
167	europium 151.96		
169	Gd		
168	gadolinium 157.25		
170	Tb		
169	terbium 158.93		
171	Dy		
170	dysprosium 162.5		
172	Ho		
171	holmium 164.93		
173	Er		
17			

It is possible to locally override the *global style* defined:

`\pgfPT[show title]`

Periodic Table of Elements

1	H	2	He	18																										
1	hydrogen 1.008			helium 4.0026																										
2	Li	Be		neon 20.18																										
3	Na	Mg																												
4	K	Ca																												
5	Rb	Sr																												
6	Cs	Ba																												
7	Fr	Ra																												
19	Li	Sc	Ti	21	V	Cr	25	Mn	26	Fe	27	Co	28	Ni	29	Cu	30	Zn	31	Ga	32	Ge	33	As	34	Se	35	Kr	36	Xe
20	lithium 6.94	beryllium 9.0122	scandium 44.956	titanium 47.867	vanadium 50.942	chromium 51.996	manganese 54.938	iron 55.845	cobalt 58.933	nickel 58.693	copper 63.546	zinc 65.38	gallium 69.723	germanium 72.63	arsenic 74.922	selenium 78.971	bromine 79.904	krypton 83.798	xenon 131.29											
21	potassium 39.098	calcium 40.078	strontium 88.906	barium 132.91	lanthanum 137.33	cerium 140.12	praseodymium 140.91	neodymium 144.24	promethium 145	europium 150.36	gadolinium 151.96	terbium 157.25	dysprosium 162.5	holmium 164.93	erbium 167.26	thulium 168.93	yterbium 173.05	lutetium 174.97												
22	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr	Xe												
23	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr	Xe													
24	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr	Xe														
25	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr	Xe															
26	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr	Xe																
27	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr	Xe																	
28	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr	Xe																		
29	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr	Xe																			
30	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr	Xe																				
31	Cu	Zn	Ga	Ge	As	Se	Br	Kr	Xe																					
32	Zn	Ga	Ge	As	Se	Br	Kr	Xe																						
33	Ga	Ge	As	Se	Br	Kr	Xe																							
34	Ge	As	Se	Br	Kr	Xe																								
35	As	Se	Br	Kr	Xe																									
36	Se	Br	Kr	Xe																										
37	Br	Kr	Xe																											
38	Kr	Xe																												
39	Xe																													
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► Utilization of \pgfPTbuildcell(nrows,ncolumns)[entries]

With `\pgfPTbuildcell` it is possible to customize the *elementar* cell of the Periodic Table. Each cell is built on the given *number of rows* and *number of columns*. After that, each *entry* is constructed according to the structure *row;column;what* or initial *row*-final *row*;initial *column*-final *column*;what.

- ✓ The first *syntax* – *row;column;what* – puts «*what*» in the «*row*» row and in the «*column*» column with the height of one row and the width of one column:
 - for example, `1;1;Z` puts the atomic number `Z` in row `1` and column `1`, which actually corresponds to a box anchored to the top left corner of the cell and that *goes* below and to the right of that corner.
- ✓ The second *syntax* – *initial row-final row;initial column-final column;what* – puts «*what*» from «*initial row*» to «*final row*» with the height of final row–initial row+1 and from «*initial column*» to «*final column*» with the width of final column–initial column+1. It is important to keep in mind that when using this syntax the *row* and *column* could have any value between `1` and **number of rows** and **number of columns**, respectively.
 - for example, `1;1-2.1;Z` puts the atomic number `Z` in row `1` with the height of one row and from column `1` to *column 2.1*, with the width of $2.1 \times \text{column}$. Note that in this example the two *syntaxes* are mixed up.

The **default cell** of the Periodic Table is constructed with the command:

```
\pgfPTbuildcell(5,3)% 5 rows by 3 columns
[(1;1-2;Z),(1;3;radio),(2-3;1.5-2.5;CS),(4;1-3;name),(5;1-3;Ar)]
```

► Utilization of \pgfPTresetcell

The `\pgfPTresetcell` resets the cell to its default layout.

► Utilization of \pgfPTbuildcellstyle{name}(nrows,ncol...)[entr...]

The `\pgfPTbuildcellstyle` command works like `\pgfPTbuildcell`, but stores the cell style under the `name` provided. It is only used when called via the `cell style` passed as an option to `\pgfPT`. Otherwise it remains unavailable, unlike the `\pgfPTbuildcell` command which immediately affects the cells of the Periodic Table.

► Utilization of \pgfPTpreviewcell

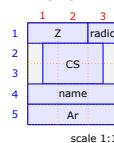
The main purpose of this command is to show the built cell for *debugging*. With `\pgfPTpreviewcell` you can preview the last unnamed built cell with an optional `scale factor`. If no cells have yet been built, the default cell is shown.

```
\pgfPTpreviewcell
```

Using the last cell built

The build command:

```
\pgfPTbuildcell(5,3)%
[(1;1-2;Z),(1;3;radio),(2-3;1.5-3.5;CS),(4;1-3;name),(5;1-3;Ar)]
```



```
\pgfPTbuildcell(8,3)% 8 rows by 3 columns
[(1;1-2;Z),(1;3;radio),(2-3;1.5-3.5;CS),(4-5;1-3;name),
(6;1-3;spectra),(7;1-3;DiscC),(8;1-3;DiscY)]
\pgfPTpreviewcell[1.8]
```

Using the last cell built

The build command:

```
\pgfPTbuildcell(8,3)%
[(1;1-2;Z),(1;3;radio),(2-3;1.5-3.5;CS),(4-5;1-3;name),(6;1-3;spectra),(7;1-3;DiscC),(8;1-3;DiscY)]
```

	1	2	3
1	Z	radio	
2		CS	
3			
4		name	
5			
6		spectra	
7		DiscC	
8		DiscY	

scale 1.8:1

► Utilization of `\pgfPTpreviewcellstyle{name}`

This previews a *named* cell, again with the optional `scale` factor.

```
\pgfPTpreviewcellstyle{myname}
```

User style **myname** doesn't exist! ()

```
\pgfPTbuildcellstyle{myname}(5,3)% 5 rows by 3 columns
[(1;1-2;Z),(1;3;radio),(2-3;1.5-3.5;CS),(4;1-3;name),(5;1-3;Ar*)]
\pgfPTpreviewcellstyle[2]{myname}
```

User style **myname**

The build command:

```
\pgfPTbuildcell(5,3)%
[(1;1-2;Z),(1;3;radio),(2-3;1.5-3.5;CS),(4;1-3;name),(5;1-3;Ar*)]
```

	1	2	3
1	Z	radio	
2		CS	
3			
4		name	
5		Arstar	

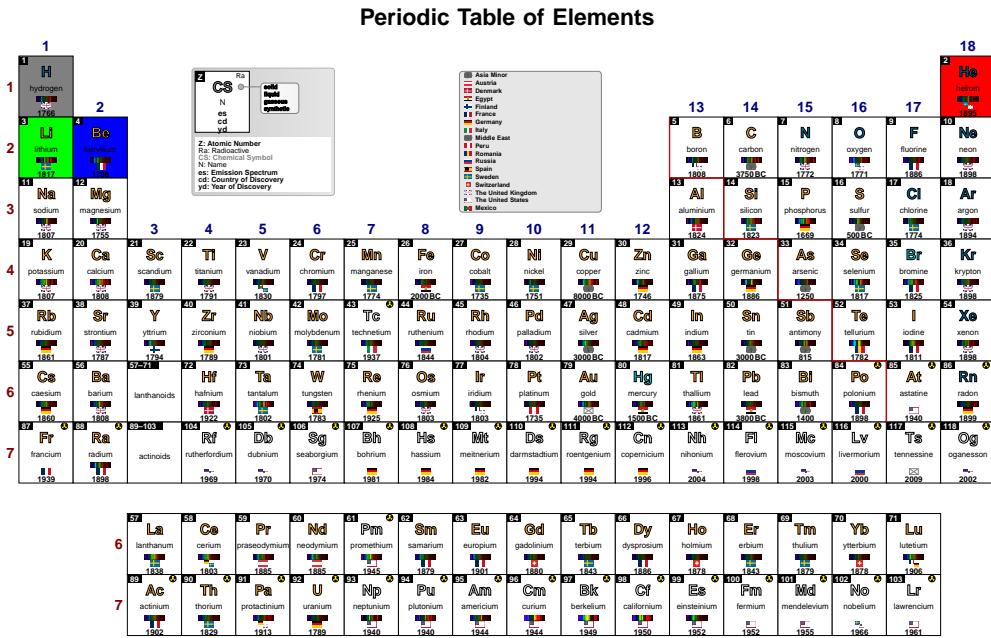
scale 2:1

► Utilization of `\pgfPTnewColorScheme{name}{color list}`

Use this command to create a *color scheme* for cells in the Periodic Table. It has two mandatory arguments – `name` and `color list` – and an optional argument – `trailing color`.

The `name` is used to identify the *color scheme*. The `color list` is a comma-separated list of red, green and blue values written as r/g/b, defined in ascending order of Z and starting at Z=1. The optional argument `trailing color` is appended to the end of the list and is used for all cells starting from this point on. It also has the form r/g/b and its default value is 1/1/1 (white).

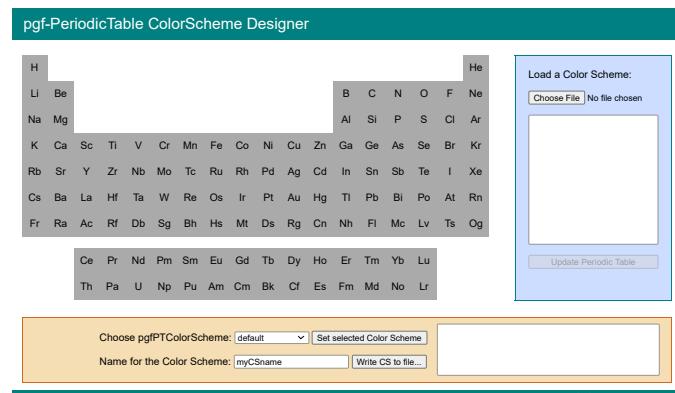
\pgfPTnewColorScheme{myname}{.5/.5/.5,1/0/0,0/1/0,0/0/1}
\pgfPT[back color scheme=myname]



There are a few *color schemes* predefined:

- ✓ **pgfPTdefault**, the default built-in color scheme, which is loaded if no value is passed to the `back color scheme` key.
- ✓ **pgfPTSoft**, a soft color pattern for cells, differentiating metals, non metals, semimetals, lanthanides and actinides.
- ✓ **pgfPTJmol**, a color scheme based upon [Jmol: an open-source Java viewer for chemical structures in 3D](#).
- ✓ **pgfPTCPK**, a color scheme that is based upon the colors of the popular plastic spacefilling models which were developed by Corey, Pauling and later improved by Kultun.
- ✓ **pgfPTRasmol** and **pgfPTRasmolNew**, two color schemes based upon the computer program [RasMol](#).
- ✓ **pgfPTWikipedia**, a color scheme built on the Periodic Table of Elements available at [Wikipedia](#).
- ✓ **pgfPTMNM**, a color pattern which distinguishes between **Metals**, semimetals and **Non Metals**.
- ✓ **pgfPTPS**, a color scheme depicting the **Physical State** at room temperature.
- ✓ **pgfPTRadio**, a two color color scheme showing the radioactivity of the elements.
- ✓ **pgfPTBlocks**, a four colored color scheme showing the *s*, *p*, *d* and *f* blocks of the Periodic Table.

Writing a color scheme can be painstaking work, so a *script* is provided for that:

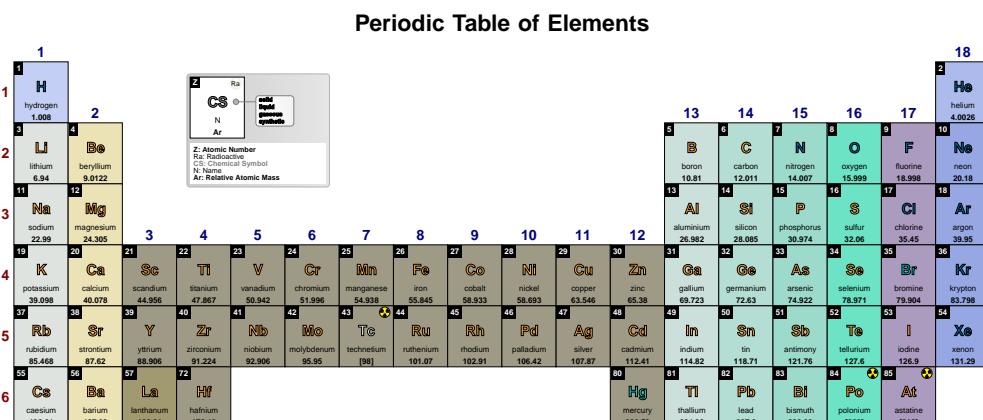


[pgfPTcolorSchemes.html](#)

► Utilization of \pgfPTnewZlist{**name**}

This command makes a user defined atomic numbers' list with the provided **name**. The list can be anything that the `\foreach` loop, defined in the `TikZ` package, can understand. For more information on how to use `\foreach` loop refer to the section *Repeating Things: The Foreach Statement* in the [pgfmanual](#).

```
\pgfPTnewZlist{myZlist}{1,...,57,72,80,81,...,85}
\pgfPT[Z list=myZlist,IUPAC=false]
```



► Utilization of \pgfPTsetLanguage{language flag}

This command globally changes the default language of the Periodic Table. If a user language has been loaded, the corresponding ISO 639-1 code can also be used as a language flag.

```
\pgfPTsetLanguage{pt}
\pgfPT
```

Tabela Periódica dos Elementos

1	H hidrógeno 1.008	2		18	He hélio 4.0026
3	Li litio 6.94	4	Be berílio 9.0122	5	B boro 10.81
11	Na sódio 22.99	12	Mg magnésio 24.305	6	C carbono 12.011
19	K potássio 39.098	20	Ca cálcio 40.078	7	N azoto 14.007
4	Rb rubidio 85.468	5	Sc escandíno 44.956	8	O oxigénio 15.999
5	Sr estrônio 87.62	21	Tl tálio 47.867	9	F flúor 18.998
6	Cs célio 132.91	22	Zr zirconio 91.224	10	Ne néon 20.18
7	Fr francício [223]	23	Nb niobio 90.906	11	Ar argón 39.95
37	Rb rubidio 85.468	38	Y protactínio 88.906	12	Al alumínio 26.982
55	Sr estrônio 87.62	39	Zr zirconio 91.224	13	Si silício 28.085
56	Cs célio 132.91	40	Nb niobio 90.906	14	P fósforo 30.974
57	Fr francício [223]	41	Mo molibdénio 95.95	15	S enxofre 32.06
58	Ra rádio [226]	42	Tc tecnécio [98]	16	Cl cloreto 35.45
59	Ce cério 140.12	43	Ru ruténio 101.07	17	Ar argón 39.95
60	Pr praseodímio 140.91	44	Rh rodígio 102.91	18	Kr krypton 83.798
61	Nd neodímio 144.24	45	Tc tecnécio [98]	19	Xe xénon 131.29
62	Pm promécio [145]	46	Ru ruténio 101.07	20	I iodio 126.9
63	Sm samário 150.36	47	Rh rodígio 102.91	21	Te telúrio 127.6
64	Eu européio 151.96	48	Pd paládio 106.42	22	Br brometo 79.904
65	Gd gadolinio 157.25	49	Ag prata 107.87	23	Kr krypton 83.798
66	Tb terbílio 158.93	50	Cd cadmio 112.41	24	Xe xénon 131.29
67	Dy disprósio 162.5	51	In estanho 114.82	25	I iodio 126.9
68	Ho holímio 164.93	52	Sn estanho 116.71	26	Te telúrio 127.6
69	Er érbio 167.26	53	Sb antimónio 121.76	27	Br brometo 79.904
70	Tm tântalo 168.93	54	Te telúrio 127.6	28	Kr krypton 83.798
71	Yb iérbio 173.05	55	I iodio 126.9	29	Xe xénon 131.29
6	La lanthanio 138.91	56	Ce cério 140.91	30	At astátio [210]
7	Ac actínio [227]	57	Pr praseodímio 140.91	31	Rn rádon [222]
55	La lanthanio 138.91	58	Ce cério 140.91	32	He hélio 4.0026
56	Ce cério 140.12	59	Pr praseodímio 140.91	33	Ar argón 39.95
57	Pr praseodímio 140.91	60	Nd neodímio 144.24	34	Kr krypton 83.798
58	Nd neodímio 144.24	61	Pm promécio [145]	35	Xe xénon 131.29
59	Pm promécio [145]	62	Sm samário 150.36	36	Br brometo 79.904
60	Sm samário 150.36	63	Eu européio 151.96	37	Kr krypton 83.798
61	Eu européio 151.96	64	Gd gadolinio 157.25	38	Xe xénon 131.29
62	Gd gadolinio 157.25	65	Tb terbílio 158.93	39	Ar argón 39.95
63	Tb terbílio 158.93	66	Dy disprósio 162.5	40	Kr krypton 83.798
64	Dy disprósio 162.5	67	Ho holímio 164.93	41	Xe xénon 131.29
65	Ho holímio 164.93	68	Er érbio 167.26	42	Br brometo 79.904
66	Er érbio 167.26	69	Tm tântalo 168.93	43	Kr krypton 83.798
67	Tm tântalo 168.93	70	Yb iérbio 173.05	44	Xe xénon 131.29
68	Yb iérbio 173.05	71	Lu lutécio 174.97	45	Ar argón 39.95
69	Lu lutécio 174.97	72	La lanthanio 138.91	46	Kr krypton 83.798
70	Lu lutécio 174.97	73	Ce cério 140.12	47	Xe xénon 131.29
71	Lu lutécio 174.97	74	Pr praseodímio 140.91	48	Ar argón 39.95
6	La lanthanio 138.91	75	Nd neodímio 144.24	49	Kr krypton 83.798
7	Ac actínio [227]	76	Pm promécio [145]	50	Xe xénon 131.29
55	La lanthanio 138.91	77	Sm samário 150.36	51	Ar argón 39.95
56	Ce cério 140.12	78	Eu européio 151.96	52	Kr krypton 83.798
57	Pr praseodímio 140.91	79	Gd gadolinio 157.25	53	Xe xénon 131.29
58	Nd neodímio 144.24	80	Tb terbílio 158.93	54	Ar argón 39.95
59	Pm promécio [145]	81	Dy disprósio 162.5	55	Kr krypton 83.798
60	Sm samário 150.36	82	Ho holímio 164.93	56	Xe xénon 131.29
61	Eu européio 151.96	83	Er érbio 167.26	57	Ar argón 39.95
62	Gd gadolinio 157.25	84	Tm tântalo 168.93	58	Kr krypton 83.798
63	Tb terbílio 158.93	85	Yb iérbio 173.05	59	Xe xénon 131.29
64	Dy disprósio 162.5	86	Lu lutécio 174.97	60	Ar argón 39.95
65	Ho holímio 164.93	87	La lanthanio 138.91	61	Kr krypton 83.798
66	Er érbio 167.26	88	Ce cério 140.12	62	Xe xénon 131.29
67	Tm tântalo 168.93	89	Pr praseodímio 140.91	63	Ar argón 39.95
68	Yb iérbio 173.05	90	Nd neodímio 144.24	64	Kr krypton 83.798
69	Lu lutécio 174.97	91	Pm promécio [145]	65	Xe xénon 131.29
70	Lu lutécio 174.97	92	Sm samário 150.36	66	Ar argón 39.95
71	Lu lutécio 174.97	93	Eu européio 151.96	67	Kr krypton 83.798
6	La lanthanio 138.91	94	Gd gadolinio 157.25	68	Xe xénon 131.29
7	Ac actínio [227]	95	Tb terbílio 158.93	69	Ar argón 39.95
55	La lanthanio 138.91	96	Dy disprósio 162.5	70	Kr krypton 83.798
56	Ce cério 140.12	97	Ho holímio 164.93	71	Xe xénon 131.29
57	Pr praseodímio 140.91	98	Er érbio 167.26	72	Ar argón 39.95
58	Nd neodímio 144.24	99	Tm tântalo 168.93	73	Kr krypton 83.798
59	Pm promécio [145]	100	Yb iérbio 173.05	74	Xe xénon 131.29
60	Sm samário 150.36	101	Lu lutécio 174.97	75	Ar argón 39.95
61	Eu européio 151.96	102	La lanthanio 138.91	76	Kr krypton 83.798
62	Gd gadolinio 157.25	103	Ce cério 140.12	77	Xe xénon 131.29
63	Tb terbílio 158.93	104	Pr praseodímio 140.91	78	Ar argón 39.95
64	Dy disprósio 162.5	105	Nd neodímio 144.24	79	Kr krypton 83.798
65	Ho holímio 164.93	106	Pm promécio [145]	80	Xe xénon 131.29
66	Er érbio 167.26	107	Sm samário 150.36	81	Ar argón 39.95
67	Tm tântalo 168.93	108	Eu européio 151.96	82	Kr krypton 83.798
68	Yb iérbio 173.05	109	Gd gadolinio 157.25	83	Xe xénon 131.29
69	Lu lutécio 174.97	110	Tb terbílio 158.93	84	Ar argón 39.95
70	Lu lutécio 174.97	111	Dy disprósio 162.5	85	Kr krypton 83.798
71	Lu lutécio 174.97	112	Ho holímio 164.93	86	Xe xénon 131.29
6	La lanthanio 138.91	113	Er érbio 167.26	87	Ar argón 39.95
7	Ac actínio [227]	114	Tm tântalo 168.93	88	Kr krypton 83.798
55	La lanthanio 138.91	115	Yb iérbio 173.05	89	Xe xénon 131.29
56	Ce cério 140.12	116	Lu lutécio 174.97	90	Ar argón 39.95
57	Pr praseodímio 140.91	117	La lanthanio 138.91	91	Kr krypton 83.798
58	Nd neodímio 144.24	118	Ce cério 140.12	92	Xe xénon 131.29
59	Pm promécio [145]	119	Pr praseodímio 140.91	93	Ar argón 39.95
60	Sm samário 150.36	120	Nd neodímio 144.24	94	Kr krypton 83.798
61	Eu européio 151.96	121	Pm promécio [145]	95	Xe xénon 131.29
62	Gd gadolinio 157.25	122	Sm samário 150.36	96	Ar argón 39.95
63	Tb terbílio 158.93	123	Eu européio 151.96	97	Kr krypton 83.798
64	Dy disprósio 162.5	124	Gd gadolinio 157.25	98	Xe xénon 131.29
65	Ho holímio 164.93	125	Tb terbílio 158.93	99	Ar argón 39.95
66	Er érbio 167.26	126	Dy disprósio 162.5	100	Kr krypton 83.798
67	Tm tântalo 168.93	127	Ho holímio 164.93	101	Xe xénon 131.29
68	Yb iérbio 173.05	128	Er érbio 167.26	102	Ar argón 39.95
69	Lu lutécio 174.97	129	Tm tântalo 168.93	103	Kr krypton 83.798
70	Lu lutécio 174.97	130	Yb iérbio 173.05	104	Xe xénon 131.29
71	Lu lutécio 174.97	131	Lu lutécio 174.97	105	Ar argón 39.95

```
\pgfPTsetLanguage{en}
\pgfPT
```

Periodic Table of Elements

1	H hydrogen 1.008	2		18	He helium 4.0026
3	Li lithium 6.94	4	Be beryllium 9.0122	5	B boro 10.81
11	Na sódio 22.99	12	Mg magnésio 24.305	6	C carbono 12.011
19	K potássio 39.098	20	Ca cálcio 40.078	7	N azoto 14.007
4	Rb rubidio 85.468	5	Sc escandíno 44.956	8	O oxigénio 15.999
5	Sr estrônio 87.62	21	Tl tálio 47.867	9	F flúor 18.998
6	Cs célio 132.91	22	Zr zirconio 91.224	10	Ne néon 20.18
7	Fr francício [223]	39	Y protactínio 88.906	11	Ar argón 39.95
37	Rb rubidio 85.468	40	Y protactínio 88.906	12	Al alumínio 26.982
55	Sr estrônio 87.62	41	Nb niobio 90.906	13	Si silício 28.085
56	Cs célio 132.91	42	Mo molibdénio 95.95	14	P fósforo 30.974
57	Fr francício [223]	43	Tc tecnécio [98]	15	S enxofre 32.06
58	Ra rádio [226]	44	Ru ruténio 101.07	16	Cl cloreto 35.45
59	Ce cério 140.12	45	Rh rodígio 102.91	17	Ar argón 39.95
60	Pr praseodímio 140.91	46	Pd paládio 106.42	18	Kr krypton 83.798
61	Nd neodímio 144.24	47	Ag prata 107.87	19	Xe xénon 131.29
62	Pm promécio [145]	48	Cd cadmio 112.41	20	I iodio 126.9
63	Sm samário 150.36	49	In estanho 114.82	21	Te telúrio 127.6
64	Eu européio 151.96	50	Sn estanho 116.71	22	Br brometo 79.904
65	Gd gadolinio 157.25	51	Sb antimónio 121.76	23	Kr krypton 83.798
66	Tb terbílio 158.93	52	Ge germanio 72.63	24	Xe xénon 131.29
67	Dy disprósio 162.5	53	In estanho 116.71	25	Ar argón 39.95
68	Ho holímio 164.93	54	Sn estanho 121.76	26	Kr krypton 83.798
69	Er érbio 167.26	55	Sb antimónio 121.76	27	Xe xénon 131.29
70	Tm tântalo 168.93	56	Te telúrio 127.6	28	Ar argón 39.95
71	Yb iérbio 173.05	57	Br brometo 79.904	29	Kr krypton 83.798
6	La lanthanio 138.91	58	Cs césio 132.91	30	Xe xénon 131.29
7	Ac actínio [227]	59	Pr praseodímio 140.91	31	Ar argón 39.95
55	La lanthanio 138.91	60	Nd neodímio 144.24	32	Kr krypton 83.798
56	Ce cério 140.12	61	Pm promécio [145]	33	Xe xénon 131.29
57	Pr praseodímio 140.91	62	Sm samário 150.36	34	Ar argón 39.95
58	Nd neodímio 144.24	63	Eu européio 151.96	35	Kr krypton 83.798
59	Pm promécio [145]	64	Gd gadolinio 157.25	36	Xe xénon 131.29
60	Sm samário 150.36	65	Tb terbílio 158.93	37	Ar argón 39.95
61	Eu européio 151.96	66	Dy disprósio 162.5	38	Kr krypton 83.798
62	Gd gadolinio 157.25	67	Ho holímio 164.93	39	Xe xénon 131.29
63	Tb terbílio 158.93	68	Er érbio 167.26	40	Ar argón 39.95
64	Dy disprósio 162.5	69	Tm tântalo 168.93	41	Kr krypton 83.798
65	Ho holímio 164.93	70	Yb iérbio 173.05	42	Xe xénon 131.29
66	Er érbio 167.26	71	Lu lutécio 174.97	43	Ar argón 39.95
67	Tm tântalo 168.93	72	La lanthanio 138.91	44	Kr krypton 83.798
68	Yb iérbio 173.05	73	Ce cério 140.12	45	Xe xénon 131.29

```
% \usepackage[userlang=nl]{pgf-PeriodicTable}
\pgfPTsetLanguage{nl}
\pgfPT
```

Periodiek Systeem van de Elementen

1	2																			18
1 H waterstof 1.008	2 He helium 4.0326																			2 He helium 4.0326
3 Li lijm 6.94	4 Be beryllium 9.0122																			3 Li lijm 6.94
5 Na natrum 22.99	6 Mg magnesium 24.305																			5 Na natrum 22.99
7 K kalium 39.0988	8 Ca calcium 40.078																			7 K kalium 39.0988
9 Sc scandium 44.956	10 Ti titanium 47.867																			9 Sc scandium 44.956
11 V vanadium 50.942	12 Cr chrom 51.986																			11 V vanadium 50.942
13 Mn mangani 54.938	14 Fe ijzer 55.845																			13 Mn mangani 54.938
15 Co kobalt 58.933	16 Ni nikkel 58.693																			15 Co kobalt 58.933
17 Cu koper 63.546	18 Zn zink 65.38																			17 Cu koper 63.546
19 Ga galium 69.723	20 Ge germanium 72.63																			19 Ga galium 69.723
21 Sc scandium 87.62	22 Ti titanium 91.224																			21 Sc scandium 87.62
23 V vandium 92.906	24 Cr chrom 95.95																			23 V vandium 92.906
25 Mn mangani 95.95	26 Fe ijzer 95.845																			25 Mn mangani 95.95
27 Co kobalt 98.933	28 Ni nikkel 98.693																			27 Co kobalt 98.933
29 Cu koper 98.546	30 Zn zink 98.38																			29 Cu koper 98.546
31 Ga galium 114.82	32 Ge germanium 116.71																			31 Ga galium 114.82
33 As arsien 121.76	34 Se selenie 127.6																			33 As arsien 121.76
35 Br broom 128.9	36 Kr krypton 131.29																			35 Br broom 128.9
37 Rb rubidium 132.91	38 Sr strontium 137.33																			37 Rb rubidium 132.91
39 Y yttrium 178.49	40 Zr zirkonium 180.95																			39 Y yttrium 178.49
41 Nb niobium 183.84	42 Mo molybdeen 190.23																			41 Nb niobium 183.84
43 Tc technetium [98]	44 Ru rhodium 102.91																			43 Tc technetium [98]
45 Rh rhodium 106.42	46 Pd palladium 107.87																			45 Rh rhodium 106.42
47 Ag argentum 109.97	48 Cd cadmium 112.41																			47 Ag argentum 109.97
49 In indium 114.82	50 Sn tantaal 116.71																			49 In indium 114.82
51 Sb antimoon 121.76	52 Te telluur 127.6																			51 Sb antimoon 121.76
53 Po polonium [209]	54 At astaat [210]																			53 Po polonium [209]
55 Cs cesium 132.91	56 Ba barium 137.33																			55 Cs cesium 132.91
57 La lanthaan 138.91	58 Ce cerium 140.12																			57 La lanthaan 138.91
59 Pr praseodymium 140.91	60 Nd neodymium 144.24																			59 Pr praseodymium 140.91
61 Pm promethium [145]	62 Sm samarium 150.36																			61 Pm promethium [145]
63 Eu europium 151.96	64 Gd gadolinium 157.25																			63 Eu europium 151.96
65 Tb terbium 158.93	66 Dy dysprosium 162.5																			65 Tb terbium 158.93
67 Ho holmium 164.93	68 Er erbium 167.26																			67 Ho holmium 164.93
69 Tm thulium 168.93	70 Yb ytterbium 173.05																			69 Tm thulium 168.93
71 Lu lutetium 174.97																				71 Lu lutetium 174.97
72 Ac actinium [227]	73 Th thorium 232.04																			72 Ac actinium [227]
74 Pa protactinium 231.04	75 U uranium 238.03																			74 Pa protactinium 231.04
76 Np plutonium [244]	77 Pu plutonium [243]																			76 Np plutonium [244]
78 Am americium [247]	79 Cm curium [243]																			78 Am americium [247]
80 Bk berkelium [247]	81 Cf californium [251]																			80 Bk berkelium [247]
82 Es einsteinium [257]	83 Fm fermium [256]																			82 Es einsteinium [257]
84 Md mendelevium [258]	85 No nobelium [259]																			84 Md mendelevium [258]
86 Og oganesson [266]																				86 Og oganesson [266]

Options for \pgfPT: creating a «Periodic Table»

For the commands `\pgfPT` and `\pgfPTstyle` there are a set of options available to draw the Periodic Table or any portion of the Periodic Table, as described below.

The list of options is a comma separated list of any of the following elements:

- ~ a 'key' or a 'key=value' pair,
- ~ a 'style' or a 'style=value' pair,
- ~ a *pseudo style* with a proper syntax: 'style={key 1=value 1, key 2=value 2, ... , key n=value n}', where none of the 'keys' are mandatory.

The options *can be divided* in two subsets, one that affects the *appearance* of the *entire* Periodic Table, the other that concerns the *contents* of each cell of the Periodic Table.

☒ Periodic Table options: keys, styles and pseudo styles

The following options and styles are used to *control* the Periodic Table *as a whole* in various aspects, such as the `cell width` or `cell height`, which elements are displayed (`Z list`), whether the title or legend are shown – `show title` or `show legend` – among others.

⇒ General layout

Z list

default: `all`

Set's the list of the elements to display in the Periodic Table. It could be a `name` or a `comma separated` list of atomic numbers, which in turn supports the *dots notation* as explained in the section *Repeating Things: The Foreach Statement* in the *pgfmanual*.

`\pgfPT[Z list={1,...,36}]`

Periodic Table of Elements

1	H	2	He
1	hydrogen 1.008	2	helium 4.0026
3	Li	4	B
2	lithium 6.94	3	beryllium 9.0122
11	Na	12	Mg
3	sodium 22.99	4	magnesium 24.305
19	K	20	Ca
4	potassium 39.098	5	calcium 40.078
21	Sc	22	Ti
23	V	24	Cr
25	Mn	26	Fe
27	Co	28	Ni
29	Cu	30	Zn
31	Ga	32	Ge
33	As	34	Se
35	Br	36	Kr
5	B	6	C
13	Al	14	Si
15	P	16	S
17	Cl	18	Ar
10	Ne	11	Neon 20.18
12	boron 10.81	13	carbon 12.011
14	nitrogen 14.007	15	oxygen 15.999
16	phosphorus 30.974	17	fluorine 18.998
18	sulfur 32.06	19	chlorine 35.45
20	chlorine 35.45	21	argon 39.95
22	aluminum 26.982	23	silicon 28.085
24	chromium 51.996	25	manganese 54.938
26	iron 55.845	27	cobalt 58.933
28	nickel 58.693	29	copper 63.546
30	zinc 65.38	31	gallium 69.723
32	germanium 72.63	33	arsenic 74.922
34	selenium 78.971	35	bromine 79.904
36	krypton 83.798		

The possible `name` is one of the following:

✓ built-in:

- ▷ 'all' is equivalent to `Z list={1,...,118}`, i.e., all known elements.
- ▷ 's', 'p', 'd' or 'f', for the elements in the corresponding blocks.
- ▷ 'sp', 'spd', for the elements resulting from merging the corresponding blocks.
- ▷ 'lanthanoids' or simply 'La', for lanthanoids [†].
- ▷ 'actinoids' or 'Ac', for actinoids [†].
- ▷ 'G1*', 'G1', ..., 'G18', which are used, respectively, for the elements of *group 1 without hydrogen*, *group 1, ..., group 18*.
- ▷ 'P1', ..., 'P7', 'P6*', 'P7*', which are used, respectively, for the elements of the *1st period*, ..., *7th period*, *6th period and lanthanoids* [†], *7th period and actinoids* [†].

[†] Depending on the value of the *IUPAC* key, the Lanthanum or Actinium are or are not included.

✓ any **user defined** name via `\pgfPTnewZlist{name}{list}`

cell width

default: 34pt

Sets the width of each base cell of the Periodic Table.

\pgfPT[Z list={1,...,36},cell width=40pt]

Periodic Table of Elements

1	H	He
hydrogen 1.008		helium 4.0026
2	Li	He
lithium 6.94		helium 4.0026
3	B	Ne
boron 10.81		neon 20.18
4	Be	Ar
beryllium 9.0122		argon 39.95
5	Mg	Kr
magnesium 24.305		krypton 83.798
6	Na	Cs
sodium 22.99	caesium 40.078	rubidium 44.956
7	Al	Tl
	aluminum 26.982	thallium 47.867
8	Si	V
	silicon 28.085	vanadium 50.942
9	P	Cr
	phosphorus 30.974	chromium 51.996
10	S	Mn
	sulfur 32.06	manganese 54.938
11	Cl	Fe
	chlorine 35.45	iron 55.845
12	Ar	Co
	argon 39.95	cobalt 58.933
13	O	Ni
	oxygen 15.999	nickel 58.693
14	F	Cu
	fluorine 18.998	copper 63.546
15	N	Zn
	nitrogen 14.007	zinc 65.38
16	O	Ga
	oxygen 15.999	gallium 69.723
17	F	Ge
	fluorine 18.998	germanium 72.63
18	He	As
	helium 4.0026	arsenic 74.922
		Se
		selenium 78.971
		Br
		bromine 79.904
		Kr
		krypton 83.798

cell height

default: 38.25pt

Sets the height of each base cell of the Periodic Table.

\pgfPT[Z list={1,...,36},cell height=50pt]

Periodic Table of Elements

1	H	He
hydrogen 1.008		helium 4.0026
2	Be	F
lithium 6.94	beryllium 9.0122	fluorine 18.998
3	Mg	Ne
sodium 22.99	magnesium 24.305	neon 20.18
4	Ca	Ar
potassium 39.098	calcium 40.078	argon 39.95
5	Cr	Kr
scandium 44.956	titanium 47.867	krypton 83.798
6	V	Br
vanadium 50.942	chromium 51.996	bromine 79.904
7	Mn	Rb
manganese 54.938	iron 55.845	rubidium 87.791
8	Fe	Y
iron 56.833	cobalt 58.693	yttrium 89.904
9	Co	Ta
nickel 58.693	copper 63.546	taurium 101.904
10	Ni	W
zinc 65.38	zinc 69.723	wanaganium 183.904
11	Cu	Re
copper 63.546	germanium 72.63	rhenium 186.904
12	Zn	Pt
zinc 65.38	gallium 69.723	platimum 190.904
13	B	Ir
boron 10.81	carbon 12.011	iridium 192.904
14	C	Os
carbon 12.011	nitrogen 14.007	osmium 190.904
15	N	Ir
nitrogen 14.007	oxygen 15.999	iridium 192.904
16	O	Te
oxygen 15.999	fluorine 18.998	tellurium 127.904
17	F	Se
fluorine 18.998	chlorine 35.45	selenium 78.971
18	Ne	Br
neon 20.18	argon 39.95	bromine 79.904

cell size

default: 38.25pt

Style to set both the width and the height of each base cell of the Periodic Table.

```
\pgfPT[Z list={1,...,36},cell size=40pt]
```

Periodic Table of Elements

cell line widthdefault: *0.4pt*

Sets the width of the line surrounding the base cell of the Periodic Table.

\pgfPT[Z list={1,...,36},cell line width=2pt]

Periodic Table of Elements																	
1 H hydrogen 1.008	2 He helium 4.0026	3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si silicon 28.085	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 Ar argon 39.95
19 K potassium 39.098	20 Ca calcium 40.078	21 Sc scandium 44.956	22 Ti titanium 47.867	23 V vanadium 50.942	24 Cr chromium 51.996	25 Mn manganese 54.938	26 Fe iron 55.845	27 Co cobalt 58.933	28 Ni nickel 58.693	29 Cu copper 63.546	30 Zn zinc 65.38	31 Ga gallium 69.723	32 Ge germanium 72.63	33 As arsenic 74.922	34 Se selenium 78.971	35 Br bromine 79.904	36 Kr krypton 83.798
3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si silicon 28.085	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 Ar argon 39.95	19 K potassium 39.098	20 Ca calcium 40.078

cell line colordefault: *black*

Sets the color of the line surrounding the base cell of the Periodic Table.

\pgfPT[Z list={1,...,36},cell line color=red]

Periodic Table of Elements																	
1 H hydrogen 1.008	2 He helium 4.0026	3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si silicon 28.085	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 Ar argon 39.95
19 K potassium 39.098	20 Ca calcium 40.078	21 Sc scandium 44.956	22 Ti titanium 47.867	23 V vanadium 50.942	24 Cr chromium 51.996	25 Mn manganese 54.938	26 Fe iron 55.845	27 Co cobalt 58.933	28 Ni nickel 58.693	29 Cu copper 63.546	30 Zn zinc 65.38	31 Ga gallium 69.723	32 Ge germanium 72.63	33 As arsenic 74.922	34 Se selenium 78.971	35 Br bromine 79.904	36 Kr krypton 83.798
3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si silicon 28.085	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 Ar argon 39.95	19 K potassium 39.098	20 Ca calcium 40.078

cell style

default: {}

Loads a named cell style, built via \pgfPTbuildcellstyle, to use as a layout for each cell of the Periodic Table.

\pgfPTbuildcellstyle{myname}{(5,3)}% 5 rows by 3 columns

[(1;1-2;Z),(1;3;ls),(2-3;1.5-2.5;CS),(4;1-3;name),(5;1-3;eConfign)]

\pgfPT[Z list={1,...,36},cell style=myname]

Periodic Table of Elements																	
1 H hydrogen 1.008	2 He helium 4.0026	3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si silicon 28.085	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 Ar argon 39.95
19 K potassium 39.098	20 Ca calcium 40.078	21 Sc scandium 44.956	22 Ti titanium 47.867	23 V vanadium 50.942	24 Cr chromium 51.996	25 Mn manganese 54.938	26 Fe iron 55.845	27 Co cobalt 58.933	28 Ni nickel 58.693	29 Cu copper 63.546	30 Zn zinc 65.38	31 Ga gallium 69.723	32 Ge germanium 72.63	33 As arsenic 74.922	34 Se selenium 78.971	35 Br bromine 79.904	36 Kr krypton 83.798
3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si silicon 28.085	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 Ar argon 39.95	19 K potassium 39.098	20 Ca calcium 40.078

celldefault: `{w=34pt,h=38.25pt,lw=.4pt,lc=black}`

Pseudo style to set the cell **width**, the cell **height**, the cell **size**, the cell **line width**, the cell **line color** and/or the cell **style**. None of the keys – w, h, s, lw, lc and style – are mandatory.

USAGE: `cell={w=<length>,h=<length>,s=<length>,lw=<length>,lc=<color>,style=<name>}`

`\pgfPT[Z list={1,...,36},cell={w=40pt,h=50pt,lw=.6pt,lc=blue}]`

Periodic Table of Elements

1 H hydrogen 1.008	2 He helium 4.0026
3 Li lithium 6.94	4 Be beryllium 9.0122
11 Na sodium 22.99	12 Mg magnesium 24.305
19 K potassium 39.098	20 Ca calcium 40.078
21 Sc scandium 44.956	22 Ti titanium 47.867
23 V vanadium 50.942	24 Cr chromium 51.996
25 Mn manganese 54.938	26 Fe iron 55.845
27 Co cobalt 58.933	28 Ni nickel 58.693
29 Cu copper 63.546	30 Zn zinc 65.38
31 Ga gallium 69.723	32 Ge germanium 72.63
33 As arsenic 74.922	34 Se selenium 78.971
35 Br bromine 79.904	36 Kr krypton 83.798
13 B boron 10.81	14 C carbon 12.011
15 N nitrogen 14.007	16 O oxygen 15.999
17 F fluorine 18.998	18 Ne neon 20.18
19 Al aluminum 26.982	20 Si silicon 28.085
21 P phosphorus 30.974	22 S sulfur 32.06
23 Cl chlorine 35.45	24 Ar argon 39.95

fontdefault: *phv* (*pdfLATEX*); *TeX Gyre Heros* (*XeLATEX* or *LuaLATEX*)

Sets the font family, via the proper *LATEX font name*, to use in the Periodic Table.

When *pdfLATEX* is used to typeset the Periodic Table the *default* font is *phv*, i.e., the Helvetica font. In this case the value of the **font** key can be any *LATEX font name* known to the local *LATEX* installation.

When *XeLATEX* or *LuaLATEX* are used to typeset the Periodic Table the *default* font is *TeX Gyre Heros*, a closest alternative to Helvetica font. In this case the value of the **font** key can be any *font name known to your Operating System* and with *LuaLATEX* it can also be any *font name available in your TEXMF tree*.

See *LATEX font names* below or the [fontspec documentation](#) for further details.
(changed in v2.1.0)

Examples with *pdfLATEX*:

`\pgfPT[Z list={1,...,36},font=ptm]`

Periodic Table of Elements

1 H hydrogen 1.008	2 He helium 4.0026
3 Li lithium 6.94	4 Be beryllium 9.0122
11 Na sodium 22.99	12 Mg magnesium 24.305
19 K potassium 39.098	20 Ca calcium 40.078
21 Sc scandium 44.956	22 Ti titanium 47.867
23 V vanadium 50.942	24 Cr chromium 51.996
25 Mn manganese 54.938	26 Fe iron 55.845
27 Co cobalt 58.933	28 Ni nickel 58.693
29 Cu copper 63.546	30 Zn zinc 65.38
31 Ga gallium 69.723	32 Ge germanium 72.63
33 As arsenic 74.922	34 Se selenium 78.971
35 Br bromine 79.904	36 Kr krypton 83.798
13 B boron 10.81	14 C carbon 12.011
15 N nitrogen 14.007	16 O oxygen 15.999
17 F fluorine 18.998	18 Ne neon 20.18
19 Al aluminum 26.982	20 Si silicon 28.085
21 P phosphorus 30.974	22 S sulfur 32.06
23 Cl chlorine 35.45	24 Ar argon 39.95

\pgfPT[Z list={1,...,36},font=RobotoSlab-TLF]

Periodic Table of Elements																	
1 H hydrogen 1.008	2 He helium 4.0026	3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si silicon 28.085	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 Ar argon 39.95
19 K potassium 39.098	20 Ca calcium 40.078	21 Sc scandium 44.955	22 Ti titanium 47.867	23 V vanadium 50.942	24 Cr chromium 51.996	25 Mn manganese 54.938	26 Fe iron 55.845	27 Co cobalt 58.933	28 Ni nickel 58.693	29 Cu copper 63.546	30 Zn zinc 65.38	31 Ga gallium 69.723	32 Ge germanium 72.63	33 As arsenic 74.922	34 Se selenium 78.971	35 Br bromine 79.904	36 Kr krypton 83.798
1 H hydrogen 1.008	2 He helium 4.0026	3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si silicon 28.085	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 Ar argon 39.95

LATEX font names:

✓ The LATEX font names commonly available in LATEX distributions are:

- Serif fonts

- ▷ cmr – Computer Modern Roman
- ▷ lmr – Latin Modern Roman
- ▷ pbk – Bookman
- ▷ bch – Charter
- ▷ pnc – New Century Schoolbook
- ▷ ppl – Palatino
- ▷ ptm – Times

- Sans Serif fonts

- ▷ cmss – Computer Modern Sans Serif
- ▷ lmss – Latin Modern Sans Serif
- ▷ pag – Avant Garde
- ▷ phv – Helvetica

✓ There are other fonts available to LATEX that require installation of the corresponding packages:

▷ the `roboto` package provides the following fonts:

- Roboto-TLF – Roboto tabular lining
- Roboto-LF – Roboto proportional lining
- Roboto-OsF – Roboto proportional oldstyle
- Roboto-TOsF – Roboto tabular oldstyle
- RobotoSlab-TLF – RobotoSlab proportional lining
- RobotoSlab-OsF – RobotoSlab proportional oldstyle
- RobotoSlab-TOsF – RobotoSlab tabular oldstyle
- RobotoMono-TLF – RobotoMono proportional lining

▷ the `frcursive` package provides the *frc* – French Cursive font.

▷ the `miamia` package provides the *frvr* – Miamia Nuera font.

▷ ...

For more information about fonts visit the [TUG Font Catalogue](#)

Examples with XeLATEX or LuaLATEX:

\pgfPT[Z list={1,...,36},font=Verdana,CS font=\fontspec{Mistral}\selectfont]

Periodic Table of Elements																	
1 H hydrogen 1.008	2 He helium 4.0026	3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si silicon 28.085	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 Ar argon 39.95
19 K potassium 39.098	20 Ca calcium 40.078	21 Sc scandium 44.956	22 Ti titanium 47.867	23 V vanadium 50.942	24 Cr chromium 51.996	25 Mn manganese 54.938	26 Fe iron 55.845	27 Co cobalt 58.933	28 Ni nickel 58.693	29 Cu copper 63.546	30 Zn zinc 65.38	31 Ga gallium 69.723	32 Ge germanium 72.63	33 As arsenic 74.922	34 Se selenium 78.971	35 Br bromine 79.904	36 Kr krypton 83.798
1 H hydrogen 1.008	2 He helium 4.0026	3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si silicon 28.085	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 Ar argon 39.95

\pgfPT[Z list={1,...,36},font=Arial,CS font=\fontspec{LCALLIG.TTF}\selectfont]

Periodic Table of Elements																	
1 H hydrogen 1.008	2 Be beryllium 9.0122	3 Li lithium 6.94	4 Mg magnesium 24.305	5 C carbon 12.011	6 N nitrogen 14.007	7 O oxygen 15.999	8 F fluorine 18.998	9 Ne neon 20.18	10 Ar argon 39.95	11 Na sodium 22.99	12 Mn manganese 54.938	13 Al aluminum 26.982	14 Si silicon 28.088	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 He helium 4.0026
19 K potassium 39.098	20 Ca calcium 40.078	21 Sc scandium 44.956	22 Ti titanium 47.867	23 V vanadium 50.942	24 Cr chromium 51.996	25 Mn manganese 54.938	26 Fe iron 55.845	27 Co cobalt 58.933	28 Ni nickel 58.693	29 Cu copper 63.546	30 Zn zinc 65.38	31 Ga gallium 69.723	32 Ge germanium 72.63	33 As arsenic 74.922	34 Se selenium 78.971	35 Br bromine 79.904	36 Kr krypton 83.798
37 Rb rubidium 64.968	38 Sr strontium 78.02	39 Y yttrium 88.900	40 Zr zirconium 91.224	41 Nb niobium 92.906	42 Mo molybdenum 95.95	43 Tc technetium [98]	44 Ru ruthenium 101.07	45 Rh rhodium 102.91	46 Pd palladium 106.42	47 Ag silver 107.87	48 Cd cadmium 112.41	49 In indium 114.82	50 Sn tin 118.71	51 Sb antimony 121.76	52 Te tellurium 127.6	53 I iodine 126.9	54 Xe xenon 131.29
55 Cs caesium 132.91	56 Ba barium 137.33	57-71 La lanthanides 138.91	72 Hf hafnium 178.49	73 Ta tantalum 180.95	74 W tungsten 183.84	75 Re rhenium 186.21	76 Os osmium 190.23	77 Ir iridium 192.22	78 Pt platinum 195.08	79 Au gold 196.97	80 Hg mercury 204.38	81 Tl thallium 204.27	82 Pb lead 207.2	83 Bi bismuth 208.98	84 Po polonium [209]	85 At astatine [210]	86 Rn radon [222]
87 Fr francium [223]	88 Ra radium [226]	89-103 actinoids [227]	104 Rf rutherfordium [267]	105 Db dubnium [268]	106 Sg seaborgium [269]	107 Bh bohrium [270]	108 Hs meitnerium [270]	109 Mt darmstadtium [276]	110 Ds roentgenium [281]	111 Rg copernicium [282]	112 Cn nihonium [286]	113 Nh florinum [289]	114 Fl moscovium [290]	115 Mc moscovium [293]	116 Lv isermorium [294]	117 Ts isotopes [294]	118 Og oganeses [294]
6 Ce cerium 140.12	59 Pr praseodymium 140.91	60 Nd neodymium 144.24	61 Pm promethium [145]	62 Sm samarium 150.36	63 Eu europium 151.96	64 Gd gadolinium 157.25	65 Tb terbium 158.8	66 Dy dysprosium 162.5	67 Ho holmium 164.93	68 Er erbium 167.26	69 Tm thulium 168.93	70 Yb ytterbium 173.05	71 Lu lutetium 174.97				
7 Ac actinium [227]	89 Th thorium 232.04	90 Pa protactinium 231.04	91 U uranium 238.03	92 Np neptunium [237]	93 Pu plutonium [244]	94 Am americium [243]	95 Cm curium [247]	96 Bk berkelium [247]	97 Cf californium [251]	98 Es einsteinium [252]	99 Fm fermium [257]	100 Md mendelevium [258]	101 No nobelium [259]	102 Lr lawrencium [266]			

back color scheme

default: pgfPTdefault

Sets a **named** back color scheme for the Periodic Table.

\pgfPT[back color scheme=pgfPTSoft]

Periodic Table of Elements																	
1 H hydrogen 1.008	2 Be beryllium 9.0122	3 Li lithium 6.94	4 Mg magnesium 24.305	5 C carbon 12.011	6 N nitrogen 14.007	7 O oxygen 15.999	8 F fluorine 18.998	9 Ne neon 20.18	10 Ar argon 39.95	11 Na sodium 22.99	12 Mn manganese 54.938	13 Al aluminum 26.982	14 Si silicon 28.088	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 He helium 4.0026
19 K potassium 39.098	20 Ca calcium 40.078	21 Sc scandium 44.956	22 Ti titanium 47.867	23 V vanadium 50.942	24 Cr chromium 51.996	25 Mn manganese 54.938	26 Fe iron 55.845	27 Co cobalt 58.933	28 Ni nickel 58.693	29 Cu copper 63.546	30 Zn zinc 65.38	31 Ga gallium 69.723	32 Ge germanium 72.63	33 As arsenic 74.922	34 Se selenium 78.971	35 Br bromine 79.904	36 Kr krypton 83.798
37 Rb rubidium 64.968	38 Sr strontium 78.02	39 Y yttrium 88.900	40 Zr zirconium 91.224	41 Nb niobium 92.906	42 Mo molybdenum 95.95	43 Tc technetium [98]	44 Ru ruthenium 101.07	45 Rh rhodium 102.91	46 Pd palladium 106.42	47 Ag silver 107.87	48 Cd cadmium 112.41	49 In indium 114.82	50 Sn tin 118.71	51 Sb antimony 121.76	52 Te tellurium 127.6	53 I iodine 126.9	54 Xe xenon 131.29
55 Cs caesium 132.91	56 Ba barium 137.33	57-71 La lanthanides 138.91	72 Hf hafnium 178.49	73 Ta tantalum 180.95	74 W tungsten 183.84	75 Re rhenium 186.21	76 Os osmium 190.23	77 Ir iridium 192.22	78 Pt platinum 195.08	79 Au gold 196.97	80 Hg mercury 204.38	81 Tl thallium 204.27	82 Pb lead 207.2	83 Bi bismuth 208.98	84 Po polonium [209]	85 At astatine [210]	86 Rn radon [222]
87 Fr francium [223]	88 Ra radium [226]	89-103 actinoids [227]	104 Rf rutherfordium [267]	105 Db dubnium [268]	106 Sg seaborgium [269]	107 Bh bohrium [270]	108 Hs meitnerium [270]	109 Mt darmstadtium [276]	110 Ds roentgenium [281]	111 Rg copernicium [282]	112 Cn nihonium [286]	113 Nh florinum [289]	114 Fl moscovium [290]	115 Mc moscovium [293]	116 Lv isermorium [294]	117 Ts isotopes [294]	118 Og oganeses [294]
6 Ce cerium 140.12	59 Pr praseodymium 140.91	60 Nd neodymium 144.24	61 Pm promethium [145]	62 Sm samarium 150.36	63 Eu europium 151.96	64 Gd gadolinium 157.25	65 Tb terbium 158.8	66 Dy dysprosium 162.5	67 Ho holmium 164.93	68 Er erbium 167.26	69 Tm thulium 168.93	70 Yb ytterbium 173.05	71 Lu lutetium 174.97				
7 Ac actinium [227]	89 Th thorium 232.04	90 Pa protactinium 231.04	91 U uranium 238.03	92 Np neptunium [237]	93 Pu plutonium [244]	94 Am americium [243]	95 Cm curium [247]	96 Bk berkelium [247]	97 Cf californium [251]	98 Es einsteinium [252]	99 Fm fermium [257]	100 Md mendelevium [258]	101 No nobelium [259]	102 Lr lawrencium [266]			

The possible **name** is one of the following:

✓ **built-in**:

- ▷ 'pgfPTSoft', a soft color scheme that distinguishes metals, non metals, silicon and germanium, lanthanoids and actinoids.
- ▷ 'pgfPTJmol', is the color scheme used in the computer software **Jmol**: an open-source Java viewer for chemical structures in 3D.
- ▷ 'pgfPTCPK', is the color scheme of the popular color convention for distinguishing atoms of different chemical elements in molecular models. The scheme is named after the CPK molecular models designed by chemists Robert Corey and Linus Pauling, and improved by Walter Koltun.
- ▷ 'pgfPTRasmol', is the color scheme used in the computer software **RasMol**, a program for molecular graphics visualization originally developed by Roger Sayle.
- ▷ 'pgfPTRasmolNew', is a color scheme used in RasMol with revision of CPK colors made by C. Chigbo (RasMol 2.7.3).
- ▷ 'pgfPTWikipedia', is the color scheme based on the [Wikipedia Periodic Table of Elements](#).
- ▷ 'pgfPTMNM', is designed to show **Metals** and **Non Metals** in two different colors, showing also the semi-metals in a third color.
- ▷ 'pgfPTPS', is designed to show the **Physical State** of the elements at normal temperature and pressure (NTP) in different colors.
- ▷ 'pgfPTRadio', is designed to show the **Radioactive** elements in one color and the non radioactive elements in another color.
- ▷ 'pgfPTBlocks', for showing the elements in each block of the Periodic Table with the same color.
- ▷ 'solid', to show the background of each cell of the Periodic Table with the same color specified by the key 'back color'.

✓ any **user defined** name via \pgfPTnewColorScheme{name}{color list}

back color

default: *white*

Sets the background of each cell of the Periodic Table. It only takes effect if the **back color scheme** key is set to **solid**

\pgfPT[Z list={1,...,36},back color=black!15]

Periodic Table of Elements																		
1	H	hydrogen	1.008	2	He	helium	4.0026	18										
1	Li	lithium	6.94	2	Be	beryllium	9.0122	13	B	boron	10.81	14	C	carbon	12.011	15	N	nitrogen
2	Mg	magnesium	24.305	3	Na	sodium	22.99	4	Al	aluminum	26.982	5	Si	silicon	28.085	6	O	oxygen
3	K	potassium	39.098	4	Ca	calcium	40.078	5	Sc	scandium	44.956	6	V	vandium	47.867	7	P	phosphorus
19	Tl	thallium	20.44	20	Ca	calcium	40.078	21	Cr	chromium	51.996	22	Cr	chromium	50.942	23	Fe	iron
21	Sc	scandium	44.956	22	Tl	thallium	20.44	23	Mn	manganese	54.938	24	Co	cobalt	55.845	25	Co	cobalt
23	V	vandium	50.942	24	Cr	chromium	51.996	25	Fe	iron	55.845	26	Fe	iron	55.845	27	Co	cobalt
25	Mn	manganese	54.938	26	Fe	iron	55.845	27	Co	cobalt	58.933	28	Ni	nickel	58.693	29	Cu	copper
27	Co	cobalt	58.933	28	Ni	nickel	58.693	29	Cu	copper	63.546	30	Zn	zinc	65.38	31	Ga	gallium
29	Cu	copper	63.546	30	Zn	zinc	65.38	31	Ga	gallium	69.723	32	Ge	germanium	72.63	33	As	arsenic
31	Ga	gallium	69.723	32	Ge	germanium	72.63	33	As	arsenic	74.922	34	Se	selenium	78.971	35	Br	bromine
33	As	arsenic	74.922	34	Se	selenium	78.971	35	Br	bromine	79.904	36	Kr	krypton	83.798			
35	Br	bromine	79.904	36	Kr	krypton	83.798											

\pgfPT[Z list={1,...,36},back color scheme=solid,back color=black!15]

Periodic Table of Elements																		
1	H	hydrogen	1.008	2	He	helium	4.0026	18										
1	Li	lithium	6.94	2	Be	beryllium	9.0122	13	B	boron	10.81	14	C	carbon	12.011	15	N	nitrogen
3	Mg	magnesium	24.305	4	Na	sodium	22.99	5	Al	aluminum	26.982	6	O	oxygen	15.999	7	F	fluorine
19	K	potassium	39.098	4	Ca	calcium	40.078	5	Sc	scandium	44.956	6	P	phosphorus	32.06	8	Ne	neon
21	Sc	scandium	44.956	22	Tl	thallium	20.44	23	Cr	chromium	51.996	24	Cr	chromium	50.942	25	Fe	iron
23	V	vandium	50.942	24	Mn	manganese	54.938	25	Fe	iron	55.845	26	Fe	iron	55.845	27	Co	cobalt
25	Co	cobalt	58.933	26	Fe	iron	55.845	27	Co	cobalt	58.933	28	Ni	nickel	58.693	29	Cu	copper
27	Co	cobalt	58.933	28	Ni	nickel	58.693	29	Cu	copper	63.546	30	Zn	zinc	65.38	31	Ga	gallium
29	Cu	copper	63.546	30	Zn	zinc	65.38	31	Ga	gallium	69.723	32	Ge	germanium	72.63	33	As	arsenic
31	Ga	gallium	69.723	32	Ge	germanium	72.63	33	As	arsenic	74.922	34	Se	selenium	78.971	35	Br	bromine
33	As	arsenic	74.922	34	Se	selenium	78.971	35	Br	bromine	79.904	36	Kr	krypton	83.798			

*It is possible to set the **back color scheme** key with the built-in names using the following styles:*

csSoliddefault: *white*

A style equivalent to back color scheme=solid,back color=#1

\pgfPT[csSolid]

Periodic Table of Elements

1	H	hydrogen	1.008	2	He	helium	4.0026
3	Li	lithium	6.94	4	Be	beryllium	9.0122
11	Na	sodium	22.99	12	Mg	magnesium	24.305
19	K	potassium	39.098	20	Ca	calcium	40.078
37	Rb	rubidium	85.468	38	Sr	strontium	88.906
55	Cs	caesium	132.88	56	Ba	barium	137.33
87	Fr	francium	[223]	88	Ra	radium	[226]
57	La	lanthanum	138.91	58	Ce	cerium	140.12
59	Pr	praseodymium	140.91	60	Nd	neodymium	144.24
61	Pm	promethium	[145]	62	Sm	samarium	150.36
63	Eu	europeum	151.96	64	Gd	gadolinium	157.25
65	Tb	terbium	158.93	66	Dy	dysprosium	162.5
67	Ho	holmium	164.93	68	Er	erbium	167.26
69	Tm	thulium	168.93	70	Yb	yterbium	173.05
71	Lu	lutetium	174.97	13	B	boron	10.81
14	Ti	titanium	44.956	15	C	carbon	12.011
21	V	vandium	50.942	16	N	nitrogen	15.999
22	Cr	chromium	51.996	17	O	oxygen	16.998
23	Mn	manganese	54.938	18	F	fluorine	18.998
24	Fe	iron	55.845	19	Ne	neon	20.18
25	Co	cobalt	58.933	20	Al	aluminum	26.982
26	Ni	nickel	58.693	21	Si	silicon	28.085
27	Cu	copper	63.546	22	Zn	zinc	65.38
28	Zn	zinc	65.38	23	Ga	gallium	69.723
29	Ge	germanium	72.63	24	As	arsenic	74.922
30	As	arsenic	78.971	25	Se	selenium	79.904
31	Br	bromine	80.904	26	Kr	krypton	83.798
32	Ge	germanium	72.63	33	Ge	germanium	72.63
33	As	arsenic	74.922	34	As	arsenic	78.971
34	Se	selenium	79.904	35	Br	bromine	80.904
35	Kr	krypton	83.798	36	Kr	krypton	83.798
36	Ar	argon	39.95	37	Ar	argon	39.95
37	Y	yttrium	91.224	38	Y	yttrium	91.224
39	Zr	zirconium	91.224	40	Nb	niobium	92.906
41	Mo	mo叙bdenum	95.95	42	Tc	technetium	[38]
43	Ru	ruthenium	101.07	44	Rh	rhodium	102.91
45	Pd	palladium	106.42	46	Ag	silver	107.87
46	Ag	silver	107.87	47	Cd	cadmium	112.41
47	Cd	cadmium	112.41	48	In	indium	114.82
48	In	indium	114.82	49	Tl	thallium	118.71
50	Sn	tin	118.71	51	Pb	lead	207.2
51	Sn	tin	118.71	52	Bi	bismuth	208.98
52	Sb	antimony	121.76	53	Te	tellurium	127.6
53	Te	tellurium	127.6	54	I	iodine	126.9
54	Xe	xenon	131.29	55	Xe	xenon	131.29
55	Cs	caesium	132.88	56	Rn	radon	[222]
56	Ba	barium	137.33	57	At	astatine	[210]
57	Fr	francium	[223]	58	Po	polonium	[209]
58	Ra	radium	[226]	59	At	astatine	[210]
59	Ac	actinoids	[227]	60	Rn	radon	[222]
60	Th	thorium	232.04	61	Ac	actinoids	[227]
61	Pa	protactinium	231.04	62	Th	thorium	232.04
62	U	uranium	238.03	63	Pa	protactinium	[227]
63	Np	neptunium	[237]	64	U	uranium	238.03
64	Pu	plutonium	[244]	65	Np	neptunium	[237]
65	Am	americium	[243]	66	Pu	plutonium	[244]
66	Gd	gadolinium	157.25	67	Am	americium	[243]
67	Tb	terbium	158.93	68	Dy	dysprosium	162.5
68	Ho	holmium	164.93	69	Er	erbium	167.26
69	Tm	thulium	168.93	70	Yb	yterbium	173.05
70	Lu	lutetium	174.97	71	Lu	lutetium	174.97
71	Lu	lutetium	174.97	72	La	lanthanum	138.91
72	Ce	cerium	140.12	73	Pr	praseodymium	140.91
73	Nd	neodymium	144.24	74	Sm	samarium	150.36
74	Eu	europeum	151.96	75	Gd	gadolinium	157.25
75	Tb	terbium	158.93	76	Dy	dysprosium	162.5
76	Ho	holmium	164.93	77	Er	erbium	167.26
77	Tm	thulium	168.93	78	Yb	yterbium	173.05
78	Lu	lutetium	174.97	79	Lu	lutetium	174.97
79	La	lanthanum	138.91	80	La	lanthanum	138.91
80	Ce	cerium	140.12	81	Pr	praseodymium	140.91
81	Nd	neodymium	144.24	82	Sm	samarium	150.36
82	Eu	europeum	151.96	83	Gd	gadolinium	157.25
83	Tb	terbium	158.93	84	Dy	dysprosium	162.5
84	Ho	holmium	164.93	85	Er	erbium	167.26
85	Tm	thulium	168.93	86	Yb	yterbium	173.05
86	Lu	lutetium	174.97	87	Lu	lutetium	174.97
87	La	lanthanum	138.91	88	La	lanthanum	138.91
88	Pr	praseodymium	140.91	89	Pr	praseodymium	140.91
89	Nd	neodymium	144.24	90	Sm	samarium	150.36
90	Eu	europeum	151.96	91	Gd	gadolinium	157.25
91	Tb	terbium	158.93	92	Dy	dysprosium	162.5
92	Ho	holmium	164.93	93	Er	erbium	167.26
93	Tm	thulium	168.93	94	Yb	yterbium	173.05
94	Lu	lutetium	174.97	95	Lu	lutetium	174.97
95	La	lanthanum	138.91	96	La	lanthanum	138.91
96	Pr	praseodymium	140.91	97	Pr	praseodymium	140.91
97	Nd	neodymium	144.24	98	Sm	samarium	150.36
98	Eu	europeum	151.96	99	Gd	gadolinium	157.25
99	Tb	terbium	158.93	100	Dy	dysprosium	162.5
100	Ho	holmium	164.93	101	Er	erbium	167.26
101	Tm	thulium	168.93	102	Yb	yterbium	173.05
102	Lu	lutetium	174.97	103	Lu	lutetium	174.97
103	La	lanthanum	138.91	104	La	lanthanum	138.91
104	Pr	praseodymium	140.91	105	Pr	praseodymium	140.91
105	Nd	neodymium	144.24	106	Sm	samarium	150.36
106	Eu	europeum	151.96	107	Gd	gadolinium	157.25
107	Tb	terbium	158.93	108	Dy	dysprosium	162.5
108	Ho	holmium	164.93	109	Er	erbium	167.26
109	Tm	thulium	168.93	110	Yb	yterbium	173.05
110	Lu	lutetium	174.97	111	Lu	lutetium	174.97
111	La	lanthanum	138.91	112	La	lanthanum	138.91
112	Pr	praseodymium	140.91	113	Pr	praseodymium	140.91
113	Nd	neodymium	144.24	114	Sm	samarium	150.36
114	Eu	europeum	151.96	115	Gd	gadolinium	157.25
115	Tb	terbium	158.93	116	Dy	dysprosium	162.5
116	Ho	holmium	164.93	117	Er	erbium	167.26
117	Tm	thulium	168.93	118	Yb	yterbium	173.05
118	Lu	lutetium	174.97	119	Lu	lutetium	174.97
119	La	lanthanum	138.91	120	La	lanthanum	138.91
120	Pr	praseodymium	140.91	121	Pr	praseodymium	140.91
121	Nd	neodymium	144.24	122	Sm	samarium	150.36
122	Eu	europeum	151.96	123	Gd	gadolinium	157.25
123	Tb	terbium	158.93	124	Dy	dysprosium	162.5
124	Ho	holmium	164.93	125	Er	erbium	167.26
125	Tm	thulium	168.93	126	Yb	yterbium	173.05
126	Lu	lutetium	174.97	127	Lu	lutetium	174.97
127	La	lanthanum	138.91	128	La	lanthanum	138.91
128	Pr	praseodymium	140.91	129	Pr	praseodymium	140.91
129	Nd	neodymium	144.24	130	Sm	samarium	150.36
130	Eu	europeum	151.96	131	Gd	gadolinium	157.25
131	Tb	terbium	158.93	132	Dy	dysprosium	162.5
132	Ho	holmium	164.93	133	Er	erbium	167.26
133	Tm	thulium	168.93	134	Yb	yterbium	173.05
134	Lu	lutetium	174.97	135	Lu	lutetium	174.97
135	La	lanthanum	138.91	136	La	lanthanum	138.91
136	Pr	praseodymium	140.91	137	Pr	praseodymium	140.91
137	Nd	neodymium	144.24	138	Sm	samarium	150.36
138	Eu	europeum	151.96	139	Gd	gadolinium	157.25
139	Tb	terbium	158.93	140	Dy	dysprosium	162.5
140	Ho	holmium	164.93	141	Er	erbium	167.26
141	Tm	thulium	168.93	142	Yb	yterbium	173.05
142	Lu	lutetium	174.97	143	Lu	lutetium	174.97
143	La	lanthanum	138.91	144	La	lanthanum	138.91
144	Pr	praseodymium	140.91	145	Pr	praseodymium	140.91
145	Nd	neodymium	144.24	146	Sm	samarium	150.36
146	Eu	europeum	151.96	147	Gd	gadolinium	157.25
147	Tb	terbium	158.93	148	Dy	dysprosium	162.5
148	Ho	holmium	164.93	149	Er	erbium	167.26
149	Tm	thulium	168.93	150	Yb	yterbium	173.05
150	Lu	lutetium	174.97	151	Lu	lutetium	174.97
151	La	lanthanum	138.91	152	La	lanthanum	138.91
152	Pr	praseodymium	140.91	153	Pr	praseodymium	140.91
153	Nd	neodymium	144.24	154	Sm	samarium	150.36
154	Eu	europeum	151.96	155	Gd	gadolinium	157.25
155	Tb	terbium	158.93	156	Dy	dysprosium	162.5
156	Ho	holmium	164.93	157	Er	erbium	167.26
157	Tm	thulium	168.93	158	Yb	yterbium	173.05
158	Lu	lutetium	174.97	159	Lu	lutetium	174.97
159	La	lanthanum	138.91	160	La	lanthanum	138.91
160	Pr	praseodymium	140.91	161	Pr	praseodymium	140.91
161	Nd	neodymium	144.24	162	Sm	samarium	150.36
162	Eu	europeum	151.96	163	Gd	gadolinium	157.25
163	Tb	terbium	158.93	164	Dy	dysprosium	162.5
164	Ho	holmium	164.93	165	Er	erbium	167.26
165	Tm	thulium	168.93	166	Yb	yterbium	173

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Periodic Table of Elements

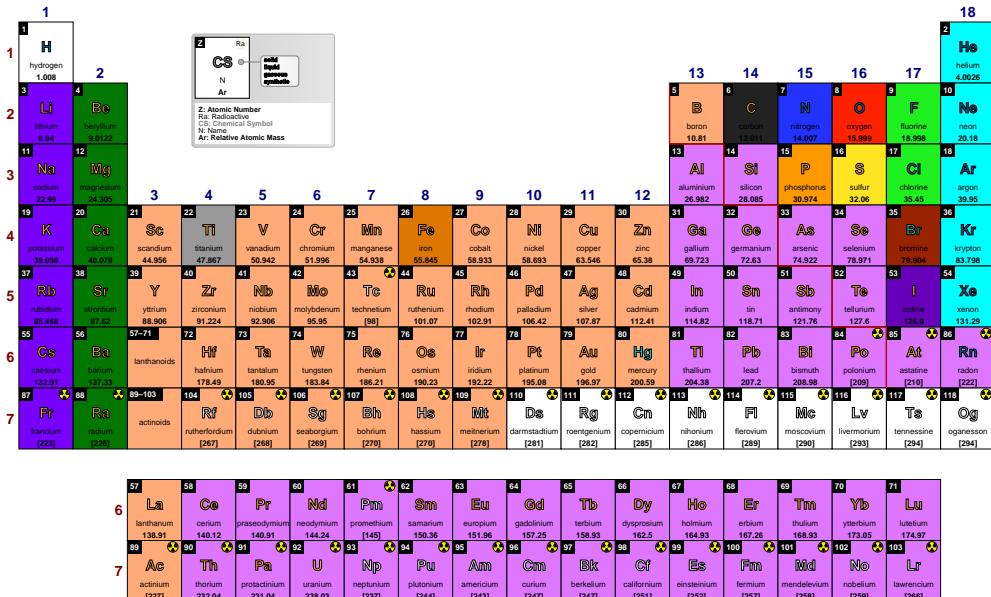
1	H	hydrogen	1.008	2	He	helium	4.0026
1	D	deuterium	2.016	3	T	tritium	3.016
2	Li	lithium	6.94	4	Be	beryllium	9.0122
11	Na	sodium	22.99	12	Mg	magnesium	24.305
19	K	potassium	39.098	20	Ca	calcium	40.078
37	Rb	rubidium	85.468	38	Sc	scandium	44.956
55	Cs	caesium	132.91	39	Ti	titanium	47.867
7	Fr	francium	[223]	40	V	vandium	50.942
56	Ba	barium	87.62	21	Cr	chromium	51.996
57	La	lanthanum	138.95	22	Mn	manganese	54.938
58	Ce	cerium	140.12	23	Fe	iron	55.845
59	Pr	praseodymium	141.01	24	Co	cobalt	58.933
60	Nd	neodymium	144.24	25	Ni	nickel	58.693
61	Pm	promethium	[145]	26	Cu	copper	63.546
62	Sm	samarium	150.36	27	Zn	zinc	65.38
63	Eu	europeum	151.96	28	Ga	gallium	69.723
64	Gd	gadolinium	157.25	29	Ge	germanium	72.63
65	Tb	terbium	158.95	30	As	arsenic	74.922
66	Dy	dysprosium	162.5	31	Se	selenium	78.971
67	Ho	holmium	164.95	32	Br	bromine	79.904
68	Er	erbium	167.26	33	I	iodine	126.9
69	Tm	thulium	168.93	34	Xe	xenon	131.29
70	Yb	yterbium	173.05	35	Rn	radon	[222]
71	Lu	lutetium	174.97	36	Kr	krypton	83.798
6	Y	yttrium	88.906	37	Db	dubnium	[268]
5	Zr	zirconium	91.224	38	Sg	seaborgium	[269]
4	Nb	niobium	92.906	39	Ta	tantalum	[270]
3	Mo	molybdenum	95.95	40	W	tungsten	183.84
2	Tc	technetium	[98]	41	Re	rhenium	186.21
1	Ru	ruthenium	190.23	42	Os	osmium	190.23
19	Rh	rhodium	192.22	43	Ir	iridium	192.22
20	Pd	palladium	195.08	44	Pt	platinum	195.08
21	Ag	silver	196.97	45	Au	gold	196.97
22	Cd	cadmium	200.59	46	Hg	mercury	204.38
23	In	indium	211.42	47	Pb	thallium	207.2
24	Sn	tin	211.71	48	Bi	lead	208.98
25	Sb	antimony	212.76	49	Po	bismuth	[209]
26	Te	tellurium	212.76	50	At	astatine	[210]
27	Se	iodine	212.9	51	Rn	radon	[222]
28	Br	bromine	212.9	52	Xe	xenon	131.29
29	Kr	krypton	83.798	53	Og	oganeson	[294]
30	Ds	darmstadtium	[281]	54			
31	Rg	roentgenium	[282]	55			
32	Cn	copernicium	[285]	56			
33	Nh	nihonium	[286]	57			
34	Fl	florium	[289]	58			
35	Mt	moscovium	[290]	59			
36	Mc	livemorium	[293]	60			
37	Lv	tennessine	[294]	61			
38	Ts	oganesson	[294]	62			
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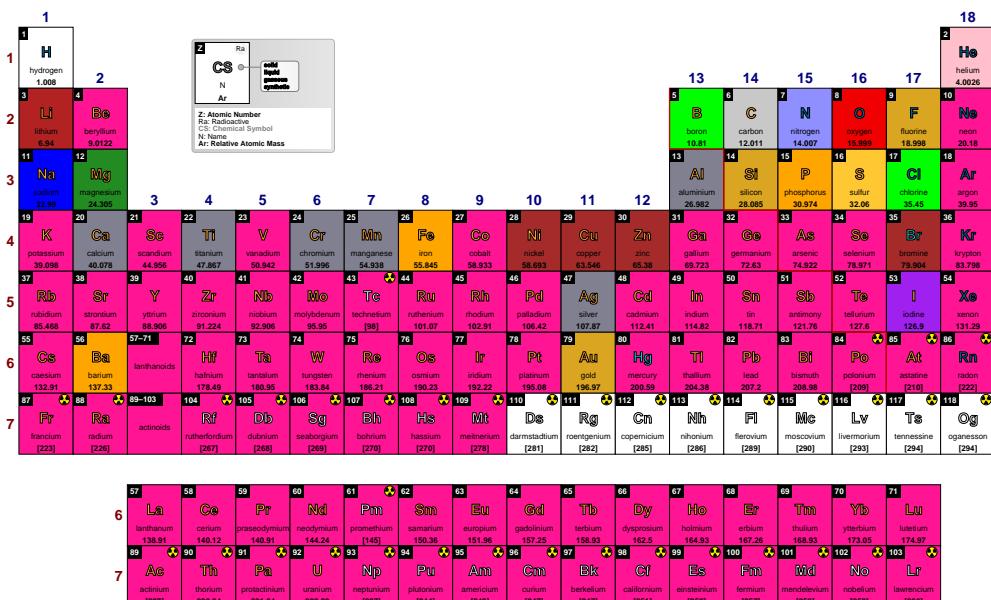
Periodic Table of Elements

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Periodic Table of Elements



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A style equivalent to back color scheme=pgfPTRasmolNew

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Periodic Table of Elements

1	H	hydrogen	1.008	2	He	helium	4.0026
3	Li	lithium	6.94	4	Be	beryllium	9.0122
11	Na	sodium	22.99	12	Mg	magnesium	24.305
19	K	potassium	39.098	20	Ca	calcium	40.078
37	Rb	rubidium	85.468	38	Sr	strontium	87.62
55	Cs	caesium	132.91	56	Ba	barium	137.33
87	Fr	francium	[223]	88	Ra	radium	[226]
1				21	Sc	scandium	44.956
2	Ti	titanium	47.867	22	V	vandium	50.942
3	Cr	chromium	51.996	23	Mn	manganese	54.938
4	Fe	iron	55.845	24	Co	cobalt	58.933
5	Ni	nickel	58.693	25	Ru	ruthenium	101.07
6	Pd	palladium	106.42	26	Rh	rhodium	102.91
7	Ag	silver	107.87	27	Pt	platinum	195.08
8	Hg	mercury	196.97	28	Au	gold	196.97
9	Tl	thallium	200.59	29	Cd	cadmium	112.41
10	Pt	thallium	204.38	30	In	indium	114.82
11	Os	osmium	190.23	31	Zn	zinc	65.38
12	Ir	iridium	192.22	32	Ga	gallium	69.723
13	Os	osmium	190.23	33	Ge	germanium	72.63
14	Ir	iridium	192.22	34	As	arsenic	74.922
15	Pt	platinum	195.08	35	Se	selenium	78.971
16	Au	gold	196.97	36	Br	bromine	79.904
17	Cd	mercury	204.38	37	I	iodine	126.9
18	In	thallium	207.2	38	Xe	xenon	131.29
1				39	Sn	tin	121.76
2				40	Bi	bismuth	208.98
3				41	Po	polonium	[209]
4				42	At	astatine	[210]
5				43	Rn	radon	[222]
6				44			
7				45			
6	La	lanthanum	138.91	58	Ce	cerium	140.12
7	Ac	actinium	[227]	59	Pr	praseodymium	140.91
6	Th	thorium	232.04	60	Nd	neodymium	144.24
7	Pa	protactinium	231.04	61	Pm	promethium	[145]
6	U	uranium	238.03	62	Sm	samarium	150.36
7	Np	neptunium	[237]	63	Eu	euroium	151.96
6	Pu	plutonium	[244]	64	Gd	gadolinium	157.25
7	Am	americium	[243]	65	Tb	terbium	158.93
6	Cm	curium	[247]	66	Dy	dysprosium	162.5
7	Bk	berkelium	[247]	67	Ho	holmium	164.93
6	Cf	californium	[251]	68	Er	erbium	167.26
7	Es	einsteinium	[252]	69	Tm	thulium	168.93
6	Fm	fermium	[257]	70	Yb	ytterbium	173.05
7	Md	mendelevium	[258]	71	Lu	lutetium	174.97

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Periodic Table of Elements

1	H	hydrogen	1.008	2	He	helium	4.0026
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55	Cs	caesium	132.91	56	Ba	barium	137.33
87	Fr	francium	[223]	88	Ra	radium	[226]
1				21	Sc	scandium	44.956
2	Ti	titanium	47.867	22	V	vandium	50.942
3	Cr	chromium	51.996	23	Mn	manganese	54.938
4	Fe	iron	55.845	24	Co	cobalt	58.933
5	Ni	nickel	58.693	25	Ru	ruthenium	101.07
6	Pd	palladium	106.42	26	Rh	rhodium	102.91
7	Ag	silver	107.87	27	Pt	platinum	195.08
8	Hg	mercury	196.97	28	Au	gold	196.97
9	Tl	thallium	200.59	29	Cd	cadmium	112.41
10	Pt	thallium	204.38	30	In	indium	114.82
11	Os	osmium	190.23	31	Zn	zinc	65.38
12	Ir	iridium	192.22	32	Ga	gallium	69.723
13	Pt	osmium	190.23	33	Ge	germanium	72.63
14	Au	iridium	192.22	34	As	arsenic	74.922
15	Cd	platinum	195.08	35	Se	selenium	78.971
16	In	gold	196.97	36	Br	bromine	79.904
17		mercury	204.38	37	I	iodine	126.9
18		thallium	207.2	38	Xe	xenon	131.29
1				39	Sn	tin	121.76
2				40	Bi	bismuth	208.98
3				41	Po	polonium	[209]
4				42	At	astatine	[210]
5				43	Rn	radon	[222]
6				44			
7				45			
6	La	lanthanum	138.91	58	Ce	cerium	140.12
7	Ac	actinium	[227]	59	Pr	praseodymium	140.91
6	Th	thorium	232.04	60	Nd	neodymium	144.24
7	Pa	protactinium	231.04	61	Pm	promethium	[145]
6	U	uranium	238.03	62	Sm	samarium	150.36
7	Np	neptunium	[237]	63	Eu	euroium	151.96
6	Pu	plutonium	[244]	64	Gd	gadolinium	157.25
7	Am	americium	[243]	65	Tb	terbium	158.93
6	Cm	curium	[247]	66	Dy	dysprosium	162.5
7	Bk	berkelium	[247]	67	Ho	holmium	164.93
6	Cf	californium	[251]	68	Er	erbium	167.26
7	Es	einsteinium	[252]	69	Tm	thulium	168.93
6	Fm	fermium	[257]	70	Yb	ytterbium	173.05
7	Md	mendelevium	[258]	71	Lu	lutetium	174.97

csMNM

no value

A style equivalent to back color scheme=pgfPTMNM

\pgfPT[csMNM]

Periodic Table of Elements

1	H	2	He	18
1	hydrogen 1.008			helium 4.0026
2	Li	Be		
3	lithium 6.94	beryllium 9.0122		
11	Na	Mg		
3	sodium 22.99	magnesium 24.305		
19	K	Ca		
4	potassium 39.098	calcium 40.078		
37	Rb	Sc		
5	rubidium 85.468	scandium 44.956		
38	Sr	Ti		
6	strontium 87.62	titanium 47.867		
55	Ce	V		
7	cerium 132.91	chromium 50.942		
29	Fr	Cr		
87	Ra	Mn		
20	actinoids	Fe		
89-103		Co		
104	Rf	Ni		
105	Dub	Cu		
106	Sg	Zn		
107	Bh	Ga		
108	Hs	Ge		
109	Mt	As		
110	Ds	In		
111	Rg	Sn		
112	Cn	Sb		
113	Nh	Te		
114	Fl	I		
115	Mc	Xe		
116	Lv	Po		
117	Ts	Rn		
118	Og	Rn		
119				
57	La	Pr		
6	lanthanum 138.91	neodymium 140.91		
58	Ce	Nd		
59	Pr	Pm		
60	Praseodymium 140.91	neodymium 144.24		
61	Sm	Sm		
62	Eu	Eu		
63	Gd	Gd		
64	Tb	Tb		
65	Dy	Dy		
66	Ho	Ho		
67	Er	Er		
68	Tm	Tm		
69	Yb	Yb		
70				
71	Lu	Lu		
95	Ac	Th		
96	Th	Pa		
97	Pa	U		
98	U	Np		
99	Np	Pu		
100	Am	Am		
101	Cm	Cm		
102	Bk	Bk		
103	Cf	Cf		
104	Esn	Esn		
105	Fm	Fm		
106	Md	Md		
107	No	No		
108	Lr	Lr		
109				

csPS

no value

A style equivalent to back color scheme=pgfPTPS

\pgfPT[csPS]

Periodic Table of Elements

1	H	2	He	18
1	hydrogen 1.008			helium 4.0026
2	Li	Be		
3	lithium 6.94	beryllium 9.0122		
11	Na	Mg		
3	sodium 22.99	magnesium 24.305		
19	K	Ca		
4	potassium 39.098	calcium 40.078		
37	Rb	Sc		
5	rubidium 85.468	scandium 44.956		
38	Sr	Ti		
6	strontium 87.62	titanium 47.867		
55	Ce	V		
7	cerium 132.91	chromium 50.942		
29	Fr	Cr		
87	Ra	Mn		
20	actinoids	Fe		
89-103		Co		
104	Rf	Ni		
105	Dub	Cu		
106	Sg	Zn		
107	Bh	Ga		
108	Hs	Ge		
109	Mt	As		
110	Ds	In		
111	Rg	Sn		
112	Cn	Sb		
113	Nh	Te		
114	Fl	I		
115	Mc	Xe		
116	Lv	Po		
117	Ts	Rn		
118	Og	Rn		
119				
57	La	Pr		
6	lanthanum 138.91	Praseodymium 140.91		
58	Ce	Nd		
59	Pr	Pm		
60	Nd	Sm		
61	Pm	Eu		
62	Sm	Gd		
63	Eu	Tb		
64	Gd	Dy		
65	Tb	Ho		
66	Dy	Er		
67	Ho	Tm		
68	Er	Yb		
69	Tm	Lu		
70	Yb			
71	Lu			
95	Ac	Th		
96	Th	Pa		
97	Pa	U		
98	U	Np		
99	Np	Pu		
100	Am	Am		
101	Cm	Cm		
102	Bk	Bk		
103	Cf	Cf		
104	Esn	Esn		
105	Fm	Fm		
106	Md	Md		
107	No	No		
108	Lr	Lr		
109				

csRadio

no value

A style equivalent to back color scheme=pgfPTRadio

\pgfPT[csRadio]

Periodic Table of Elements

1	H	2	He
1	hydrogen 1.008	2	helium 4.0026
3	Li	4	Be
2	lithium 6.94	3	beryllium 9.0122
11	Na	12	Mg
3	sodium 22.99	4	magnesium 24.305
19	K	20	Ca
4	potassium 39.098	5	Sc
37	Rb	21	Ti
5	rubidium 85.468	22	V
38	Sr	23	Cr
6	strontium 87.62	24	Mn
55	Cs	25	Fe
7	francium [223]	26	Co
87	Ra	27	Ni
8	radium [226]	28	Cu
89-103	Fr	29	Zn
9	actinoids	30	Ga
104	Rf	31	Ge
105	Dub	32	As
106	Sg	33	Se
107	Bh	34	Br
108	Hs	35	Kr
109	Mt	36	Xe
110	Ds	37	I
111	Rg	38	Xe
112	Cn	39	Rn
113	Nh	40	Og
114	Fl	41	
115	Mic	42	
116	Lv	43	
117	Ts	44	
118	Og	45	
57	La	58	Ce
58	Pr	59	Pm
59	Nd	60	Sm
60	Eu	61	Gd
61	Tb	62	Dy
62	Ho	63	Er
63	Tm	64	Yb
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background

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A style to set the background of the Periodic Table, built with any of the *TikZ* keys that can be applied to a path construction.

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Periodic Table of Elements																																																						
1	H	hydrogen 1.008	2	He	helium 4.0026																																																	
3	Li	lithium 6.94	4	Be	beryllium 9.0122																																																	
5	Na	sodium 22.99	6	Mg	magnesium 24.305	7	Cr	chromium 51.996	8	Fe	cobalt 58.933	9	Co	nickel 58.993	10	Ni	copper 63.546	11	Cu	zinc 65.38	12	Zn	zinc 69.723	13	B	boron 10.81	14	C	carbon 12.011	15	N	nitrogen 14.007	16	O	oxygen 15.999	17	F	fluorine 18.998	18	He	helium 20.18													
19	K	potassium 39.098	20	Ca	calcium 40.078	21	Sc	scandium 44.956	22	Ti	titanium 47.867	23	V	vandium 50.942	24	Mn	manganese 54.938	25	Fe	iron 55.845	26	Co	cobalt 58.933	27	Ni	nickel 58.993	28	Cu	copper 63.546	29	Zn	zinc 65.38	30	Ga	gallium 69.723	31	Ge	germanium 74.922	32	As	arsenic 78.971	33	Se	selenium 79.904	34	Br	bromine 83.798	35	Ar	argon 39.95				
37	Rb	rubidium 85.468	38	Sr	strontium 87.62	39	Y	yttrium 88.905	40	Zr	zirconium 91.224	41	Nb	niobium 92.906	42	Mo	molybdenum 95.95	43	Tc	technetium [98]	44	Ru	ruthenium 101.07	45	Rh	rhodium 102.91	46	Pd	palladium 106.42	47	Ag	silver 107.87	48	Cd	cadmium 114.21	49	In	indium 114.82	50	Sn	tin 116.71	51	Sb	antimony 121.76	52	Te	tellurium 127.6	53	I	iodine 126.9	54	Xe	xenon 131.29	
55	Cs	caesium 132.91	56	Ba	barium 137.33	57-71	lanthanoids	138.91	72	Ta	tautonium 178.49	73	W	tautogenium 180.95	74	Re	rehenium 183.84	75	Os	osmium 186.21	76	Ir	iridium 190.23	77	Pt	platinum 192.22	78	Hg	gold 195.08	79	Tl	mercury 196.97	80	Pb	mercury 200.59	81	Ga	thallium 204.38	82	Sn	lead 207.2	83	Bi	bismuth 208.98	84	Po	polonium [209]	85	At	astatine [210]	86	Rn	radon [222]	
87	Fr	francium [223]	88	Ra	radium [226]	89-103	actinoids	139.91	104	Rf	rutherfordium [267]	105	Db	dubnium [268]	106	Sg	seaborgium [269]	107	Bh	bohrium [270]	108	Hs	bohrium [270]	109	Mt	meitnerium [270]	110	Ds	meitnerium [270]	111	Rg	roentgenium [281]	112	Cn	copernicum [285]	113	Nh	nihonium [286]	114	Fl	flerovium [289]	115	Mc	moscovium [290]	116	Lv	livemorium [293]	117	Ts	ternessine [294]	118	Og	oganesian [294]	
6	La	lanthanum 138.91	58	Ce	cerium 140.12	59	Pr	praseodymium 140.91	60	Nd	neodymium 144.24	61	Pm	promethium [145]	62	Sm	samarium 150.36	63	Eu	euroopium 151.96	64	Gd	gadolinium 157.25	65	Tb	terbium 158.93	66	Dy	dysprosium 162.5	67	Ho	holmium 164.93	68	Er	erbium 167.26	69	Tm	thulium 168.93	70	Yb	ytterbium 173.05	71	Lu	lutetium 174.97										
89	Ac	actinium [227]	90	Th	thorium 232.04	91	Pa	protactinium 231.04	92	U	uranium 238.03	93	Np	neptunium [237]	94	Pu	plutonium [244]	95	Am	americium [243]	96	Cm	curium [247]	97	Bk	berkelium [247]	98	Cf	californium [251]	99	Es	einstenium [252]	100	Fm	fermium [257]	101	Md	mendelevium [258]	102	No	nobelium [259]	103	Lr	lawrencium [266]										

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\usetikzlibrary{shadows}
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\pgfPT[background={left color=red!10,right color=green!10,postaction={drop shadow={left color=red!10,right color=green!10}}}]
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Periodic Table of Elements																																																						
1	H	hydrogen 1.008	2	He	helium 4.0026																																																	
3	Li	lithium 6.94	4	Be	beryllium 9.0122																																																	
5	Na	sodium 22.99	6	Mg	magnesium 24.305	7	Cr	chromium 51.996	8	Fe	cobalt 58.933	9	Co	nickel 58.993	10	Ni	copper 63.546	11	Cu	zinc 65.38	12	Zn	zinc 69.723	13	B	boron 10.81	14	C	carbon 12.011	15	N	nitrogen 14.007	16	O	oxygen 15.999	17	F	fluorine 18.998	18	He	helium 20.18													
19	K	potassium 39.098	20	Ca	calcium 40.078	21	Sc	scandium 44.956	22	Ti	titanium 47.867	23	V	vandium 50.942	24	Mn	manganese 54.938	25	Fe	iron 55.845	26	Co	cobalt 58.933	27	Ni	nickel 58.993	28	Cu	copper 63.546	29	Zn	zinc 65.38	30	Ga	gallium 69.723	31	Ge	germanium 74.922	32	As	arsenic 78.971	33	Se	selenium 79.904	34	Br	bromine 83.798	35	Ar	argon 39.95				
37	Rb	rubidium 85.468	38	Sr	strontium 87.62	39	Y	yttrium 88.905	40	Zr	zirconium 91.224	41	Nb	niobium 92.906	42	Mo	molybdenum 95.95	43	Tc	technetium [98]	44	Ru	ruthenium 101.07	45	Rh	rhodium 102.91	46	Pd	palladium 106.42	47	Ag	silver 107.87	48	Cd	cadmium 114.21	49	In	indium 114.82	50	Sn	tin 116.71	51	Sb	antimony 121.76	52	Te	tellurium 127.6	53	I	iodine 126.9	54	Xe	xenon 131.29	
55	Cs	caesium 132.91	56	Ba	barium 137.33	57-71	lanthanoids	138.91	72	Ta	tautonium 178.49	73	W	tautogenium 180.95	74	Re	rehenium 183.84	75	Os	osmium 186.21	76	Ir	iridium 190.23	77	Pt	platinum 192.22	78	Hg	gold 195.08	79	Tl	mercury 196.97	80	Pb	mercury 200.59	81	Ga	thallium 204.38	82	Sn	lead 207.2	83	Bi	bismuth 208.98	84	Po	polonium [209]	85	At	astatine [210]	86	Rn	radon [222]	
87	Fr	francium [223]	88	Ra	radium [226]	89-103	actinoids	139.91	104	Rf	rutherfordium [267]	105	Db	dubnium [268]	106	Sg	seaborgium [269]	107	Bh	bohrium [270]	108	Hs	bohrium [270]	109	Mt	meitnerium [270]	110	Ds	meitnerium [270]	111	Rg	roentgenium [281]	112	Cn	copernicum [285]	113	Nh	nihonium [286]	114	Fl	flerovium [289]	115	Mc	moscovium [290]	116	Lv	livemorium [293]	117	Ts	ternessine [294]	118	Og	oganesian [294]	
6	La	lanthanum 138.91	58	Ce	cerium 140.12	59	Pr	praseodymium 140.91	60	Nd	neodymium 144.24	61	Pm	promethium [145]	62	Sm	samarium 150.36	63	Eu	euroopium 151.96	64	Gd	gadolinium 157.25	65	Tb	terbium 158.93	66	Dy	dysprosium 162.5	67	Ho	holmium 164.93	68	Er	erbium 167.26	69	Tm	thulium 168.93	70	Yb	ytterbium 173.05	71	Lu	lutetium 174.97										
89	Ac	actinium [227]	90	Th	thorium 232.04	91	Pa	protactinium 231.04	92	U	uranium 238.03	93	Np	neptunium [237]	94	Pu	plutonium [244]	95	Am	americium [243]	96	Cm	curium [247]	97	Bk	berkelium [247]	98	Cf	californium [251]	99	Es	einstenium [252]	100	Fm	fermium [257]	101	Md	mendelevium [258]	102	No	nobelium [259]	103	Lr	lawrencium [266]										

IUPAC

When set to true draws the periodic table with *lanthanum* and *actinium* appended to block f and the labels *lanthanoids* and *actinoids* are placed at group 3, substituting *lanthanum* and *actinium*. When **IUPAC** is set to false, *lanthanum* and *actinium* are shown in group 3 and the labels *lanthanoids* and *actinoids* are place near the *f* block (if the key **show label LaAc** is set to true).

\pgfPT

Periodic Table of Elements

1	H	2	He	18
1	hydrogen 1.008		helium 4.0026	
2	Li	Be	Ne	
	lithium 6.94	beryllium 9.0122	neon 20.18	
3	Na	Mg	F	
	sodium 22.99	magnesium 24.305	fluorine 18.998	
4	K	Ca	O	
	potassium 39.098	calcium 40.078	oxygen 15.999	
5	Rb	Sr	N	
	rubidium 85.468	strontium 87.62	nitrogen 14.007	
6	Cs	Ba	P	
	caesium 132.91	barium 137.33	phosphorus 30.974	
7	Fr	Ra	S	
	francium [223]	radium [226]	sulfur 32.06	
			Cl	
			chlorine 35.45	
			Ar	
			argon 39.95	
19	57	58	59	60
20	58	Sc	Pr	Nd
	49	Scandium	Praseodymium	Neodymium
21	59	Ti	Nd	Pm
	40	Titanium	Neodymium	Promethium
22	60	V	Pm	Sm
	41	Vanadium	Promethium	Samarium
23	61	Cr	Sm	Eu
	42	Chromium	Samarium	Europium
24	62	Mn	Eu	Gd
	43	Manganese	Europium	Gadolinium
25	63	Fe	Gd	Tb
	44	Iron	Gadolinium	Terbium
26	64	Co	Tb	Dy
	45	Cobalt	Terbium	Dysprosium
27	65	Ni	Dy	Ho
	46	Nickel	Dysprosium	Holmium
28	66	Cu	Ho	Er
	47	Copper	Holmium	Erbium
29	67	Zn	Er	Tm
	48	Zinc	Erbium	Thulium
30	68		Tm	Yb
	49		Thulium	Ytterbium
31	69	Ge	Yb	Lu
	50	Gallium	Ytterbium	Lutetium
32	70	Ge	Lu	
	51	Germanium	Lutetium	
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182				

show label LaAc

default: {}

Determines when the labels 'lanthanoids' and 'actinoids' are shown (true) or not shown (false) near the f block. When the IUPAC key is set to true, the default behavior is to show the labels and when the IUPAC key is set to false, the default behavior is to hide the labels. This **default behavior can be overridden by this key** setting it to true, to show the labels, or to false to hide them, independently of the value of the IUPAC key.

```
\pgfPTnewZlist{myZlist}{55,...,118}
\pgfPTstyle[show title=false,show legend=false,show group numbers=false]
\pgfPT[Z list=myZlist]
```

6	55 Ce caesium [32.01]	56 Ba barium [137.33]	57–71 lanthanoids lanthanum [138.91]	72 Hf hafnium [178.49]	73 Ta tantalum [180.95]	74 W tungsten [183.84]	75 Re rhenium [186.21]	76 Os osmium [190.23]	77 Ir iridium [192.22]	78 Pt platinum [195.08]	79 Au gold [196.97]	80 Hg mercury [200.59]	81 Tl thallium [204.38]	82 Pb lead [207.2]	83 Bi bismuth [208.98]	84 Po polonium [209]	85 At astatine [210]	86 Rn radon [222]
7	87 Fr francium [223]	88 Ra radium [226]	89–103 actinoids actinides [227]	104 Rf rutherfordium [267]	105 Db dubnium [268]	106 Sg seaborgium [269]	107 Bh bohrium [270]	108 Hs hassium [270]	109 Mt meitnerium [270]	110 Ds darmstadtium [281]	111 Rg roentgenium [282]	112 Cn copernicium [285]	113 Nh nihonium [286]	114 Fl florium [289]	115 Mc moscovium [290]	116 Lv livermoorium [293]	117 Ts tennessine [294]	118 Og oganesson [284]
6	57 La lanthanum [138.91]	58 Ce cerium [140.12]	59 Pr praseodymium [140.91]	60 Nd neodymium [144.24]	61 Pm promethium [145]	62 Sm samarium [150.36]	63 Eu europium [151.96]	64 Gd gadolinium [157.25]	65 Tb terbium [158.93]	66 Dy dysprosium [162.5]	67 Ho holmium [164.93]	68 Er erbium [167.26]	69 Tm thulium [168.93]	70 Yb ytterbium [172.05]	71 Lu lutetium [174.97]			
7	89 Ac actinium [227]	90 Th thorium [232.04]	91 Pa protactinium [231.04]	92 U uranium [238.03]	93 Np neptunium [237]	94 Pt plutonium [244]	95 Am americium [243]	96 Cm curium [247]	97 Bk berkelium [247]	98 Cf californium [251]	99 Es einsteinium [252]	100 Fm fermium [257]	101 Md mendelevium [258]	102 No nobelium [259]	103 Lr lawrencium [266]			

```
\pgfPT[Z list=myZlist,show label LaAc=true]
```

6	55 Ce caesium [32.01]	56 Ba barium [137.33]	57–71 lanthanoids lanthanum [138.91]	72 Hf hafnium [178.49]	73 Ta tantalum [180.95]	74 W tungsten [183.84]	75 Re rhenium [186.21]	76 Os osmium [190.23]	77 Ir iridium [192.22]	78 Pt platinum [195.08]	79 Au gold [196.97]	80 Hg mercury [200.59]	81 Tl thallium [204.38]	82 Pb lead [207.2]	83 Bi bismuth [208.98]	84 Po polonium [209]	85 At astatine [210]	86 Rn radon [222]
7	87 Fr francium [223]	88 Ra radium [226]	89–103 actinoids actinides [227]	104 Rf rutherfordium [267]	105 Db dubnium [268]	106 Sg seaborgium [269]	107 Bh bohrium [270]	108 Hs hassium [270]	109 Mt meitnerium [270]	110 Ds darmstadtium [281]	111 Rg roentgenium [282]	112 Cn copernicium [285]	113 Nh nihonium [286]	114 Fl florium [289]	115 Mc moscovium [290]	116 Lv livermoorium [293]	117 Ts tennessine [294]	118 Og oganesson [284]
6	57 La lanthanum [138.91]	58 Ce cerium [140.12]	59 Pr praseodymium [140.91]	60 Nd neodymium [144.24]	61 Pm promethium [145]	62 Sm samarium [150.36]	63 Eu europium [151.96]	64 Gd gadolinium [157.25]	65 Tb terbium [158.93]	66 Dy dysprosium [162.5]	67 Ho holmium [164.93]	68 Er erbium [167.26]	69 Tm thulium [168.93]	70 Yb ytterbium [172.05]	71 Lu lutetium [174.97]			
7	89 Ac actinium [227]	90 Th thorium [232.04]	91 Pa protactinium [231.04]	92 U uranium [238.03]	93 Np neptunium [237]	94 Pt plutonium [244]	95 Am americium [243]	96 Cm curium [247]	97 Bk berkelium [247]	98 Cf californium [251]	99 Es einsteinium [252]	100 Fm fermium [257]	101 Md mendelevium [258]	102 No nobelium [259]	103 Lr lawrencium [266]			

```
\pgfPT[Z list=myZlist,IUPAC=false]
```

6	55 Ce caesium [32.01]	56 Ba barium [137.33]	57–71 lanthanoids lanthanum [138.91]	72 Hf hafnium [178.49]	73 Ta tantalum [180.95]	74 W tungsten [183.84]	75 Re rhenium [186.21]	76 Os osmium [190.23]	77 Ir iridium [192.22]	78 Pt platinum [195.08]	79 Au gold [196.97]	80 Hg mercury [200.59]	81 Tl thallium [204.38]	82 Pb lead [207.2]	83 Bi bismuth [208.98]	84 Po polonium [209]	85 At astatine [210]	86 Rn radon [222]
7	87 Fr francium [223]	88 Ra radium [226]	89–103 actinoids actinides [227]	104 Rf rutherfordium [267]	105 Db dubnium [268]	106 Sg seaborgium [269]	107 Bh bohrium [270]	108 Hs hassium [270]	109 Mt meitnerium [270]	110 Ds darmstadtium [281]	111 Rg roentgenium [282]	112 Cn copernicium [285]	113 Nh nihonium [286]	114 Fl florium [289]	115 Mc moscovium [290]	116 Lv livermoorium [293]	117 Ts tennessine [294]	118 Og oganesson [284]
6	57 La lanthanum [138.91]	58 Ce cerium [140.12]	59 Pr praseodymium [140.91]	60 Nd neodymium [144.24]	61 Pm promethium [145]	62 Sm samarium [150.36]	63 Eu europium [151.96]	64 Gd gadolinium [157.25]	65 Tb terbium [158.93]	66 Dy dysprosium [162.5]	67 Ho holmium [164.93]	68 Er erbium [167.26]	69 Tm thulium [168.93]	70 Yb ytterbium [172.05]	71 Lu lutetium [174.97]			
7	89 Th thorium [232.04]	90 Pa protactinium [231.04]	91 U uranium [238.03]	92 Np neptunium [237]	93 Pt plutonium [244]	94 Am americium [243]	95 Cm curium [247]	96 Bk berkelium [247]	97 Cf californium [251]	98 Es einsteinium [252]	99 Fm fermium [257]	100 Md mendelevium [258]	101 No nobelium [259]	102 Lr lawrencium [266]				

```
\pgfPT[Z list=myZlist,IUPAC=false,show label LaAc=false]
```

6	55 Ce caesium [32.01]	56 Ba barium [137.33]	57 La lanthanum [138.91]	58 Hf hafnium [178.49]	59 Ta tantalum [180.95]	60 W tungsten [183.84]	61 Re rhenium [186.21]	62 Os osmium [190.23]	63 Ir iridium [192.22]	64 Pt platinum [195.08]	65 Au gold [196.97]	66 Hg mercury [200.59]	67 Tl thallium [204.38]	68 Pb lead [207.2]	69 Bi bismuth [208.98]	70 Po polonium [209]	71 At astatine [210]	72 Rn radon [222]
7	87 Fr francium [223]	88 Ra radium [226]	89–103 actinoids actinides [227]	104 Rf rutherfordium [267]	105 Db dubnium [268]	106 Sg seaborgium [269]	107 Bh bohrium [270]	108 Hs hassium [270]	109 Mt meitnerium [270]	110 Ds darmstadtium [281]	111 Rg roentgenium [282]	112 Cn copernicium [285]	113 Nh nihonium [286]	114 Fl florium [289]	115 Mc moscovium [290]	116 Lv livermoorium [293]	117 Ts tennessine [294]	118 Og oganesson [284]
6	57 La lanthanum [138.91]	58 Ce cerium [140.12]	59 Pr praseodymium [140.91]	60 Nd neodymium [144.24]	61 Pm promethium [145]	62 Sm samarium [150.36]	63 Eu europium [151.96]	64 Gd gadolinium [157.25]	65 Tb terbium [158.93]	66 Dy dysprosium [162.5]	67 Ho holmium [164.93]	68 Er erbium [167.26]	69 Tm thulium [168.93]	70 Yb ytterbium [172.05]	71 Lu lutetium [174.97]			
7	89 Th thorium [232.04]	90 Pa protactinium [231.04]	91 U uranium [238.03]	92 Np neptunium [237]	93 Pt plutonium [244]	94 Am americium [243]	95 Cm curium [247]	96 Bk berkelium [247]	97 Cf californium [251]	98 Es einsteinium [252]	99 Fm fermium [257]	100 Md mendelevium [258]	101 No nobelium [259]	102 Lr lawrencium [266]				

label LaAc fontdefault: `\footnotesize\itshape`

Sets the font for the labels 'lanthanoids' and 'actinoids'.

`\pgfPT[label LaAc font==bfs,Z list=myZlist,IUPAC=false]`

The first table (left) contains the following data:

Group	Element	Symbol	Atomic Number	Relative Atomic Mass
6	Cs	Ba	56	132.91
6	Hf	Ta	72	138.91
7	W	Re	74	183.84
7	Os	Ir	76	186.21
7	Pt	Au	78	190.23
7	Hg	Th	80	192.22
8	Pb	Bi	82	195.08
8	Po	Po	84	196.97
8	At	At	85	204.38
8	Rn	Rn	86	207.2
7	Fr	Ra	87	208.98
7	Ra	Ac	88	210.22
7	Rf	Dub	89	210.22
7	Dub	Sg	90	210.22
7	Sg	Boh	91	210.22
7	Boh	Hs	92	210.22
7	Hs	Mt	93	210.22
7	Mt	Ds	94	210.22
7	Ds	Rg	95	210.22
7	Rg	Cm	96	210.22
7	Cm	Nh	97	210.22
7	Nh	Fm	98	210.22
7	Fm	Mos	99	210.22
7	Mos	Lv	100	210.22
7	Lv	Ts	101	210.22
7	Ts	Ts	102	210.22
7	Ts	Og	103	210.22

The second table (right) contains the following data:

Group	Element	Symbol	Atomic Number	Relative Atomic Mass
6	Ce	Pr	58	140.12
6	Pr	Nd	59	140.91
6	Nd	Pm	60	144.24
6	Pm	Sm	61	145.0
6	Sm	Eu	62	150.36
6	Eu	Gd	63	151.96
6	Gd	Tb	64	157.25
6	Tb	Dy	65	158.93
6	Dy	Ho	66	162.5
6	Ho	Er	67	164.93
6	Er	Tm	68	167.78
6	Tm	Yb	69	168.93
6	Yb	Lu	70	173.05
7	Th	Pa	90	232.04
7	Pa	U	91	231.04
7	U	Np	92	238.03
7	Np	Pu	93	238.03
7	Pu	Am	94	244.0
7	Am	Cm	95	244.0
7	Cm	Bk	96	247.0
7	Bk	Cf	97	247.0
7	Cf	Es	98	247.0
7	Es	Einsteinium	99	247.0
7	Einsteinium	Fm	100	247.0
7	Fm	Mendelevium	101	247.0
7	Mendelevium	No	102	247.0
7	No	Lr	103	247.0

`\pgfPTresetstyle`
languages

default: {}

Sets a language list to use in the Periodic Table. It is a comma separated list of language flags: 'pt', 'en', 'fr', 'de', 'it', 'es' or 'br'. If a user language has been loaded, the corresponding ISO 639-1 code can also be used as a language flag. *This key locally overrides the default language, that is, the language loaded at package inclusion.*

(changed in v2.1.0)

`\pgfPT[Z list={1,...,36},languages=pt]`

Tabela Periódica dos Elementos

Group	Element	Symbol	Atomic Number	Relative Atomic Mass
1	Hidrogênio	H	1	1.008
2	berílio	Be	2	9.0122
3	lítio	Li	3	6.94
3	magnésio	Mg	12	24.305
4	sódio	Na	11	22.99
4	potássio	K	19	39.098
4	calcio	Ca	20	40.078
5	escandônio	Sc	21	44.956
5	titanio	Ti	22	47.867
6	vânadio	V	23	50.942
6	chromio	Cr	24	51.996
6	manganêsio	Mn	25	54.938
7	ferro	Fe	26	55.845
7	cobalto	Co	27	58.933
7	níquel	Ni	28	58.693
7	cobre	Cu	29	63.546
7	zinc	Zn	30	65.38
8	gálio	Ga	31	69.723
8	germaníum	Ge	32	72.63
8	ársenicio	As	33	74.922
8	selénio	Se	34	78.971
8	brómero	Br	35	79.904
8	króponio	Kr	36	83.798

`\pgfPT[Z list={1,...,36},cell style=pgfPT2lang,languages={en,fr}]`

Periodic Table of Elements

Tableau Périodique des Éléments

Group	Element	Symbol	Atomic Number	Relative Atomic Mass
1	hydrogen	H	1	1.008
2	beryllium	Be	2	9.0122
3	lithium	Li	3	6.94
3	magnesium	Mg	12	24.305
4	sodium	Na	11	22.99
4	potassium	K	19	39.098
4	calcium	Ca	20	40.078
5	scandium	Sc	21	44.956
5	titane	Ti	22	47.867
6	vánadio	V	23	50.942
6	chromio	Cr	24	51.996
6	manganêsio	Mn	25	54.938
7	ferro	Fe	26	55.845
7	cobalto	Co	27	58.933
7	níquel	Ni	28	58.693
7	cobre	Cu	29	63.546
7	zinc	Zn	30	65.38
8	gálio	Ga	31	69.723
8	germaníum	Ge	32	72.63
8	ársenicio	As	33	74.922
8	selénio	Se	34	78.971
8	brómero	Br	35	79.904
8	króponio	Kr	36	83.798

pgf-PeriodicTable 2.1.4

Options for `\pgfPT`: creating a «Periodic Table»

```
% \usepackage[userlang={nl}]{pgf-PeriodicTable}
\pgfPT[Z list={1,...,36},cell style=pgfPT2!lang,languages={nl,en}]
```

Periodiek Systeem van de Elementen

Periodic Table of Elements

1	H waterstof hydrogen	2	He helium helium	3	Li lithium lithium	4	Be beryllium beryllium	5	B boron boron	6	C carbon carbon	7	N nitrogen nitrogen	8	O oxygen oxygen	9	F fluor fluor	10	Ne neon neon	11	Mg magnesium magnesium	12	Al aluminum aluminum	13	Si silicon silicon	14	P phosphorus phosphorus	15	S sulfur sulfur	16	Cl chlorine chlorine	17	Ar argon argon	18	Kr krypton krypton																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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6.94		9.012		12		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31		32		33		34		35		36																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
11.904		12.007		12.991		13.12		14.01		15.999		16.999		17.998		18.998		19.998		20.998		21.998		22.991		23.992		24.992		25.992		26.992		27.992		28.992		29.992		30.992		31.992		32.992		33.992		34.992		35.992		36.992																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
22.99		24.305		24.305		24.992		25.992		26.992		27.992		28.992		29.992		30.992		31.992		32.992		33.992		34.992		35.992		36.992		37.992		38.992		39.992		40.992		41.992		42.992		43.992		44.992		45.992		46.992		47.992		48.992		49.992		50.992		51.992		52.992		53.992		54.992		55.992		56.992		57.992		58.992		59.992		60.992		61.992		62.992		63.992		64.992		65.992		66.992		67.992		68.992		69.992		70.992		71.992		72.992		73.992		74.992		75.992		76.992		77.992		78.992		79.992		80.992		81.992		82.992		83.992		84.992		85.992		86.992		87.992		88.992		89.992		90.992		91.992		92.992		93.992		94.992		95.992		96.992		97.992		98.992		99.992		100.992		101.992		102.992		103.992		104.992		105.992		106.992		107.992		108.992		109.992		110.992		111.992		112.992		113.992		114.992		115.992		116.992		117.992		118.992		119.992		120.992		121.992		122.992		123.992		124.992		125.992		126.992		127.992		128.992		129.992		130.992		131.992		132.992		133.992		134.992		135.992		136.992		137.992		138.992		139.992		140.992		141.992		142.992		143.992		144.992		145.992		146.992		147.992		148.992		149.992		150.992		151.992		152.992		153.992		154.992		155.992		156.992		157.992		158.992		159.992		160.992		161.992		162.992		163.992		164.992		165.992		166.992		167.992		168.992		169.992		170.992		171.992		172.992		173.992		174.992		175.992		176.992		177.992		178.992		179.992		180.992		181.992		182.992		183.992		184.992		185.992		186.992		187.992		188.992		189.992		190.992		191.992		192.992		193.992		194.992		195.992		196.992		197.992		198.992		199.992		200.992		201.992		202.992		203.992		204.992		205.992		206.992		207.992		208.992		209.992		210.992		211.992		212.992		213.992		214.992		215.992		216.992		217.992		218.992		219.992		220.992		221.992		222.992		223.992		224.992		225.992		226.992		227.992		228.992		229.992		230.992		231.992		232.992		233.992		234.992		235.992		236.992		237.992		238.992		239.992		240.992		241.992		242.992		243.992		244.992		245.992		246.992		247.992		248.992		249.992		250.992		251.992		252.992		253.992		254.992		255.992		256.992		257.992		258.992		259.992		260.992		261.992		262.992		263.992		264.992		265.992		266.992		267.992		268.992		269.992		270.992		271.992		272.992		273.992		274.992		275.992		276.992		277.992		278.992		279.992		280.992		281.992		282.992		283.992		284.992		285.992		286.992		287.992		288.992		289.992		290.992		291.992		292.992		293.992		294.992		295.992		296.992		297.992		298.992		299.992		300.992		301.992		302.992		303.992		304.992		305.992		306.992		307.992		308.992		309.992		310.992		311.992		312.992		313.992		314.992		315.992		316.992		317.992		318.992		319.992		320.992		321.992		322.992		323.992		324.992		325.992		326.992		327.992		328.992		329.992		330.992		331.992		332.992		333.992		334.992		335.992		336.992		337.992		338.992		339.992		340.992		341.992		342.992		343.992		344.992		345.992		346.992		347.992		348.992		349.992		350.992		351.992		352.992		353.992		354.992		355.992		356.992		357.992		358.992		359.992		360.992		361.992		362.992		363.992		364.992		365.992		366.992		367.992		368.992		369.992		370.992		371.992		372.992		373.992		374.992		375.992		376.992		377.992		378.992		379.992		380.992		381.992		382.992		383.992		384.992		385.992		386.992		387.992		388.992		389.992		390.992		391.992		392.992		393.992		394.992		395.992		396.992		397.992		398.992		399.992		400.992		401.992		402.992		403.992		404.992		405.992		406.992		407.992		408.992		409.992		410.992		411.992		412.992		413.992		414.992		415.992		416.992		417.992		418.992		419.992		420.992		421.992		422.992		423.992		424.992		425.992		426.992		427.992		428.992		429.992		430.992		431.992		432.992		433.992		434.992		435.992		436.992		437.992		438.992		439.992		440.992		441.992		442.992		443.992		444.992		445.992		446.992		447.992		448.992		449.992		450.992		451.992		452.992		453.992		454.992		455.992		456.992		457.992		458.992		459.992		460.992		461.992		462.992		463.992		464.992		465.992		466.992		467.992		468.992		469.992		470.992		471.992		472.992		473.992		474.992		475.992		476.992		477.992		478.992		479.992		480.992		481.992		482.992		483.992		484.992		485.992		486.992		487.992		488.992		489.992		490.992		491.992		492.992		493.992		494.992		495.992		496.992		497.992		498.992		499.992		500.992		501.992		502.992		503.992		504.992		505.992		506.992		507.992		508.992		509.992		510.992		511.992		512.992		513.992		514.992		515.992		516.992		517.992		518.992		519.992		520.992		521.992		522.992		523.992		524.992		525.992		526.992		527.992		528.992		529.992		530.992		531.992		532.992		533.992		534.992		535.992		536.992		537.992		538.992		539.992		540.992		541.992		542.992		543.992		544.992		545.992		546.992		547.992		548.992		549.992		550.992		551.992		552.992		553.992		554.992		555.992		556.992		557.992		558.992		559.992		560.992		561.992		562.992		563.992		564.992		565.992		566.992		567.992		568.992		569.992		570.992		571.992		572.992		573.992		574.992		575.992		576.992		577.992		578.992		579.992		580.992		581.992		582.992		583.992		584.992		585.992		586.992		587.992		588.992		589.992		590.992		591.992		592.992		593.992		594.992		595.992		596.992		597.992		598.992		599.992		600.992		601.992		602.992		603.992		604.992		605.992		606.992		607.992		608.992		609.992		610.992		611.992		612.992		613.992		614.992		615.992		616.992		617.992		618.992		619.992		620.992		621.992		622.992		623.992		624.992		625.992		626.992		627.992		628.992		629.992		630.992		631.992		632.992		633.992		634.992		635.992		636.992		637.992		638.992		639.992		640.992		641.992		642.992		643.992		644.992		645.992		646.992		647.992		648.992		649.992		650.992		651.992		652.992		653.992		654.992		655.992		656.992		657.992		658.992		659.992		660.992		661.992	</td

```
\pgfPT[Z list={1,...,36},cell style=pgfPT3lang,languages={pt,fr,it}]
```

Tabela Periódica dos Elementos

Tableau Périodique des Éléments Tavola Periodica degli Elementi

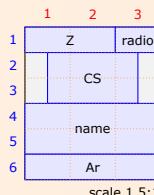
When using a set of languages, space to accommodate the names in each cell must be provided by building a suitable cell - typically one cell row per language. The cell styles used in the two examples above are built-in and serve this purpose.

✓ Built-in style **pgfPT2lang**

The build command:

\pgfPTbuildcell(6,3)%

[**(1;1-2;Z),(1;3;radio),(2-3;1.5-3.5;CS),(4-5;1-3;name),(6;1-3;Ar)**]

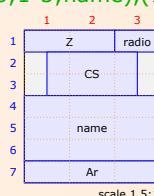


✓ Built-in style **pdfPT3lang**

The build command:

The build command:
nafPTBuildCell(7,3)%

(pgfP1)balance(7,3)%
[(1:1-2:7),(1:3:radio),(2-3:1.5-3.5:CS),(4-6:1-3:name),(7:1-3:Ar)]



Also, the space for the title should be taken into account – if using more than three languages, the legend must be *turned off*, otherwise the title overlaps the legend.

other languages font

default: \tiny

Sets the font used in *other languages*, i.e., the languages started at the second entry of the list provided to the `languages` key.

\pgfPT[Z list={1,...,36},cell style=pgfPT3lang,languages={en,es,br}, other languages font=\tiny\bfseries]

Periodic Table of Elements																			
Tabla Periódica de los Elementos																			
Tabela Periódica dos Elementos																			
1	H	hydrogen hidrógeno hidrogénio 1.008	2	He	helium helio helio 4.0026														
1	Li	lithium litio litio 6.94	2	Be	beryllium berilio berilio 9.0122														
3	Na	sodium magnésio magnésio 22.99	4	Mg	magnesium magnesio magnesio 24.305														
19	K	potassium potássio potássio 39.098	20	Ca	calcium calcio calcio 40.078														
21	Sc	scandium escandínio escandínio 44.956	22	Ti	titanium titanio titanio 47.967														
23	V	vanadium vanádio vanádio 50.942	24	Cr	chromium cromo cromo 51.996														
25	Mn	manganese manganeso manganeso 54.938	26	Fe	iron ferro ferro 55.845														
27	Co	cobalt cobalto cobalto 58.933	28	Ni	nickel níquel níquel 58.693														
29	Cu	copper cobre cobre 63.546	30	Zn	zinc zinco zinco 65.38														
31	Ga	gallium galio galio 69.723	32	Ge	germanium germanio germanio 72.63														
33	As	arsenic arsenico arsenico 74.922	34	Se	selenium selénio selénio 78.971														
35	Br	bromine bromo bromo 79.904	36	Kr	krypton criptônio criptônio 83.798														

other languages color

default: black!70

Sets the color of the font used in *other languages*.

\pgfPT[Z list={1,...,36},cell style=pgfPT3lang,languages={en,pt,br}, other languages color=purple]

Periodic Table of Elements																			
Tabela Periódica dos Elementos																			
Tabela Periodica dos Elementos																			
1	H	hydrogen hidrógeno hidrogénio 1.008	2	He	helium helio helio 4.0026														
1	Li	lithium litio litio 6.94	2	Be	beryllium berilio berilio 9.0122														
3	Na	sodium magnésio magnésio 22.99	4	Mg	magnesium magnesio magnesio 24.305														
19	K	potassium potássio potássio 39.098	20	Ca	calcium calcio calcio 40.078														
21	Sc	scandium escandínio escandínio 44.956	22	Ti	titanium titanio titanio 47.967														
23	V	vanadium vanádio vanádio 50.942	24	Cr	chromium cromo cromo 51.996														
25	Mn	manganese manganeso manganeso 54.938	26	Fe	iron ferro ferro 55.845														
27	Co	cobalt cobalto cobalto 58.933	28	Ni	nickel níquel níquel 58.693														
29	Cu	copper cobre cobre 63.546	30	Zn	zinc zinco zinco 65.38														
31	Ga	gallium galio galio 69.723	32	Ge	germanium germanio germanio 72.63														
33	As	arsenic arsenico arsenico 74.922	34	Se	selenium selénio selénio 78.971														
35	Br	bromine bromo bromo 79.904	36	Kr	krypton criptônio criptônio 83.798														

other lang

default: {f=\tiny,c=black!70}

Pseudo style to set the keys: other languages font and/or other languages color. None of the keys – f and c – are mandatory.

USAGE: other lang={f=,c=<color>}}

\pgfPT[Z list={1,...,36},cell style=pgfPT3lang,languages={en,fr,de}, other lang={f=\tiny\itshape,c=blue}]

Periodic Table of Elements																			
Tableau Périodique des Éléments																			
Periodensystem der Elemente																			
1	H	hydrogen hidrógeno hidrogénio 1.008	2	He	helium helio helio 4.0026														
1	Li	lithium litio litio 6.94	2	Be	beryllium berilio berilio 9.0122														
3	Na	sodium magnésio magnésio 22.99	4	Mg	magnesium magnesio magnesio 24.305														
19	K	potassium potássio potássio 39.098	20	Ca	calcium calcio calcio 40.078														
21	Sc	scandium escandínio escandínio 44.956	22	Ti	titanium titanio titanio 47.967														
23	V	vanadium vanádio vanádio 50.942	24	Cr	chromium cromo cromo 51.996														
25	Mn	manganese manganeso manganeso 54.938	26	Fe	iron ferro ferro 55.845														
27	Co	cobalt cobalto cobalto 58.933	28	Ni	nickel níquel níquel 58.693														
29	Cu	copper cobre cobre 63.546	30	Zn	zinc zinco zinco 65.38														
31	Ga	gallium galio galio 69.723	32	Ge	germanium germanio germanio 72.63														
33	As	arsenic arsenico arsenico 74.922	34	Se	selenium selénio selénio 78.971														
35	Br	bromine bromo bromo 79.904	36	Kr	krypton criptônio criptônio 83.798														

show MNM line

default: true

If set to true a line separating metals from non metals is shown in the Periodic Table. The line starts at the upper left corner of the cell of boron (2nd period, group 13) and ends at the lower right corner of polonium (6th period, group 16). If set to false no line is drawn.

\pgfPT[Z list=spd]

Periodic Table of Elements

1	H hydrogen 1.008	2	He helium 4.0026
3	Li lithium 6.94	4	Be beryllium 9.0122
5	Na sodium 22.99	6	Mg magnesium 24.305
7	K potassium 39.098	8	Ca calcium 40.078
9	Sc scandium 44.956	10	Ti titanium 47.867
11	V vanadium 50.942	12	Cr chromium 51.996
13	Mn manganese 54.938	14	Fe iron 55.845
15	Co cobalt 58.933	16	Ni nickel 58.693
17	Cu copper 63.546	18	Zn zinc 65.38
19	Ga gallium 69.723	20	Ge germanium 72.63
21	As arsenic 74.922	22	Sb selenium 78.971
23	Se sulfur 32.06	24	Te bromine 79.904
25	P phosphorus 30.974	26	I iodine 131.29
27	S sulfur 32.06	28	Xe xenon 131.29
29	Cl chlorine 35.45	30	Kr krypton 83.798
31	B boron 10.81	32	Rb rubidium 85.468
33	C carbon 12.011	34	Y yttrium 88.906
35	N nitrogen 14.007	36	Lu lanthanoids 137.33
37	O oxygen 15.999	38	La lanthanoids 132.91
39	F fluorine 19.998	40	Pr lanthanoids 141.00
41	Ne neon 20.19	42	Nd lanthanoids 144.967
43	Ar argon 39.95	44	Pm lanthanoids 147.967
45	Ca calcium 40.078	46	Tb lanthanoids 150.942
47	Sc scandium 44.956	48	Dy lanthanoids 153.942
49	Y yttrium 88.906	50	Ho lanthanoids 156.942
51	Ta tantalum 183.84	52	Er lanthanoids 159.942
53	W tungsten 186.95	54	Tm lanthanoids 162.942
55	Re rhenium 186.21	56	Yb lanthanoids 164.942
57	Os osmium 190.23	58	Lu lanthanoids 167.942
59	Ir iridium 192.22	60	Lu lanthanoids 171.942
61	Pt platinum 195.08	62	Lu lanthanoids 174.942
63	Au gold 196.57	64	Lu lanthanoids 177.942
65	Hg mercury 200.59	66	Lu lanthanoids 180.942
67	Tl thallium 204.38	68	Lu lanthanoids 183.942
69	Pb lead 207.2	70	Lu lanthanoids 186.942
71	Bi bismuth 208.98	72	Lu lanthanoids 189.942
73	Po polonium 209	74	Lu lanthanoids 192.942
75	At astatine 210	76	Lu lanthanoids 195.942
77	Rn radon [222]	78	Lu lanthanoids 198.942
79	Rf actinoids [267]	80	Lu lanthanoids 201.942
81	Dy actinoids [268]	82	Lu lanthanoids 204.942
83	Sg actinoids [269]	84	Lu lanthanoids 207.942
85	Bh actinoids [270]	86	Lu lanthanoids 210.942
87	Hs actinoids [270]	88	Lu lanthanoids 213.942
89	Mt actinoids [278]	90	Lu lanthanoids 216.942
91	Ds actinoids [281]	92	Lu lanthanoids 219.942
93	Rg actinoids [285]	94	Lu lanthanoids 222.942
95	Cn actinoids [289]	96	Lu lanthanoids 225.942
97	Nh actinoids [290]	98	Lu lanthanoids 228.942
99	Fl actinoids [293]	100	Lu lanthanoids 231.942
101	Mc actinoids [294]	102	Lu lanthanoids 234.942
103	Lv actinoids [294]	104	Lu lanthanoids 237.942
105	Ts actinoids [294]	106	Lu lanthanoids 240.942
107	Og actinoids [294]	108	Lu lanthanoids 243.942

\pgfPT[show MNM line=false]

Periodic Table of Elements

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\pgfPT[Z list={1,...,36}]
```

Periodic Table of Elements

1	H hydrogen 1.008	2	He helium 4.0026
3	Li lithium 6.94	4	Be beryllium 9.0122
5	B boron 10.81	6	C carbon 12.011
7	N nitrogen 14.007	8	O oxygen 15.999
9	F fluorine 18.998	10	Ne neon 20.18
11	Na sodium 22.99	12	Mg magnesium 24.305
13	Al aluminum 26.982	14	Si silicon 28.085
15	P phosphorus 30.974	16	S sulfur 32.06
17	Cl chlorine 35.455	18	Ar argon 39.95
19	K potassium 39.098	20	Ca calcium 40.078
21	Sc scandium 44.956	22	Ti titanium 47.867
23	V vanadium 50.942	24	Cr chromium 51.996
25	Mn manganese 54.938	26	Fe iron 55.845
27	Co cobalt 58.933	28	Ni nickel 58.693
29	Cu copper 63.546	30	Zn zinc 65.38
31	Ga gallium 69.723	32	Ge germanium 72.63
33	As arsenic 74.932	34	Se selenium 75.971
35	Br bromine 79.904	36	Kr krypton 83.798
37	Ra radioactive element		
38	Cs cesium 132.905		
39	N nitrogen 14.007		
40	Ar argon 39.95		
41	Ca calcium 40.078		
42	Sc scandium 44.956		
43	Ti titanium 47.867		
44	V vanadium 50.942		
45	Cr chromium 51.996		
46	Mn manganese 54.938		
47	Fe iron 55.845		
48	Ni nickel 58.693		
49	Cu copper 63.546		
50	Zn zinc 65.38		
51	Ga gallium 69.723		
52	Ge germanium 72.63		
53	As arsenic 74.932		
54	Se selenium 75.971		
55	Br bromine 79.904		
56	Kr krypton 83.798		
57	Ra radioactive element		
58	Cs cesium 132.905		
59	N nitrogen 14.007		
60	Ar argon 39.95		
61	Ca calcium 40.078		
62	Sc scandium 44.956		
63	Ti titanium 47.867		
64	V vanadium 50.942		
65	Cr chromium 51.996		
66	Mn manganese 54.938		
67	Fe iron 55.845		
68	Ni nickel 58.693		
69	Cu copper 63.546		
70	Zn zinc 65.38		
71	Ga gallium 69.723		
72	Ge germanium 72.63		
73	As arsenic 74.932		
74	Se selenium 75.971		
75	Br bromine 79.904		
76	Kr krypton 83.798		
77	Ra radioactive element		
78	Cs cesium 132.905		
79	N nitrogen 14.007		
80	Ar argon 39.95		
81	Ca calcium 40.078		
82	Sc scandium 44.956		
83	Ti titanium 47.867		
84	V vanadium 50.942		
85	Cr chromium 51.996		
86	Mn manganese 54.938		
87	Fe iron 55.845		
88	Ni nickel 58.693		
89	Cu copper 63.546		
90	Zn zinc 65.38		
91	Ga gallium 69.723		
92	Ge germanium 72.63		
93	As arsenic 74.932		
94	Se selenium 75.971		
95	Br bromine 79.904		
96	Kr krypton 83.798		
97	Ra radioactive element		
98	Cs cesium 132.905		
99	N nitrogen 14.007		
100	Ar argon 39.95		

MNM line colorSets the color of the *MNM line*.default: *red!80!black*

\pgfPT[MNM line color=green]

Periodic Table of Elements

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1 H hydrogen 1.008	2 He helium 4.0026	3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si silicon 28.085	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 Ar argon 39.95
19 K potassium 39.098	20 Ca calcium 40.078	21 Sc scandium 44.956	22 Ti titanium 47.867	23 V vanadium 50.942	24 Cr chromium 51.996	25 Mn manganese 54.938	26 Fe iron 55.845	27 Co cobalt 58.933	28 Ni nickel 58.693	29 Cu copper 63.546	30 Zn zinc 65.38	31 Ga gallium 69.723	32 Ge germanium 72.63	33 As arsenic 74.922	34 Se selenium 78.971	35 Br bromine 79.904	36 Kr krypton 83.798
37 Rb rubidium 85.468	38 Sr strontium 88.905	39 Y yttrium 91.224	40 Zr zirconium 92.906	41 Nb niobium 95.95	42 Mo molybdenum 95.95	43 Tc technetium [98]	44 Ru ruthenium 101.07	45 Rh rhodium 102.91	46 Pd palladium 106.42	47 Ag silver 107.87	48 Cd cadmium 112.41	49 In indium 114.82	50 Sn tin 118.71	51 Sb antimony 121.76	52 Te tellurium 127.6	53 I iodine 126.9	54 Xe xenon 131.29
55 Cs cesium 132.91	56 Ba barium 137.33	57-71 lanthanoids 138.91	72 Hf hafnium 178.49	73 Ta tantalum 180.95	74 W tungsten 183.84	75 Re rhenium 186.21	76 Os osmium 190.23	77 Ir iridium 192.22	78 Pt platinum 195.08	79 Au gold 196.97	80 Hg mercury 200.59	81 Tl thallium 204.38	82 Pb lead 207.2	83 Bi bismuth 208.98	84 Po polonium [209]	85 At astatine [210]	86 Rn radon [222]
87 Fr francium [223]	88 Ra radium [226]	89-103 actinoids 138.91	104 Rf rutherfordium [267]	105 Db dubnium [268]	106 Sg seaborgium [269]	107 Bh bohrium [270]	108 Hs hassium [270]	109 Mt meitnerium [278]	110 Ds darmstadtium [281]	111 Rg roentgenium [282]	112 Cn copernicium [285]	113 Nh nihonium [286]	114 Fl flerovium [289]	115 Mc moscovium [290]	116 Lv livemorium [293]	117 Ts ternesine [294]	118 Og oganeson [294]
57 La lanthanum 138.91	58 Ce cerium 140.12	59 Pr praseodymium 140.91	60 Nd neodymium 144.24	61 Pm promethium [145]	62 Sm samarium 150.36	63 Eu europium 151.96	64 Gd gadolinium 157.25	65 Tb terbium 158.93	66 Dy dysprosium 162.5	67 Ho holmium 164.93	68 Er erbium 167.26	69 Tm thulium 168.93	70 Yb ytterbium 173.05	71 Lu lutetium 174.97			
89 Ac actinium [227]	90 Th thorium 232.04	91 Pa protactinium 231.04	92 U uranium 238.03	93 Np neptunium [237]	94 Pu plutonium [244]	95 Am americium [243]	96 Cm curium [247]	97 Bk berkelium [247]	98 Cf californium [251]	99 Es einsteinium [252]	100 Fm fermium [257]	101 Md mendelevium [258]	102 No nobelium [259]	103 Lr lawrencium [266]			

MNM line widthSets the width of the *MNM line*.default: *.8pt*

\pgfPT[MNM line width=1.5pt]

Periodic Table of Elements

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1 H hydrogen 1.008	2 He helium 4.0026	3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si silicon 28.085	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 Ar argon 39.95
19 K potassium 39.098	20 Ca calcium 40.078	21 Sc scandium 44.956	22 Ti titanium 47.867	23 V vanadium 50.942	24 Cr chromium 51.996	25 Mn manganese 54.938	26 Fe iron 55.845	27 Co cobalt 58.933	28 Ni nickel 58.693	29 Cu copper 63.546	30 Zn zinc 65.38	31 Ga gallium 69.723	32 Ge germanium 72.63	33 As arsenic 74.922	34 Se selenium 78.971	35 Br bromine 79.904	36 Kr krypton 83.798
37 Rb rubidium 85.468	38 Sr strontium 88.905	39 Y yttrium 91.224	40 Zr zirconium 92.906	41 Nb niobium 95.95	42 Mo molybdenum 95.95	43 Tc technetium [98]	44 Ru ruthenium 101.07	45 Rh rhodium 102.91	46 Pd palladium 106.42	47 Ag silver 107.87	48 Cd cadmium 112.41	49 In indium 114.82	50 Sn tin 118.71	51 Sb antimony 121.76	52 Te tellurium 127.6	53 I iodine 126.9	54 Xe xenon 131.29
55 Cs cesium 132.91	56 Ba barium 137.33	57-71 lanthanoids 138.91	72 Hf hafnium 178.49	73 Ta tantalum 180.95	74 W tungsten 183.84	75 Re rhenium 186.21	76 Os osmium 190.23	77 Ir iridium 192.22	78 Pt platinum 195.08	79 Au gold 196.97	80 Hg mercury 200.59	81 Tl thallium 204.38	82 Pb lead 207.2	83 Bi bismuth 208.98	84 Po polonium [209]	85 At astatine [210]	86 Rn radon [222]
87 Fr francium [223]	88 Ra radium [226]	89-103 actinoids 138.91	104 Rf rutherfordium [267]	105 Db dubnium [268]	106 Sg seaborgium [269]	107 Bh bohrium [270]	108 Hs hassium [270]	109 Mt meitnerium [278]	110 Ds darmstadtium [281]	111 Rg roentgenium [282]	112 Cn copernicium [285]	113 Nh nihonium [286]	114 Fl flerovium [289]	115 Mc moscovium [290]	116 Lv livemorium [293]	117 Ts ternesine [294]	118 Og oganeson [294]
57 La lanthanum 138.91	58 Ce cerium 140.12	59 Pr praseodymium 140.91	60 Nd neodymium 144.24	61 Pm promethium [145]	62 Sm samarium 150.36	63 Eu europium 151.96	64 Gd gadolinium 157.25	65 Tb terbium 158.93	66 Dy dysprosium 162.5	67 Ho holmium 164.93	68 Er erbium 167.26	69 Tm thulium 168.93	70 Yb ytterbium 173.05	71 Lu lutetium 174.97			
89 Ac actinium [227]	90 Th thorium 232.04	91 Pa protactinium 231.04	92 U uranium 238.03	93 Np neptunium [237]	94 Pu plutonium [244]	95 Am americium [243]	96 Cm curium [247]	97 Bk berkelium [247]	98 Cf californium [251]	99 Es einsteinium [252]	100 Fm fermium [257]	101 Md mendelevium [258]	102 No nobelium [259]	103 Lr lawrencium [266]			

MNMdefault: `{c=red!80!black,w=.8pt}`

Pseudo style to set the **MNM** **line color** and/or **width**. None of the keys – c and w – are mandatory. The key **show MNM line** is set to **true**.

USAGE: `MNM={c=<color>,w=<length>}`

`\pgfPT[MNM={w=1.5pt,c=red}]`

Periodic Table of Elements

1	H	2	He
1	hydrogen 1.008	2	helium 4.0026
3	Li	4	Be
2	lithium 6.94	3	beryllium 9.0122
11	Na	12	Mg
3	sodium 22.99	4	magnesium 24.305
19	K	20	Ca
4	potassium 39.098	5	Sc
21	Sc	22	Ti
20	calcium 40.078	23	V
24	Cr	25	Mn
25	Mn	26	Fe
26	Fe	27	Co
27	Co	28	Ni
28	Ni	29	Cu
29	Cu	30	Zn
31	Zn	32	Ga
32	Ga	33	Ge
33	Ge	34	As
34	As	35	Se
35	Se	36	Br
36	Br	37	Kr
37	Rb	38	Y
5	rubidium 25.468	39	Zr
40	strontium 87.62	41	Nb
21	Scandium 44.955	22	Ta
22	Scandium 47.867	23	Vanadium 50.942
23	Vanadium 51.996	24	chromium 54.938
24	chromium 55.845	25	manganese 56.933
25	manganese 58.933	26	iron 58.933
26	iron 58.933	27	cobalt 58.933
27	cobalt 58.933	28	nickel 58.693
28	nickel 58.693	29	copper 63.546
29	copper 63.546	30	zinc 65.38
30	zinc 65.38	31	gallium 69.723
31	gallium 69.723	32	germanium 72.63
32	germanium 72.63	33	arsenic 74.922
33	arsenic 74.922	34	selenium 78.971
34	selenium 78.971	35	bromine 79.904
35	bromine 79.904	36	krypton 83.798
36	krypton 83.798	37	I
37	I	38	Xe
5	Fr	6	Ra
7	Ra	89-103	actinoids
89	Fr	90	nathafordium [267]
90	Ra	91	dubnium [268]
91	Fr	92	seaborgium [269]
92	Ra	93	bohrium [270]
93	Fr	94	hsium [270]
94	Ra	95	meitnerium [276]
95	Fr	96	Darmstadtium [281]
96	Ra	97	roentgenium [282]
97	Fr	98	Cn
98	Ra	99	nihonium [286]
99	Fr	100	Fl
100	Ra	101	Mc
101	Fr	102	Lv
102	Ra	103	Ts
103	Fr	104	Og
104	Ra	105	ognesson [294]
105	Fr	106	
106	Ra	107	
107	Fr	108	
108	Ra	109	
109	Fr	110	
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111	Fr	112	
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114	Ra	115	
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372	Ra	373	
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378	Ra	379	
379	Fr	380	
380	Ra	381	
381	Fr</		

\pgfPT[Z list={1,...,36},show title=false]

1	H	hydrogen	1.008
2	He	helium	4.0026
3	Li	lithium	6.94
4	Be	beryllium	9.0122
5	Mg	magnesium	24.305
6	Al	aluminum	26.982
7	Si	silicon	28.085
8	P	phosphorus	30.974
9	S	sulfur	32.06
10	N	nitrogen	14.007
11	O	oxygen	15.999
12	F	fluorine	18.998
13	B	boron	10.81
14	C	carbon	12.011
15	Cl	chlorine	35.45
16	Ar	argon	39.95
17	Ne	neon	20.18
18	K	potassium	39.098
19	Ca	calcium	40.078
20	Sc	scandium	44.956
21	Ti	titanium	47.867
22	V	vanadium	50.942
23	Cr	chromium	51.996
24	Mn	manganese	54.938
25	Fe	iron	55.845
26	Co	cobalt	58.933
27	Ni	nickel	58.693
28	Cu	copper	63.546
29	Zn	zinc	65.38
30	Ga	gallium	69.723
31	Ge	germanium	72.63
32	As	arsenic	74.922
33	Se	selenium	78.971
34	Br	bromine	79.904
35	Kr	krypton	83.798

title font

default: `\Large\bfseries`

Sets the font used in the title.

\pgfPT[Z list={1,...,36},title font=\Huge\itshape]

Periodic Table of Elements

1	H	hydrogen	1.008
2	He	helium	4.0026
3	Li	lithium	6.94
4	Be	beryllium	9.0122
5	Mg	magnesium	24.305
6	Al	aluminum	26.982
7	Si	silicon	28.085
8	P	phosphorus	30.974
9	S	sulfur	32.06
10	N	nitrogen	14.007
11	O	oxygen	15.999
12	F	fluorine	18.998
13	B	boron	10.81
14	C	carbon	12.011
15	Cl	chlorine	35.45
16	Ar	argon	39.95
17	Ne	neon	20.18
18	K	potassium	39.098
19	Ca	calcium	40.078
20	Sc	scandium	44.956
21	Ti	titanium	47.867
22	V	vanadium	50.942
23	Cr	chromium	51.996
24	Mn	manganese	54.938
25	Fe	iron	55.845
26	Co	cobalt	58.933
27	Ni	nickel	58.693
28	Cu	copper	63.546
29	Zn	zinc	65.38
30	Ga	gallium	69.723
31	Ge	germanium	72.63
32	As	arsenic	74.922
33	Se	selenium	78.971
34	Br	bromine	79.904
35	Kr	krypton	83.798

title color

default: `black`

Sets the title color.

\pgfPT[Z list={1,...,36},title color=green!50!black]

Periodic Table of Elements

1	H	hydrogen	1.008
2	He	helium	4.0026
3	Li	lithium	6.94
4	Be	beryllium	9.0122
5	Mg	magnesium	24.305
6	Al	aluminum	26.982
7	Si	silicon	28.085
8	P	phosphorus	30.974
9	S	sulfur	32.06
10	N	nitrogen	14.007
11	O	oxygen	15.999
12	F	fluorine	18.998
13	B	boron	10.81
14	C	carbon	12.011
15	Cl	chlorine	35.45
16	Ar	argon	39.95
17	Ne	neon	20.18
18	K	potassium	39.098
19	Ca	calcium	40.078
20	Sc	scandium	44.956
21	Ti	titanium	47.867
22	V	vanadium	50.942
23	Cr	chromium	51.996
24	Mn	manganese	54.938
25	Fe	iron	55.845
26	Co	cobalt	58.933
27	Ni	nickel	58.693
28	Cu	copper	63.546
29	Zn	zinc	65.38
30	Ga	gallium	69.723
31	Ge	germanium	72.63
32	As	arsenic	74.922
33	Se	selenium	78.971
34	Br	bromine	79.904
35	Kr	krypton	83.798

title

default: `{f=\Large\bfseries,c=black}`

Pseudo style to set the keys: title font and/or title color. None of the keys – f and c – are mandatory. The key show title is set to true.

USAGE: `title={f=,c=<color>}}`

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\pgfPT[Z list={1,...,36},title={f=\Huge,c=teal}]
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Periodic Table of Elements

1	H hydrogen 1.008	2	He helium 4.0026
3	Li lithium 6.94	4	Be beryllium 9.0122
5	Mg magnesium 24.305	6	Al aluminum 26.982
7	Na sodium 22.99	8	Si silicon 28.085
9	K potassium 39.098	10	P phosphorus 30.974
11	Ca calcium 40.078	12	S sulfur 32.06
13	Sc scandium 44.956	14	Cl chlorine 35.455
15	Ti titanium 47.867	16	Ar argon 39.95
17	V vanadium 50.942	18	Kr krypton 83.798
19	Cr chromium 51.996	20	Br bromine 80.00
21	Fe manganese 54.938	22	Ga germanium 72.63
23	Co iron 58.845	24	Ge germanium 78.921
25	Ni cobalt 58.933	26	As arsenic 79.984
27	Zn nickel 63.546	28	Se selenium 81.984
29	Cu copper 65.38	30	Br bromine 80.00
31	Ga gallium 69.723	32	Kr krypton 83.798
33	Ge germanium 78.921	34	Br bromine 80.00
35	As arsenic 79.984	36	Kr krypton 83.798

show legend

default: *true*

When set to **true** the legend is shown, otherwise it is not shown.

\pgfPT[Z list={1,...,36}]

Periodic Table of Elements

1	H hydrogen 1.008	2	He helium 4.0026
3	Li lithium 6.94	4	Be beryllium 9.0122
5	Mg magnesium 24.305	6	Al aluminum 26.982
7	Si silicon 28.085	8	P phosphorus 30.974
9	S sulfur 32.06	10	Cl chlorine 35.455
11	Ar argon 39.95	12	Kr krypton 83.798
13	B boron 10.81	14	Ge germanium 72.63
15	C carbon 12.011	16	As arsenic 74.922
17	N nitrogen 14.007	18	Se selenium 78.971
19	O oxygen 15.999	20	Br bromine 80.912
21	Ga gallium 69.723	22	Kr krypton 83.798
23	Sc scandium 44.956	24	Ti titanium 47.867
25	V vanadium 50.942	26	Cr chromium 51.986
27	Mn manganese 54.938	28	Fe iron 55.845
29	Co cobalt 58.933	30	Ni nickel 58.693
31	Zn zinc 65.456	32	Gs gallium 65.38
33	Ge germanium 76.085	34	As arsenic 77.982
35	Se selenium 78.971	36	Br bromine 80.912
37	Kr krypton 83.798		

```
\pgfPT[Z list={1,...,36},show legend=false]
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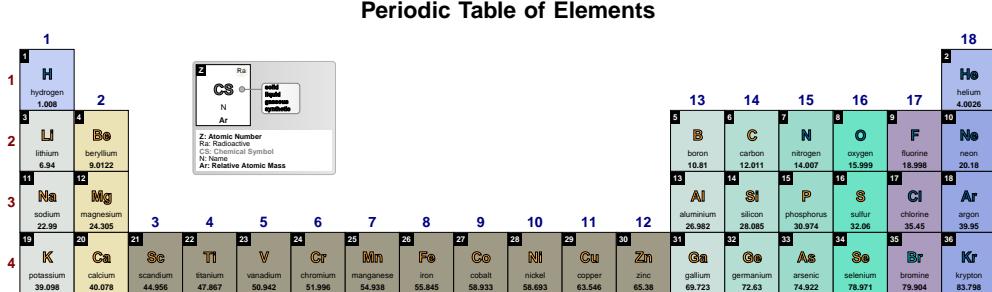
Periodic Table of Elements

legend acronyms

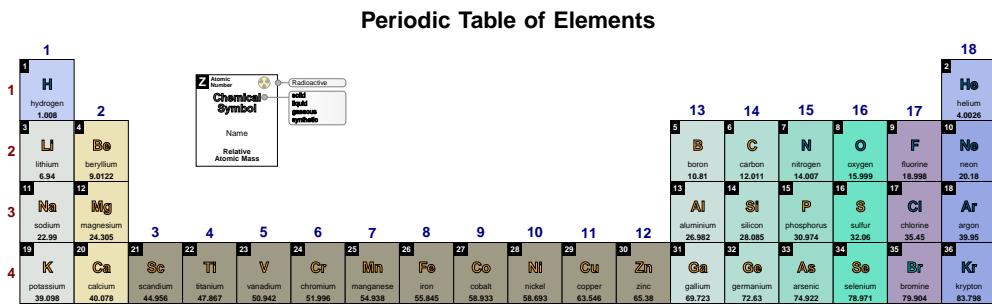
default: *true*

When set to **true**, the legend consists of a cell using acronyms for its contents and the corresponding descriptions below that cell. When set to **false**, only the cell is displayed with the descriptions in place of the acronyms. In the latter case, the description font size is automatically adjusted to the available box, which can *spoil the appearance of the whole caption*, depending on the described content.

\pgfPT[Z list={1,...,36}]

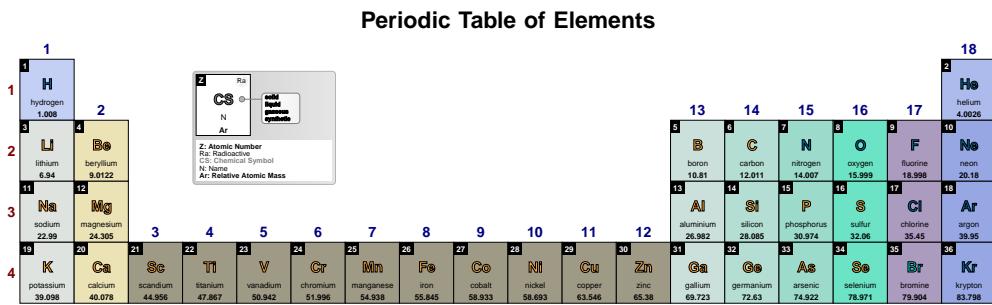


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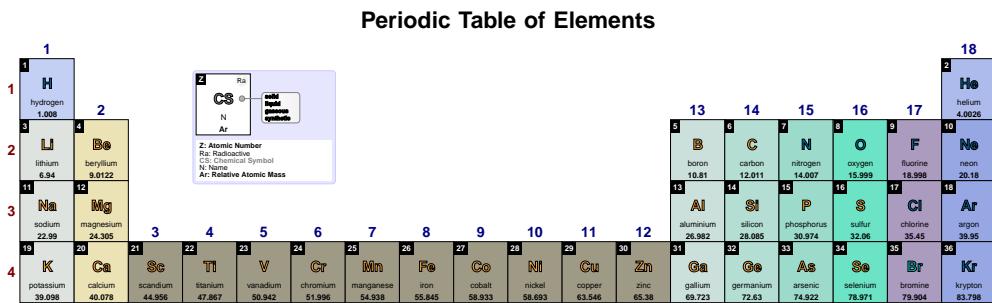
**legend box**default: `left color=black!20,right color=black!10,draw=black!30`

Style to define the appearance of the box around the legend, legend pins and acronym descriptions, built with any of the Ti_kZ keys that can be applied to a path construction. *It only works when the key `legend acronyms` is set to true.*

\pgfPT[Z list={1,...,36}]



\pgfPT[Z list={1,...,36},legend box={draw=blue!20,fill=blue!10}]



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Periodic Table of Elements																	
1 1 H hydrogen 1.008	2 2 Be beryllium 9.0122	3 3 Li lithium 6.94	4 4 B boron 10.81	5 5 C carbon 12.011	6 6 N nitrogen 14.007	7 7 O oxygen 15.999	8 8 F fluorine 18.998	9 9 Ne neon 20.18	10 10 He helium 4.0026	11 11 Na sodium 22.99	12 12 Mg magnesium 24.305	13 13 Al aluminum 26.982	14 14 Si silicon 28.085	15 15 P phosphorus 30.974	16 16 S sulfur 32.06	17 17 Cl chlorine 35.45	18 18 Ar argon 39.95
19 19 K potassium 39.098	20 20 Ca calcium 40.078	21 21 Sc scandium 44.956	22 22 Ti titanium 47.867	23 23 V vanadium 50.942	24 24 Cr chromium 51.996	25 25 Mn manganese 54.938	26 26 Fe iron 55.845	27 27 Co cobalt 58.933	28 28 Ni nickel 58.693	29 29 Cu copper 63.546	30 30 Zn zinc 65.38	31 31 Ga gallium 69.723	32 32 Ge germanium 72.63	33 33 As arsenic 74.922	34 34 Se selenium 78.971	35 35 Br bromine 79.904	36 36 Kr krypton 83.798
19 19 K potassium 39.098	20 20 Ca calcium 40.078	21 21 Sc scandium 44.956	22 22 Ti titanium 47.867	23 23 V vanadium 50.942	24 24 Cr chromium 51.996	25 25 Mn manganese 54.938	26 26 Fe iron 55.845	27 27 Co cobalt 58.933	28 28 Ni nickel 58.693	29 29 Cu copper 63.546	30 30 Zn zinc 65.38	31 31 Ga gallium 69.723	32 32 Ge germanium 72.63	33 33 As arsenic 74.922	34 34 Se selenium 78.971	35 35 Br bromine 79.904	36 36 Kr krypton 83.798

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\pgfPT[Z list={1,...,36},legend box={}]
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Periodic Table of Elements																	
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legend back color

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Sets the legend background color.

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Periodic Table of Elements																	
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Periodic Table of Elements																	
1 1 H hydrogen 1.008	2 2 Be beryllium 9.0122	3 3 Li lithium 6.94	4 4 B boron 10.81	5 5 C carbon 12.011	6 6 N nitrogen 14.007	7 7 O oxygen 15.999	8 8 F fluorine 18.998	9 9 Ne neon 20.18	10 10 He helium 4.0026	11 11 Na sodium 22.99	12 12 Mg magnesium 24.305	13 13 Al aluminum 26.982	14 14 Si silicon 28.085	15 15 P phosphorus 30.974	16 16 S sulfur 32.06	17 17 Cl chlorine 35.45	18 18 Ar argon 39.95
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Sets the color of the radioactivity acronym and corresponding description.

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Periodic Table of Elements																		
1	H	hydrogen	1.008	2														18
1	Li	lithium	6.94	2	Be	beryllium	9.0122											He
2	Na	sodium	22.99	3	Mg	magnesium	24.305	3	4	5	6	7	8	9	10	11	12	Ne
3	K	potassium	39.098	4	Ca	calcium	40.078	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ar
4								Scandium	Titanium	Vanadium	Chromium	Manganese	Iron	Cobalt	Nickel	Copper	Zinc	
5								44.955	47.867	50.942	51.996	54.938	55.845	58.933	58.693	63.546	65.38	
6																		
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Periodic Table of Elements																		
1	H	hydrogen	1.008	2														18
1	Li	lithium	6.94	2	Be	beryllium	9.0122											He
2	Na	sodium	22.99	3	Mg	magnesium	24.305	3	4	5	6	7	8	9	10	11	12	Ne
3	K	potassium	39.098	4	Ca	calcium	40.078	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ar
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\pgfPT[Z list={1,...,36},legend radio color=red,legend acronyms=false]

Periodic Table of Elements																		
1	H	hydrogen	1.008	2														18
1	Li	lithium	6.94	2	Be	beryllium	9.0122											He
2	Na	sodium	22.99	3	Mg	magnesium	24.305	3	4	5	6	7	8	9	10	11	12	Ne
3	K	potassium	39.098	4	Ca	calcium	40.078	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ar
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Sets the color of the Chemical Symbol acronym and corresponding description.

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Periodic Table of Elements																		
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1	Li	lithium	6.94	2	Be	beryllium	9.0122											He
2	Na	sodium	22.99	3	Mg	magnesium	24.305	3	4	5	6	7	8	9	10	11	12	Ne
3	K	potassium	39.098	4	Ca	calcium	40.078	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ar
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Periodic Table of Elements																	
1 H hydrogen 1.008	2 He helium 4.0026	3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si silicon 28.085	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 Ar argon 39.95
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Periodic Table of Elements																	
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Periodic Table of Elements																	
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Periodic Table of Elements																	
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Periodic Table of Elements																		
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show legend pins

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When set to true the legend pins are shown, otherwise they are not shown.

\pgfPT[Z list={1,...,36}]

Periodic Table of Elements																		
1 1 H hydrogen 1.008	2 2 Be beryllium 9.0122	3 3 Li lithium 6.94	4 4 B boron 10.81	5 5 C carbon 12.011	6 6 N nitrogen 14.007	7 7 O oxygen 15.999	8 8 F fluorine 18.998	9 9 Ne neon 20.18	10 10 He helium 4.0026	11 11 Na sodium 22.99	12 12 Mg magnesium 24.305	13 13 Al aluminum 26.982	14 14 Si silicon 28.085	15 15 P phosphorus 30.974	16 16 S sulfur 32.06	17 17 Cl chlorine 35.45	18 18 Ar argon 39.95	
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Periodic Table of Elements																		
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legend pins

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Style to define the appearance of the legend pins, built with any of the TikZ keys that can be applied to a path construction.

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Periodic Table of Elements																		
1 1 H hydrogen 1.008	2 2 Be beryllium 9.0122	3 3 Li lithium 6.94	4 4 B boron 10.81	5 5 C carbon 12.011	6 6 N nitrogen 14.007	7 7 O oxygen 15.999	8 8 F fluorine 18.998	9 9 Ne neon 20.18	10 10 He helium 4.0026	11 11 Na sodium 22.99	12 12 Mg magnesium 24.305	13 13 Al aluminum 26.982	14 14 Si silicon 28.085	15 15 P phosphorus 30.974	16 16 S sulfur 32.06	17 17 Cl chlorine 35.45	18 18 Ar argon 39.95	
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Periodic Table of Elements																	
1 H hydrogen 1.008	2 He helium 4.0026	3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si silicon 28.085	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 Ar argon 39.95
19 K potassium 39.098	20 Ca calcium 40.078	21 Sc scandium 44.955	22 Ti titanium 47.867	23 V vanadium 50.942	24 Cr chromium 51.996	25 Mn manganese 54.938	26 Fe iron 55.845	27 Co cobalt 58.933	28 Ni nickel 58.693	29 Cu copper 63.546	30 Zn zinc 65.38	31 Ga gallium 69.723	32 Ge germanium 72.63	33 As arsenic 74.922	34 Se selenium 78.971	35 Br bromine 79.904	36 Kr krypton 83.798
3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si silicon 28.085	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 Ar argon 39.95		
1 H hydrogen 1.008	2 He helium 4.0026	3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si silicon 28.085	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 Ar argon 39.95

```
\pgfPT[Z list={1,...,36},legend pins={draw=red,fill=red!10},legend acronyms=false]
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Periodic Table of Elements																	
1 H hydrogen 1.008	2 He helium 4.0026	3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si silicon 28.085	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 Ar argon 39.95
19 K potassium 39.098	20 Ca calcium 40.078	21 Sc scandium 44.955	22 Ti titanium 47.867	23 V vanadium 50.942	24 Cr chromium 51.996	25 Mn manganese 54.938	26 Fe iron 55.845	27 Co cobalt 58.933	28 Ni nickel 58.693	29 Cu copper 63.546	30 Zn zinc 65.38	31 Ga gallium 69.723	32 Ge germanium 72.63	33 As arsenic 74.922	34 Se selenium 78.971	35 Br bromine 79.904	36 Kr krypton 83.798
3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si silicon 28.085	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 Ar argon 39.95		
1 H hydrogen 1.008	2 He helium 4.0026	3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si silicon 28.085	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 Ar argon 39.95

show extra legend

default: true

When set to true the extra legend is shown, otherwise it is not shown.

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\pgfPT[Z list={1,...,36},cell style=myname]
```

Periodic Table of Elements																	
1 H hydrogen 1.008	2 He helium 4.0026	3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si silicon 28.085	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 Ar argon 39.95
19 K potassium 39.098	20 Ca calcium 40.078	21 Sc scandium 44.955	22 Ti titanium 47.867	23 V vanadium 50.942	24 Cr chromium 51.996	25 Mn manganese 54.938	26 Fe iron 55.845	27 Co cobalt 58.933	28 Ni nickel 58.693	29 Cu copper 63.546	30 Zn zinc 65.38	31 Ga gallium 69.723	32 Ge germanium 72.63	33 As arsenic 74.922	34 Se selenium 78.971	35 Br bromine 79.904	36 Kr krypton 83.798
3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si silicon 28.085	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 Ar argon 39.95		
1 H hydrogen 1.008	2 He helium 4.0026	3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si silicon 28.085	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 Ar argon 39.95

```
\pgfPT[Z list={1,...,36},cell style=myname,show extra legend=false]
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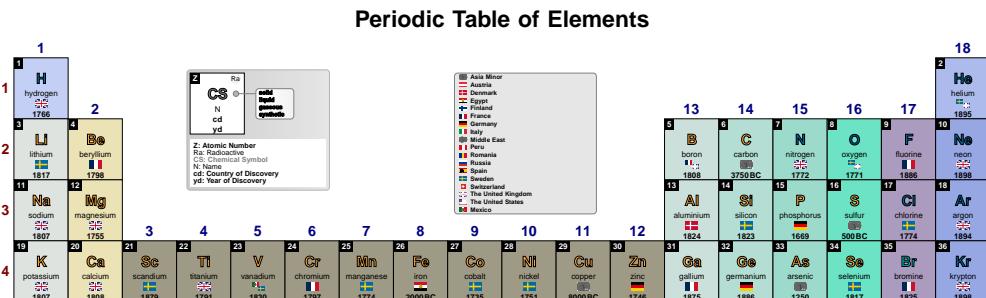
Periodic Table of Elements																	
1 H hydrogen 1.008	2 He helium 4.0026	3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si silicon 28.085	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 Ar argon 39.95
19 K potassium 39.098	20 Ca calcium 40.078	21 Sc scandium 44.955	22 Ti titanium 47.867	23 V vanadium 50.942	24 Cr chromium 51.996	25 Mn manganese 54.938	26 Fe iron 55.845	27 Co cobalt 58.933	28 Ni nickel 58.693	29 Cu copper 63.546	30 Zn zinc 65.38	31 Ga gallium 69.723	32 Ge germanium 72.63	33 As arsenic 74.922	34 Se selenium 78.971	35 Br bromine 79.904	36 Kr krypton 83.798
3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si silicon 28.085	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 Ar argon 39.95		
1 H hydrogen 1.008	2 He helium 4.0026	3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si silicon 28.085	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 Ar argon 39.95

extra legend

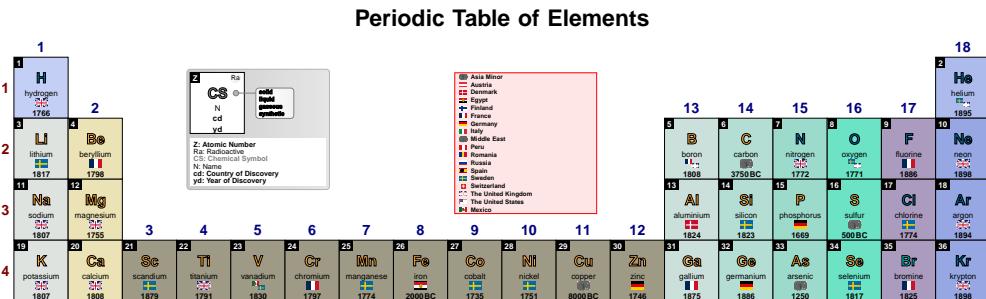
default: `{draw=black!50,fill=black!10,line width=.05pt, rounded corners=2pt}`

Style to define the appearance of the extra legend, built with any of the TikZ keys that can be applied to a path construction.

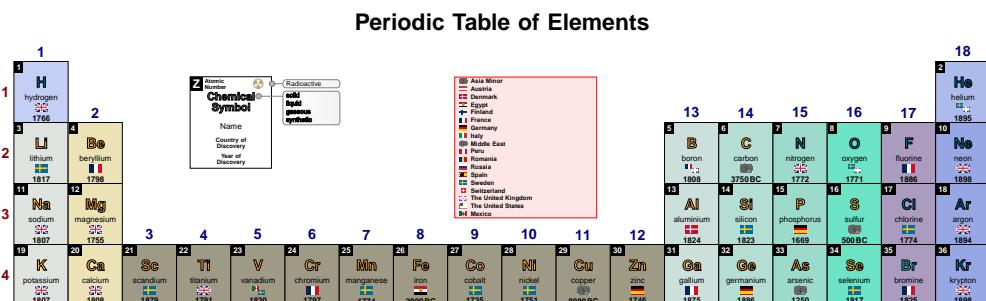
```
\pgfPT[Z list={1,...,36},cell style=pgfPTdisc]
```



```
\pgfPT[Z list={1,...,36},cell style=pgfPTdisc,extra legend={draw=red,fill=red!10}]
```



```
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**legend**

default: `{bc=white,pins=true,extra=true,acro=true}`

Pseudo style to set the keys: legend **back color**, show legend **pins**, show **extra** legend, legend **acronyms**, legend **radio** color, legend **CS** color, legend **Z** color, legend **pins (style)**, **extra** legend **(style)** and/or legend **box** (style). None of the keys – bc, pins, extra, acro, radio, CS, Z, pins style, extra style and box – are mandatory. The key **show legend** is set to **true**.

USAGE:

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legend={bc=<color>,pins=<true|false>,extra=<true|false>,acro=<true|false>,radio=<color>,CS=<color>,Z=<color>,pins style=<tikz path keys>,extra style=<tikz path keys>,box=<tikz path keys>}
```

```
\pgfPT[Z list={1,...,36},cell style=myname,legend={bc=black!10,extra=false}]
```

Periodic Table of Elements

1	H hydrogen 	2	He helium 	18
3	Li lithium 	4	Be beryllium 	10
5	B boron 	6	C carbon 	12
7	N nitrogen 	8	O oxygen 	14
9	F fluorine 	10	P phosphorus 	16
11	Na sodium 	12	Mg magnesium 	17
13	Al aluminum 	14	Si silicon 	18
15	Cl chlorine 	16	S sulfur 	19
17	Ar argon 	18	Br bromine 	20
19	K potassium 	20	Ca calcium 	21
21	Sc scandium 	22	Tl thallium 	23
23	V vanadium 	24	Cr chromium 	25
25	Mn manganese 	26	Fe iron 	27
27	Co cobalt 	28	Ni nickel 	29
29	Cu copper 	30	Zn zinc 	31
31	Ga gallium 	32	Ge germanium 	33
33	As arsenic 	34	Se selenium 	35
35	Br bromine 			36
				Kr krypton

```
\pgfPT[Z list={1,...,36},cell style=myname,legend={acro=false,extra=false}]
```

Periodic Table of Elements

1	H hydrogen 	2	He helium
3	Li lithium 	4	Be beryllium
5	B boron 	6	C carbon
7	N nitrogen 	8	O oxygen
9	F fluorine 	10	S sulfur
11	Na sodium 	12	Al aluminum
13	Mg magnesium 	14	Si silicon
15	P phosphorus 	16	Cl chlorine
17	S sulfur 	18	Ar argon
19	K potassium 	20	Br bromine
21	Ca calcium 	22	Kr krypton
23	Sc scandium 	24	Tl thallium
25	V vanadium 	26	Cr chromium
27	Fe iron 	28	Co cobalt
29	Ni nickel 	30	Zn zinc
31	Ga gallium 	32	Ge germanium
33	As arsenic 	34	Se selenium
35	Br bromine 		

► Periods and Groups

show period numbers

default: *true*

When set to **true** the period numbers are shown, otherwise they are not shown.

```
\pgfPT[Z list={1,...,36}]
```

Periodic Table of Elements

1	H hydrogen 1.008	2	He helium 4.0026
3	Li lithium 6.94	4	Be beryllium 9.0122
5	B boron 10.81	6	C carbon 12.011
7	N nitrogen 14.007	8	O oxygen 15.999
9	F fluorine 18.998	10	Ne neon 20.18
11	Na sodium 22.99	12	Mg magnesium 24.305
13	P phosphorus 30.974	14	S sulfur 32.06
15	Cl chlorine 35.49	16	Ar argon 39.95
17	K potassium 39.098	18	Br bromine 79.907
19	Ca calcium 40.078	20	Kr krypton 83.798
21	Sc scandium 44.956	22	Ti titanium 47.867
23	V vanadium 50.942	24	Cr chromium 51.998
25	Mn manganese 54.938	26	Fe iron 55.845
27	Co cobalt 58.933	28	Ni nickel 58.693
29	Cu copper 63.545	30	Zn zinc 65.38
31	Ga gallium 69.723	32	Ge germanium 72.63
33	As arsenic 74.922	34	Se selenium 78.971
35	Br bromine 79.907	36	Kr krypton 83.798
37	Rb rubidium 85.467	38	Xe xenon 131.3
39	Y yttrium 88.905	40	Fr francium 223.0
41	Lu lutetium 174.967	42	Rf rutherfordium 261.0
43	Hf hafnium 178.49	44	Rg roentgenium 287.0
45	Ta tantalum 180.955	46	Cf curium 251.0
47	W tungsten 183.84	48	Bk berkelium 247.0
49	Ru ruthenium 190.23	50	Cf californium 251.0
51	Tc technetium 98.91	52	Ba barium 137.3
53	Rh rhodium 102.905	54	La lanthanum 138.91
55	Pt platinum 190.99	56	Ce cerium 140.11
57	Ir iridium 192.24	58	Pr praseodymium 141.0
59	Os osmium 190.23	60	Nd neodymium 144.24
61	Ru ruthenium 190.23	62	Pm promethium 145.92
63	Rh rhodium 190.99	64	Sm samarium 150.36
65	Pd palladium 106.42	66	Eu europium 152.0
67	Ag silver 107.87	68	Gd gadolinium 157.25
69	Pt platinum 190.99	70	Dy dysprosium 162.5
71	Ir iridium 192.24	72	Tb thulium 158.93
73	Os osmium 190.23	74	Ho holmium 164.93
75	Ru ruthenium 190.23	76	Er erbium 167.26
77	Ir iridium 192.24	78	Tm thulium 168.93
79	Pt platinum 190.99	80	Dy dysprosium 162.5
81	Ag silver 107.87	82	Tb thulium 158.93
83	Pt platinum 190.99	84	Ho holmium 164.93
85	Ir iridium 192.24	86	Er erbium 167.26
87	Pt platinum 190.99	88	Tm thulium 168.93
89	Ag silver 107.87	90	Dy dysprosium 162.5
91	Pt platinum 190.99	92	Tb thulium 158.93
93	Ir iridium 192.24	94	Ho holmium 164.93
95	Pt platinum 190.99	96	Er erbium 167.26
97	Ag silver 107.87	98	Tm thulium 168.93
99	Pt platinum 190.99	100	Dy dysprosium 162.5
101	Ag silver 107.87	102	Tb thulium 158.93
103	Pt platinum 190.99	104	Ho holmium 164.93
105	Ir iridium 192.24	106	Er erbium 167.26
107	Pt platinum 190.99	108	Tm thulium 168.93
109	Ag silver 107.87	110	Dy dysprosium 162.5
111	Pt platinum 190.99	112	Tb thulium 158.93
113	Ir iridium 192.24	114	Ho holmium 164.93
115	Pt platinum 190.99	116	Er erbium 167.26
117	Ag silver 107.87	118	Tm thulium 168.93
119	Pt platinum 190.99	120	Dy dysprosium 162.5
121	Ag silver 107.87	122	Tb thulium 158.93
123	Pt platinum 190.99	124	Ho holmium 164.93
125	Ir iridium 192.24	126	Er erbium 167.26
127	Pt platinum 190.99	128	Tm thulium 168.93
129	Ag silver 107.87	130	Dy dysprosium 162.5
131	Pt platinum 190.99	132	Tb thulium 158.93
133	Ir iridium 192.24	134	Ho holmium 164.93
135	Pt platinum 190.99	136	Er erbium 167.26
137	Ag silver 107.87	138	Tm thulium 168.93
139	Pt platinum 190.99	140	Dy dysprosium 162.5
141	Ag silver 107.87	142	Tb thulium 158.93
143	Pt platinum 190.99	144	Ho holmium 164.93
145	Ir iridium 192.24	146	Er erbium 167.26
147	Pt platinum 190.99	148	Tm thulium 168.93
149	Ag silver 107.87	150	Dy dysprosium 162.5
151	Pt platinum 190.99	152	Tb thulium 158.93
153	Ir iridium 192.24	154	Ho holmium 164.93
155	Pt platinum 190.99	156	Er erbium 167.26
157	Ag silver 107.87	158	Tm thulium 168.93
159	Pt platinum 190.99	160	Dy dysprosium 162.5
161	Ag silver 107.87	162	Tb thulium 158.93
163	Pt platinum 190.99	164	Ho holmium 164.93
165	Ir iridium 192.24	166	Er erbium 167.26
167	Pt platinum 190.99	168	Tm thulium 168.93
169	Ag silver 107.87	170	Dy dysprosium 162.5
171	Pt platinum 190.99	172	Tb thulium 158.93
173	Ir iridium 192.24	174	Ho holmium 164.93
175	Pt platinum 190.99	176	Er erbium 167.26
177	Ag silver 107.87	178	Tm thulium 168.93
179	Pt platinum 190.99	180	Dy dysprosium 162.5
181	Ag silver 107.87	182	Tb thulium 158.93
183	Pt platinum 190.99	184	Ho holmium 164.93
185	Ir iridium 192.24	186	Er erbium 167.26
187	Pt platinum 190.99	188	Tm thulium 168.93
189	Ag silver 107.87	190	Dy dysprosium 162.5
191	Pt platinum 190.99	192	Tb thulium 158.93
193	Ir iridium 192.24	194	Ho holmium 164.93
195	Pt platinum 190.99	196	Er erbium 167.26
197	Ag silver 107.87	198	Tm thulium 168.93
199	Pt platinum 190.99	200	Dy dysprosium 162.5
201	Ag silver 107.87	202	Tb thulium 158.93
203	Pt platinum 190.99	204	Ho holmium 164.93
205	Ir iridium 192.24	206	Er erbium 167.26
207	Pt platinum 190.99	208	Tm thulium 168.93
209	Ag silver 107.87	210	Dy dysprosium 162.5
211	Pt platinum 190.99	212	Tb thulium 158.93
213	Ir iridium 192.24	214	Ho holmium 164.93
215	Pt platinum 190.99	216	Er erbium 167.26
217	Ag silver 107.87	218	Tm thulium 168.93
219	Pt platinum 190.99	220	Dy dysprosium 162.5
221	Ag silver 107.87	222	Tb thulium 158.93
223	Pt platinum 190.99	224	Ho holmium 164.93
225	Ir iridium 192.24	226	Er erbium 167.26
227	Pt platinum 190.99	228	Tm thulium 168.93
229	Ag silver 107.87	230	Dy dysprosium 162.5
231	Pt platinum 190.99	232	Tb thulium 158.93
233	Ir iridium 192.24	234	Ho holmium 164.93
235	Pt platinum 190.99	236	Er erbium 167.26
237	Ag silver 107.87	238	Tm thulium 168.93
239	Pt platinum 190.99	240	Dy dysprosium 162.5
241	Ag silver 107.87	242	Tb thulium 158.93
243	Pt platinum 190.99	244	Ho holmium 164.93
245	Ir iridium 192.24	246	Er erbium 167.26
247	Pt platinum 190.99	248	Tm thulium 168.93
249	Ag silver 107.87	250	Dy dysprosium 162.5
251	Pt platinum 190.99	252	Tb thulium 158.93
253	Ir iridium 192.24	254	Ho holmium 164.93
255	Pt platinum 190.99	256	Er erbium 167.26
257	Ag silver 107.87	258	Tm thulium 168.93
259	Pt platinum 190.99	260	Dy dysprosium 162.5
261	Ag silver 107.87	262	Tb thulium 158.93
263	Pt platinum 190.99	264	Ho holmium 164.93
265	Ir iridium 192.24	266	Er erbium 167.26
267	Pt platinum 190.99	268	Tm thulium 168.93
269	Ag silver 107.87	270	Dy dysprosium 162.5
271	Pt platinum 190.99	272	Tb thulium 158.93
273	Ir iridium 192.24	274	Ho holmium 164.93
275	Pt platinum 190.99	276	Er erbium 167.26
277	Ag silver 107.87	278	Tm thulium 168.93
279	Pt platinum 190.99	280	Dy dysprosium 162.5
281	Ag silver 107.87	282	Tb thulium 158.93
283	Pt platinum 190.99	284	Ho holmium 164.93
285	Ir iridium 192.24	286	Er erbium 167.26
287	Pt platinum 190.99	288	Tm thulium 168.93
289	Ag silver 107.87	290	Dy dysprosium 162.5
291	Pt platinum 190.99	292	Tb thulium 158.93
293	Ir iridium 192.24	294	Ho holmium 164.93
295	Pt platinum 190.99	296	Er erbium 167.26
297	Ag silver 107.87	298	Tm thulium 168.93
299	Pt platinum 190.99	300	Dy dysprosium 162.5
301	Ag silver 107.87	302	Tb thulium 158.93
303	Pt platinum 190.99	304	Ho holmium 164.93
305	Ir iridium 192.24	306	Er erbium 167.26
307	Pt platinum 190.99	308	Tm thulium 168.93
309	Ag silver 107.87	310	Dy dysprosium 162.5
311	Pt platinum 190.99	312	Tb thulium 158.93
313	Ir iridium 192.24	314	Ho holmium 164.93
315	Pt platinum 190.99	316	Er erbium 167.26
317	Ag silver 107.87	318	Tm thulium 168.93
319	Pt platinum 190.99	320	Dy dysprosium 162.5
321	Ag silver 107.87	322	Tb thulium 158.93
323	Pt platinum 190.99	324	Ho holmium 164.93
325	Ir iridium 192.24	326	Er erbium 167.26
327	Pt platinum 190.99	32	

```
\pgfPT[Z list={1,...,36},show period numbers=false]
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Periodic Table of Elements

show group numbers

default: true

When set to true the group numbers are shown, otherwise they are not shown.

\pgfPT[Z list={1,...,36}]

Periodic Table of Elements																			
1	H	hydrogen	1.008	2	B	beryllium	9.0122	3	Li	lithium	6.94	4	Be	beryllium	9.0122	5	B	boron	10.81
6	Mg	magnesium	24.305	7	V	vandium	50.942	8	Cr	chromium	51.996	9	Mn	manganese	54.938	10	Fe	iron	55.845
11	Na	sodium	22.99	12	Ti	titanium	47.867	13	Al	aluminum	26.982	14	Co	cobalt	58.933	15	Ni	nickel	58.693
19	K	potassium	39.098	20	Ca	calcium	40.078	21	Sc	scandium	44.955	22	Cr	chromium	51.996	23	Mn	manganese	54.938
4	Ca	calcium	40.078	24	Sc	scandium	44.955	25	Fe	iron	55.845	26	Co	cobalt	58.933	27	Fe	iron	55.845
18	He	helium	4.0026	10	Ne	neon	20.18	13	C	carbon	12.011	14	P	phosphorus	30.974	15	O	oxygen	15.999
16	F	fluorine	18.998	17	S	sulfur	32.06	18	Cl	chlorine	35.45	19	Ar	argon	39.95	20	Kr	krypton	83.798
3	Na	sodium	22.99	12	Mg	magnesium	24.305	21	Sc	scandium	44.955	22	Ti	titanium	47.867	23	V	vandium	50.942
19	K	potassium	39.098	20	Ca	calcium	40.078	24	Cr	chromium	51.996	25	Mn	manganese	54.938	26	Fe	iron	55.845
4	Ca	calcium	40.078	21	Sc	scandium	44.955	22	Cr	chromium	51.996	23	Mn	manganese	54.938	24	Cr	chromium	51.996
18	He	helium	4.0026	10	Ne	neon	20.18	13	B	boron	10.81	14	Si	silicon	28.085	15	N	nitrogen	14.007
16	F	fluorine	18.998	17	P	phosphorus	30.974	18	O	oxygen	15.999	19	S	sulfur	32.06	20	Cl	chlorine	35.45
3	Na	sodium	22.99	12	Mg	magnesium	24.305	21	Sc	scandium	44.955	22	Ti	titanium	47.867	23	V	vandium	50.942
19	K	potassium	39.098	20	Ca	calcium	40.078	24	Cr	chromium	51.996	25	Mn	manganese	54.938	26	Fe	iron	55.845
4	Ca	calcium	40.078	21	Sc	scandium	44.955	22	Cr	chromium	51.996	23	Mn	manganese	54.938	24	Cr	chromium	51.996
18	He	helium	4.0026	10	Ne	neon	20.18	13	Al	aluminum	26.982	14	Si	silicon	28.085	15	N	nitrogen	14.007
16	F	fluorine	18.998	17	P	phosphorus	30.974	18	O	oxygen	15.999	19	S	sulfur	32.06	20	Cl	chlorine	35.45
3	Na	sodium	22.99	12	Mg	magnesium	24.305	21	Sc	scandium	44.955	22	Ti	titanium	47.867	23	V	vandium	50.942
19	K	potassium	39.098	20	Ca	calcium	40.078	24	Cr	chromium	51.996	25	Mn	manganese	54.938	26	Fe	iron	55.845
4	Ca	calcium	40.078	21	Sc	scandium	44.955	22	Cr	chromium	51.996	23	Mn	manganese	54.938	24	Cr	chromium	51.996

\pgfPT[Z list={1,...,36},show group numbers=false]

Periodic Table of Elements																			
1	H	hydrogen	1.008	2	B	beryllium	9.0122	3	Li	lithium	6.94	4	Be	beryllium	9.0122	5	B	boron	10.81
6	Mg	magnesium	24.305	7	V	vandium	50.942	8	Cr	chromium	51.996	9	Mn	manganese	54.938	10	Fe	iron	55.845
11	Na	sodium	22.99	12	Ti	titanium	47.867	13	Al	aluminum	26.982	14	Co	cobalt	58.933	15	Ni	nickel	58.693
19	K	potassium	39.098	20	Ca	calcium	40.078	21	Sc	scandium	44.955	22	Cr	chromium	51.996	23	Mn	manganese	54.938
4	Ca	calcium	40.078	21	Sc	scandium	44.955	22	Cr	chromium	51.996	23	Mn	manganese	54.938	24	Cr	chromium	51.996
18	He	helium	4.0026	10	Ne	neon	20.18	13	C	carbon	12.011	14	P	phosphorus	30.974	15	O	oxygen	15.999
16	F	fluorine	18.998	17	S	sulfur	32.06	18	Cl	chlorine	35.45	19	Ar	argon	39.95	20	Kr	krypton	83.798
3	Na	sodium	22.99	12	Mg	magnesium	24.305	21	Sc	scandium	44.955	22	Ti	titanium	47.867	23	V	vandium	50.942
19	K	potassium	39.098	20	Ca	calcium	40.078	24	Cr	chromium	51.996	25	Mn	manganese	54.938	26	Fe	iron	55.845
4	Ca	calcium	40.078	21	Sc	scandium	44.955	22	Cr	chromium	51.996	23	Mn	manganese	54.938	24	Cr	chromium	51.996
18	He	helium	4.0026	10	Ne	neon	20.18	13	Al	aluminum	26.982	14	Si	silicon	28.085	15	N	nitrogen	14.007
16	F	fluorine	18.998	17	P	phosphorus	30.974	18	O	oxygen	15.999	19	S	sulfur	32.06	20	Cl	chlorine	35.45
3	Na	sodium	22.99	12	Mg	magnesium	24.305	21	Sc	scandium	44.955	22	Ti	titanium	47.867	23	V	vandium	50.942
19	K	potassium	39.098	20	Ca	calcium	40.078	24	Cr	chromium	51.996	25	Mn	manganese	54.938	26	Fe	iron	55.845
4	Ca	calcium	40.078	21	Sc	scandium	44.955	22	Cr	chromium	51.996	23	Mn	manganese	54.938	24	Cr	chromium	51.996

group numbers

default: arabic

- ✓ **arabic**: group numbers are shown in arabic numerals as recommended by IUPAC since 1988.
- ✓ **CAS**: group numbers are shown in Roman numerals and 'A' or 'B' suffix. This is an older naming scheme, used by the Chemical Abstract Service (CAS), more popular in the United States.
- ✓ **IUPAC**: group numbers are shown in Roman numerals and 'A' or 'B' suffix. This is an older naming scheme, used by IUPAC before 1988, more popular in Europe.
- ✓ **CAS***: combines the option **CAS** and **arabic**. Roman numerals and 'A' or 'B' suffix are above the group and the arabic numerals above them.
- ✓ **IUPAC***: combines the option **IUPAC** and **arabic**. Roman numerals and 'A' or 'B' suffix are above the group and the arabic numerals above them.

(new in v2.1.1)

\pgfPT[Z list={1,...,36},group numbers=CAS]

Periodic Table of Elements																			
IA	IIA	IIIIB	IVB	VB	VIB	VIIIB	VIIIB	VIIIB	VIIIB	VIIIB	VIIIB	VIIIB	VIIIB	VIIIB	VIIIB	VIIIB	VIIIB		
1	H	hydrogen	1.008	2	B	beryllium	9.0122	3	Li	lithium	6.94	4	Be	beryllium	9.0122	5	B	boron	10.81
6	Mg	magnesium	24.305	7	V	vandium	50.942	8	Cr	chromium	51.996	9	Mn	manganese	54.938	10	Fe	iron	55.845
11	Na	sodium	22.99	12	Ti	titanium	47.867	13	Al	aluminum	26.982	14	Co	cobalt	58.933	15	Ni	nickel	58.693
19	K	potassium	39.098	20	Ca	calcium	40.078	21	Sc	scandium	44.955	22	Cr	chromium	51.996	23	Mn	manganese	54.938
4	Ca	calcium	40.078	21	Sc	scandium	44.955	22	Cr	chromium	51.996	23	Mn	manganese	54.938	24	Cr	chromium	51.996
18	He	helium	4.0026	10	Ne	neon	20.18	13	C	carbon	12.011	14	P	phosphorus	30.974	15	O	oxygen	15.999
16	F	fluorine	18.998	17	S	sulfur	32.06	18	Cl	chlorine	35.45	19	Ar	argon	39.95	20	Kr	krypton	83.798
3	Na	sodium	22.99	12	Mg	magnesium	24.305	21	Sc	scandium	44.955	22	Ti	titanium	47.867	23	V	vandium	50.942
19	K	potassium	39.098	20	Ca	calcium	40.078	24	Cr	chromium	51.996	25	Mn	manganese	54.938	26	Fe	iron	55.845
4	Ca	calcium	40.078	21	Sc	scandium	44.955	22	Cr	chromium	51.996	23	Mn	manganese	54.938	24	Cr	chromium	51.996
18	He	helium	4.0026	10	Ne	neon	20.18	13	Al	aluminum	26.982	14	Si	silicon	28.085	15	N	nitrogen	14.007
16	F	fluorine	18.998	17	P	phosphorus	30.974	18	O	oxygen	15.999	19	S	sulfur	32.06	20	Cl	chlorine	35.45
3	Na	sodium	22.99	12	Mg	magnesium	24.305	21	Sc	scandium	44.955	22	Ti	titanium	47.867	23	V	vandium	50.942
19	K	potassium	39.098	20	Ca	calcium	40.078	24	Cr	chromium	51.996	25	Mn	manganese	54.938	26	Fe	iron	55.845
4	Ca	calcium	40.078	21	Sc	scandium	44.955	22	Cr	chromium	51.996	23	Mn	manganese	54.938	24	Cr	chromium	51.996

\pgfPT[Z list={1,...,36},group numbers=IUPAC]

Periodic Table of Elements

```
\pgfPT[Z list={1,...,36},group numbers=CAS*]
```

Periodic Table of Elements

`\pgfPT[Z list={1,...,36},group numbers=IUPAC*]`

Periodic Table of Elements

period label color

default: *red!50!black*

Sets the period label color.

```
\pgfPT[Z list={1,...,36},period label color=black]
```

Periodic Table of Elements

1	H hydrogen 1.008	2	He helium 4.0026
3	Li lithium 6.94	4	Be beryllium 9.0122
5	Mg magnesium 24.305	6	Al aluminum 26.982
7	K potassium 39.098	8	Si silicon 28.085
9	Ca calcium 40.078	10	P phosphorus 30.974
11	Sc scandium 44.956	12	S sulfur 32.06
13	Ti titanium 47.867	14	Cl chlorine 35.495
15	Cr chromium 50.942	16	Ar argon 39.95
17	Mo manganese 54.938	18	Kr krypton 83.798
19	Fe iron 55.845	20	Ga gallium 69.723
21	Co cobalt 58.933	22	Ge germanium 72.63
23	Ni nickel 58.693	24	As arsenic 74.922
25	Cu copper 63.546	26	Se selenium 78.971
27	Zn zinc 65.38	28	Br bromine 79.904
29	Ga gallium 69.723	30	Kr krypton 83.798
31	Ge germanium 72.63	32	Ga gallium 69.723
33	As arsenic 74.922	34	Ge germanium 72.63
35	Se selenium 78.971	36	Br bromine 79.904
37	Kr krypton 83.798		

group label color

default: *blue!50!black*

Sets the group label color.

```
\pgfPT[Z list={1,...,36},group label color=black]
```

Periodic Table of Elements

Roman label color

default: *blue!70!black*

(new in v2.1.1)

```
\pgfPT[Z list={1,...,36},group numbers=CAS*,Roman label color=purple]
```

Periodic Table of Elements

1	IA											18	VIIA	
1	H	hydrogen 1.008	2	IIA										
3	Li	lithium 6.94	4	Be	beryllium 9.0122									
5	Na	sodium 22.99	6	Mg	magnesium 24.305									
7	K	potassium 39.098	8	Ca	calcium 40.078									
9	Sc	scandium 44.956	10	Tl	thallium 47.692									
11	V	vanadium 50.942	12	Cr	chromium 51.996									
13	Min	manganese 54.938	14	Fe	iron 55.845									
15	Co	cobalt 58.931	16	Ni										
17	Cu	copper 63.546	18	Zn	zinc 65.38									
19	Ga	gallium 69.723	20	Ge	germanium 72.631									
21	As	arsenic 74.922	22	Se	selenium 78.971									
23	Br	bromine 79.904	24	Kr	krypton 83.798									
25	Ra											2	He	
26	CS	radon 86.9115	27	N	nitrogen 14.007							9	Ne	
28	Ar	oxygen 15.993	29	P	phosphorus 30.974							10	Neon	
29	Si	silicon 28.085	30	S	sulfur 32.06							11	Cl	
31	Al	aluminum 26.982	32	Cl	chlorine 35.45							12	Ar	
32	Ge	germanium 78.971	33	As	arsenic 74.922							13	Kr	
33	Ga	gallium 69.723	34	Se	selenium 78.971							14	Br	
34	Ge	germanium 72.631	35	Br	bromine 79.904							15	Kr	
35	As	arsenic 74.922	36	Kr	krypton 83.798							16	Br	
36	Se	selenium 78.971										17	VIIA	
	Z: Atomic Number Ra: Radioactive CS: Chemical Symbol N: Nonmetal Ar: Relatively Atomic Mass													
	3	III	4	IV	5	VB	6	VIB	7	VIIB	8	VIIIB	9	VIIIB

```
\pgfPFT[Z list={1,...,36},group numbers=CAS*,Roman label color=purple, group label color=teal]
```

Periodic Table of Elements

label font

Sets the label font.

default: `\small\bfseries`
`\pgfPT[Z list={1,...,36},label font=\itshape]`

Periodic Table of Elements

A standard periodic table of elements with the following features:

- Labels:** All element labels are in italics.
- Inset:** A small box in the top-left corner contains the following text: "Z: Atomic Number", "Ra: Radioactive", "Cs: Chemical Symbol", "N: Name", and "Ar: Relative Atomic Mass".
- Data:** Each element cell contains its symbol, name, atomic number, relative atomic mass, and element group.

perdefault: `{gr=true,c=red!50!black,f=\small\bfseries}`

Pseudo style to set the keys: show **group numbers**, period label **color** and/or **label font**. None of the keys – gr, c and f – are mandatory. The key **show period numbers** is set to **true**.

`USAGE: per={gr=<true|false>,c=<color>,f=}`
`\pgfPT[Z list={1,...,36},per={gr=false,c=green!50!black}]`

Periodic Table of Elements

A standard periodic table of elements with the following features:

- Group Labels:** The group numbers (1 through 18) are displayed in green at the top of each column.
- Labels:** All element labels are in black.
- Inset:** A small box in the top-left corner contains the following text: "Z: Atomic Number", "Ra: Radioactive", "Cs: Chemical Symbol", "N: Name", and "Ar: Relative Atomic Mass".
- Data:** Each element cell contains its symbol, name, atomic number, relative atomic mass, and element group.

grdefault: `{per=true,c=blue!50!black,f=\small\bfseries}`

Pseudo style to set the keys: show **period numbers**, group label **color** and/or **label font**. None of the keys – per, c and f – are mandatory. The key **show group numbers** is set to **true**.

`USAGE: gr={per=<true|false>,c=<color>,f=}`
`\pgfPT[Z list={1,...,36},gr={per=false,c=green!50!black}]`

Periodic Table of Elements

A standard periodic table of elements with the following features:

- Period Labels:** The period numbers (1 through 4) are displayed in green at the start of each row.
- Labels:** All element labels are in black.
- Inset:** A small box in the top-left corner contains the following text: "Z: Atomic Number", "Ra: Radioactive", "Cs: Chemical Symbol", "N: Name", and "Ar: Relative Atomic Mass".
- Data:** Each element cell contains its symbol, name, atomic number, relative atomic mass, and element group.

per+grdefault: `{pc=red!50!black,gc=blue!50!black,f=\small\bfseries}`

Pseudo style: use **c** to set both keys group label color and period label color with the same color; use **pc** to set period label color, **gc** to set group label color and/or **f** to set label **font**. None of the keys – c, pc, gc and f – are mandatory. The keys **show period numbers** and **show group numbers** are set to **true**.

USAGE: `per+gr={c=<color>,pc=<color>,gc=<color>,f=}`

```
\pgfPT[Z list={1,...,36},per+gr={c=green!50!black,
f=\fontfamily{frc}\selectfont\normalsize\bfseries}]
```

Periodic Table of Elements																		
1	H	hydrogen	1.008	2	He	helium	4.0026	13	B	boron	10.81	14	C	carbon	12.011	15	N	nitrogen
3	Li	lithium	6.94	4	Be	beryllium	9.0122	5	B	boron	10.81	6	C	carbon	12.011	7	N	nitrogen
11	Na	sodium	22.99	12	Mg	magnesium	24.305	19	K	potassium	39.098	20	Ca	calcium	40.078	21	Sc	scandium
3	Li	lithium	6.94	4	Be	beryllium	9.0122	22	Ti	titanium	44.956	23	V	vanadium	47.867	24	Cr	chromium
19	K	potassium	39.098	20	Ca	calcium	40.078	21	Ti	titanium	44.956	22	V	vanadium	47.867	23	Cr	chromium
21	Sc	scandium	44.956	22	Ti	titanium	47.867	23	V	vanadium	50.942	24	Cr	chromium	51.996	25	Mn	manganese
31	Ga	gallium	69.723	32	Ge	germanium	72.63	33	As	arsenic	74.922	34	Se	selenium	78.971	35	Br	bromine
32	Ge	germanium	72.63	33	As	arsenic	74.922	34	Se	selenium	78.971	35	Br	bromine	79.904	36	Kr	krypton
33	As	arsenic	74.922	34	Se	selenium	78.971	35	Br	bromine	79.904	36	Kr	krypton	83.798	18	He	helium
35	Br	bromine	79.904	36	Kr	krypton	83.798	18	He	helium	4.0026	10	Ne	neon	20.18	1	H	hydrogen
18	He	helium	4.0026	10	Ne	neon	20.18	1	H	hydrogen	1.008	2	He	helium	4.0026	18	He	helium

Blocks and Families**show blocks**default: `false`

When set to **true** the blocks **s**, **p**, **d** and **f** are drawn overlaying the Periodic Table and their labels are shown. Note that blocks are only shown when the **Z list** contains, at least, all elements of blocks s, p and d.

```
\pgfPT[Z list={1,...,36},show blocks=true,show title=false]
```

Periodic Table of Elements																		
1	H	hydrogen	1.008	2	He	helium	4.0026	13	B	boron	10.81	14	C	carbon	12.011	15	N	nitrogen
3	Li	lithium	6.94	4	Be	beryllium	9.0122	5	Cr	chromium	51.996	6	Mn	manganese	54.938	7	Fe	iron
11	Na	sodium	22.99	12	Mg	magnesium	24.305	19	Sc	scandium	44.956	20	Ti	titanium	47.867	21	V	vanadium
19	K	potassium	39.098	20	Ca	calcium	40.078	21	Cr	chromium	51.996	22	Mn	manganese	54.938	23	Fe	iron
21	Sc	scandium	44.956	22	Ti	titanium	47.867	23	V	vanadium	50.942	24	Cr	chromium	51.996	25	Mn	manganese
31	Ga	gallium	69.723	32	Ge	germanium	72.63	33	As	arsenic	74.922	34	Se	selenium	78.971	35	Br	bromine
32	Ge	germanium	72.63	33	As	arsenic	74.922	34	Se	selenium	78.971	35	Br	bromine	79.904	36	Kr	krypton
33	As	arsenic	74.922	34	Se	selenium	78.971	35	Br	bromine	79.904	36	Kr	krypton	83.798	18	He	helium
35	Br	bromine	79.904	36	Kr	krypton	83.798	18	He	helium	4.0026	10	Ne	neon	20.18	1	H	hydrogen

\pgfPT[show blocks,show title=false]

This table displays the periodic table with various highlighting schemes. The s-block elements (1-2, 13-18) are highlighted in yellow. The d-block (3d, 4d, 5d, 6d) and f-block (7f) elements are highlighted in red. The p-block (2p, 3p, 4p, 5p, 6p, 7p) elements are highlighted in green. A legend in the top left corner provides definitions for the symbols used: Z=Atomic Number, Ra=Radioactive, CS=Chemical Symbol, N=Name, and Ar=Relative Atomic Mass.

\pgfPT[Z list=spd,show blocks,show title=false]

This table is similar to the first one but uses a different color palette. The s-block elements (1-2, 13-18) are yellow, the d-block is red, and the p-block is green. The f-block elements are purple and located in the bottom row. A legend in the top left corner defines the symbols: Z=Atomic Number, Ra=Radioactive, CS=Chemical Symbol, N=Name, and Ar=Relative Atomic Mass.

\pgfPT[Z list=spd,show blocks,show title=false,IUPAC=false]

This table is similar to the previous ones but uses a different color palette. The s-block elements (1-2, 13-18) are yellow, the d-block is red, and the p-block is green. The f-block elements are purple and located in the bottom row. A legend in the top left corner defines the symbols: Z=Atomic Number, Ra=Radioactive, CS=Chemical Symbol, N=Name, and Ar=Relative Atomic Mass.

blocks fontdefault: `\small\bfseries`

Sets the font used in the block labels.

```
\pgfPT[Z list=spd,show blocks,show title=false,blocks
font=\small\bfseries\fontfamily{ptm}\selectfont]
```

s block color

default: RGB: 255,231,132

Sets the block s color.

s block font color

default: {}

Sets the s block label font color. If no color is provided, the **s block color** will be used as the font color.**s block line width**

default: 0.8pt

Sets the width of the line surrounding the s block.

p block color

default: RGB: 170,255,172

Sets the block p color.

p block font color

default: {}

Sets the p block label font color. If no color is provided, the **p block color** will be used as the font color.**p block line width**

default: 0.8pt

Sets the width of the line surrounding the p block.

d block color

default: RGB: 255,187,187

Sets the block d color.

d block font color

default: {}

Sets the d block label font color. If no color is provided, the **d block color** will be used as the font color.**d block line width**

default: 0.8pt

Sets the width of the line surrounding the d block.

f block color

default: RGB: 177,203,228

Sets the block f color.

f block font color

default: {}

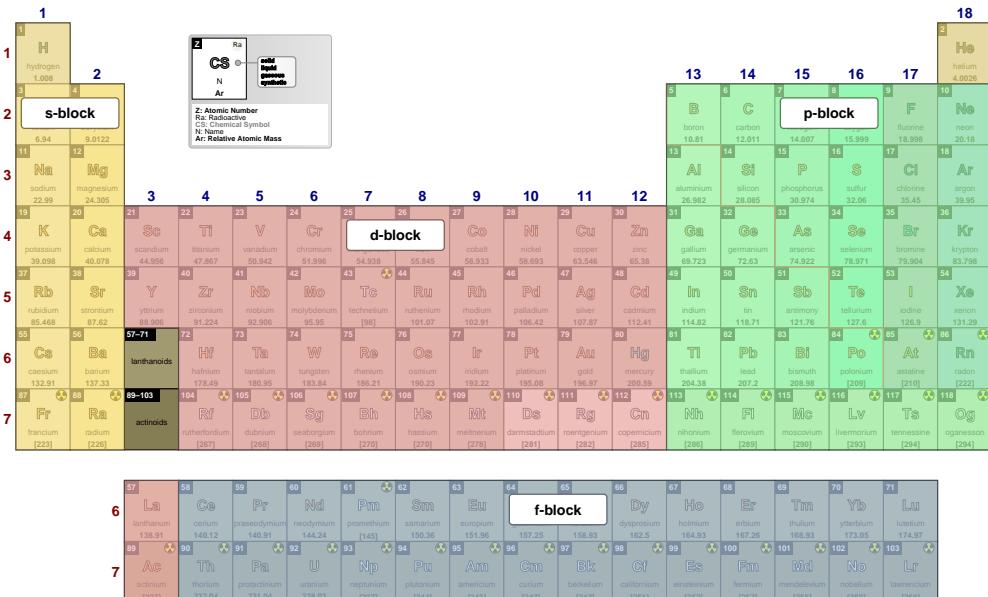
Sets the f block label font color. If no color is provided, the **f block color** will be used as the font color.

f block line widthdefault: *0.8pt*

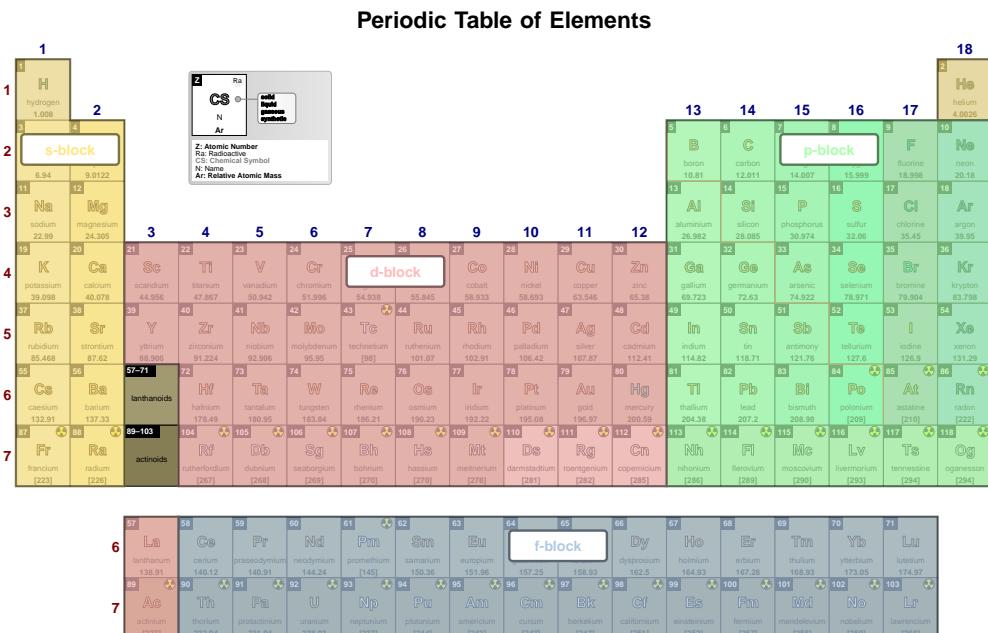
Sets the width of the line surrounding the f block.

blocks font colordefault: *black*Style to set a common color for the labels of s, p, d and f blocks. The key **show blocks** is set to **true**.

\pgfPT[blocks font color,show title=false]

**blocks line width**default: *0.8pt*Style to set a common width of the lines surrounding the s, p, d and f blocks. The key **show blocks** is set to **true**.

\pgfPT[blocks line width=1.5pt]



blocks default: `{sc=blocos,pc=blocop,dc=blocod,fc=blocof,lw=.8pt,font=\small\bfseries}`

Pseudo style to set the keys: block **s** color, block **p** color, block **d** color, block **f** color, the common line widths of the blocks, the **s** block line width, the **p** block line width, the **d** block line width, the **f** block line width, blocks font, **s** block font color, **p** block font color, **d** block font color and/or **f** block font color. None of the keys – sc, pc, dc, fc, lw, slw, plw, dlw, flw, sfc, pfc, dfc and ffc – are mandatory. The key **show blocks** is set to **true**.

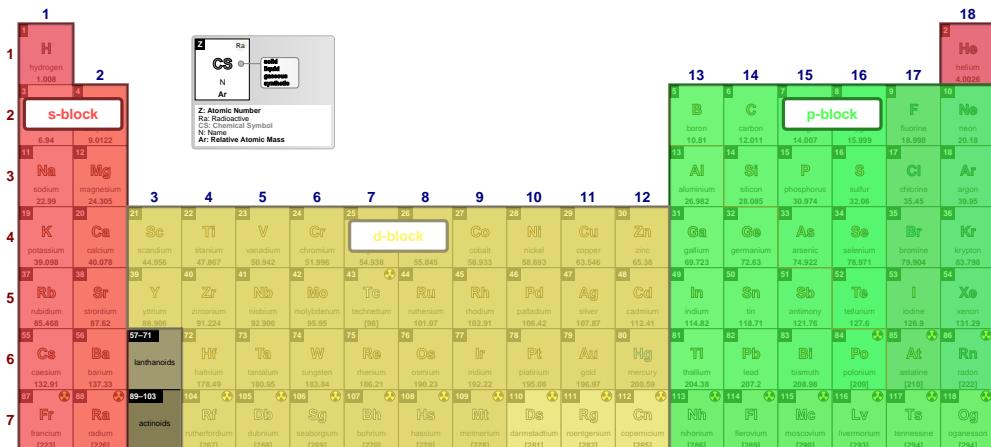
NOTE:

The colors provided to the color keys of the blocks – **sc**, **pc**, **dc** and **fc** – could be any defined color via the command `\definecolor` or by *mixing* colors, using, for instance, the syntax `color1!value!color2` or `color1!value`, as explained in the `xcolor` package documentation.

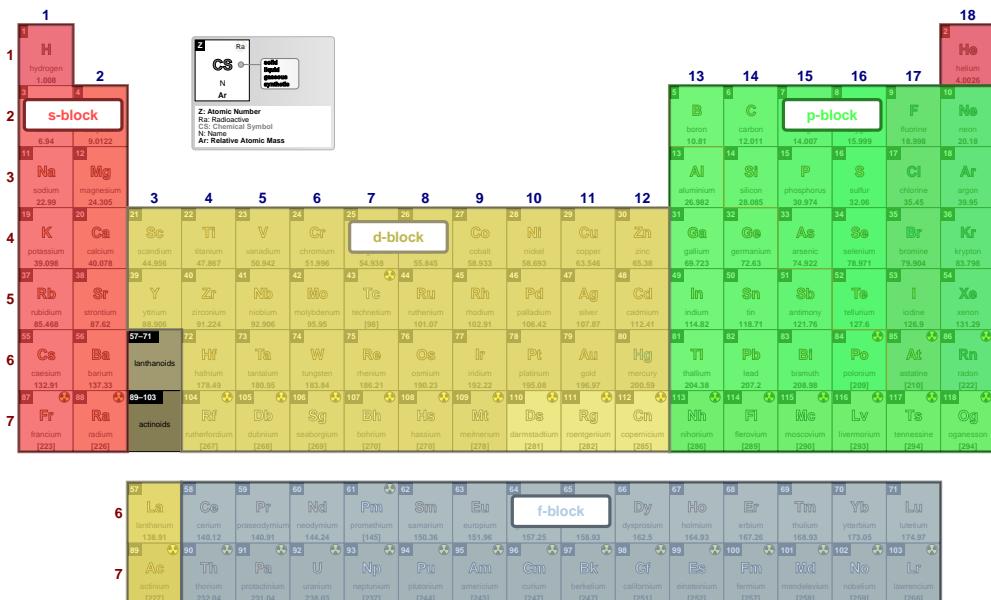
USAGE:

```
blocks={sc=<color>,pc=<color>,dc=<color>,fc=<color>,lw=<length>,
slw=<length>,plw=<length>,dlw=<length>,flw=<length>,f=⟨font commands⟩,
sfc=<color>,pfc=<color>,dfc=<color>,ffc=<color>}
```

```
\pgfPT[blocks={sc=red!70!white,pc=green!70!white,dc=yellow!70!white,lw=2pt},
show title=false,Z list=spd]
```



```
\pgfPT[blocks={sc=red!70!white,pc=green!70!white,dc=yellow!70!white,
dfc=yellow!70!black,lw=2pt},show title=false]
```

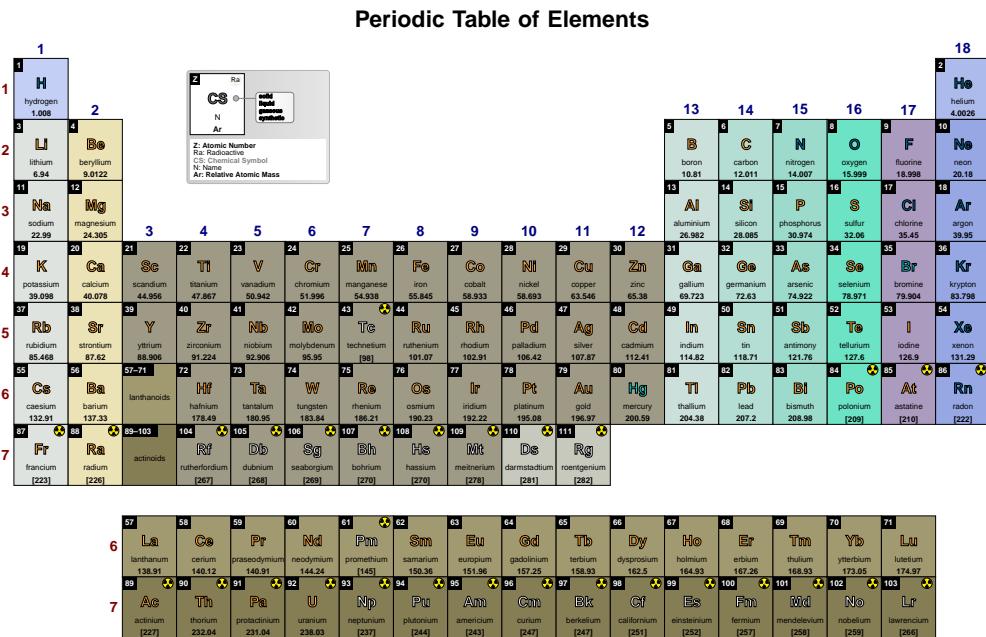


show families

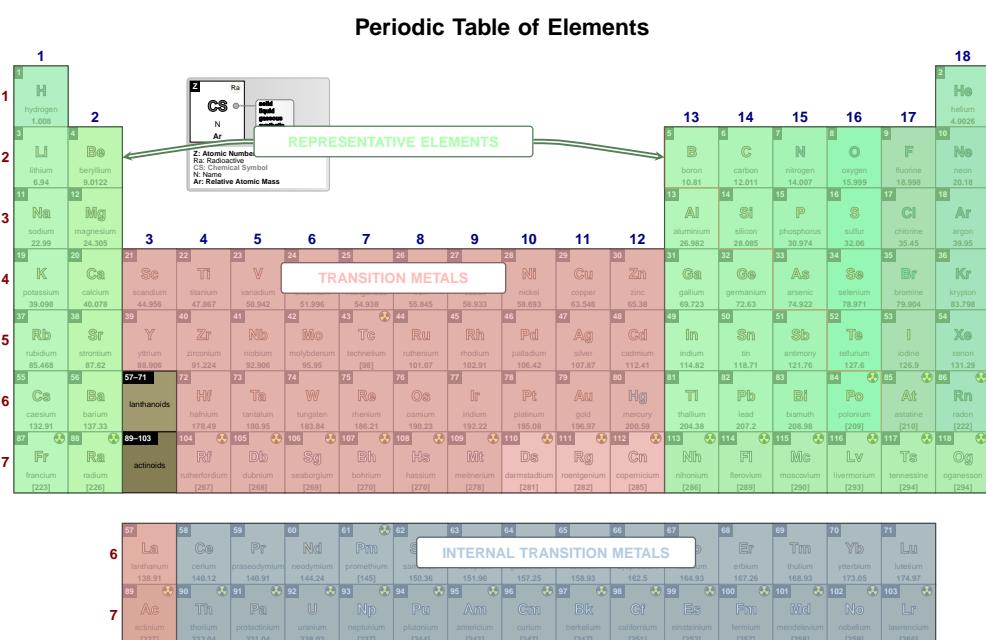
default: false

When set to true the main families – representative elements, transition metals and internal transition metals – are drawn overlaying the Periodic Table and their labels are shown. Note that families are only shown when the Z list contains, at least, all elements of blocks s, p and d.

\pgfPT[Z list={1,...,111},show families]



\pgfPT[show families]



\pgfPT[show families,show title=false,IUPAC=false]

The diagram shows a standard periodic table with the following features:

- Legend:** Z: Atomic Number, Ra: Radioactive, CS: Chemical Symbol, N: Name, Ar: Relative Atomic Mass.
- Color Coding:**
 - Representative Elements:** Light green boxes (Groups 1-2 and 13-18).
 - Transition Metals:** Pink boxes (Groups 3-12).
 - Internal Transition Metals:** Light blue boxes (Lanthanoids and Actinoids).
 - Lanthanoids/Actinoids:** Light orange boxes (Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Th, Pa, U, Np, Pu, Am, Cm, Bk, Cf, Es, Fm, Md, No, Lr).

families fontdefault: `\small\bfseries`

Sets the font used in the family labels.

\pgfPT[show families,show title=false,families font=\normalsize]

The diagram shows a standard periodic table with the following features:

- Legend:** Z: Atomic Number, Ra: Radioactive, CS: Chemical Symbol, N: Name, Ar: Relative Atomic Mass.
- Color Coding:** Same as the first diagram (Representative Elements: light green; Transition Metals: pink; Internal Transition Metals: light blue; Lanthanoids/Actinoids: light orange).
- Text Labels:** The labels for the element groups (e.g., 'REPRESENTATIVE ELEMENTS', 'TRANSITION METALS', 'INTERNAL TRANSITION METALS') are displayed in a larger, bolded black font.

r family colordefault: `RGB: 170,255,172`Sets the representative elements *block* color.**r family font color**default: `{}`Sets the representative elements *block* label font color. If no color is provided, the **r family color** will be used as the font color.

r family line width default: *0.8pt*

Sets the width of the line surrounding the representative elements *block*.

tm family color default: RGB: 255,187,187

Sets the transition metals *block* color.

tm family font color default: {}

Sets the transition metals *block* label font color. If no color is provided, the **tm family color** will be used as the font color.

tm family line width default: *0.8pt*

Sets the width of the line surrounding the transition metals *block*.

itm family color default: RGB: 177,203,228

Sets the internal transition metals *block* color.

itm family font color default: {}

Sets the internal transition metals *block* label font color. If no color is provided, the **itm family color** will be used as the font color.

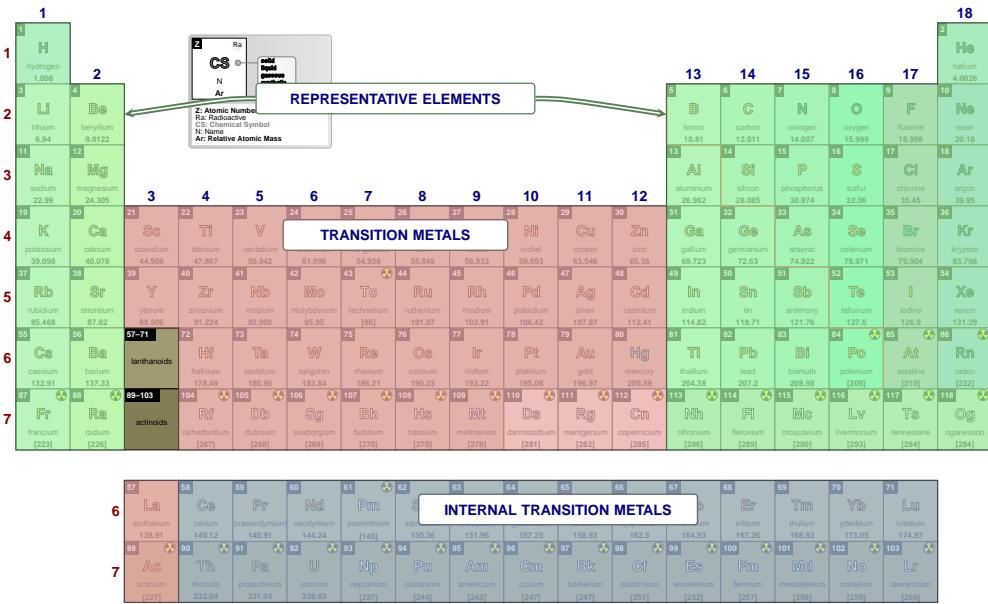
itm family line width default: *0.8pt*

Sets the width of the line surrounding the internal transition metals *block*.

families font color default: *black*

Style to set a common color for the labels of representative elements, transition metals and internal transition metals *blocks*. The key **show blocks** is set to **true**.

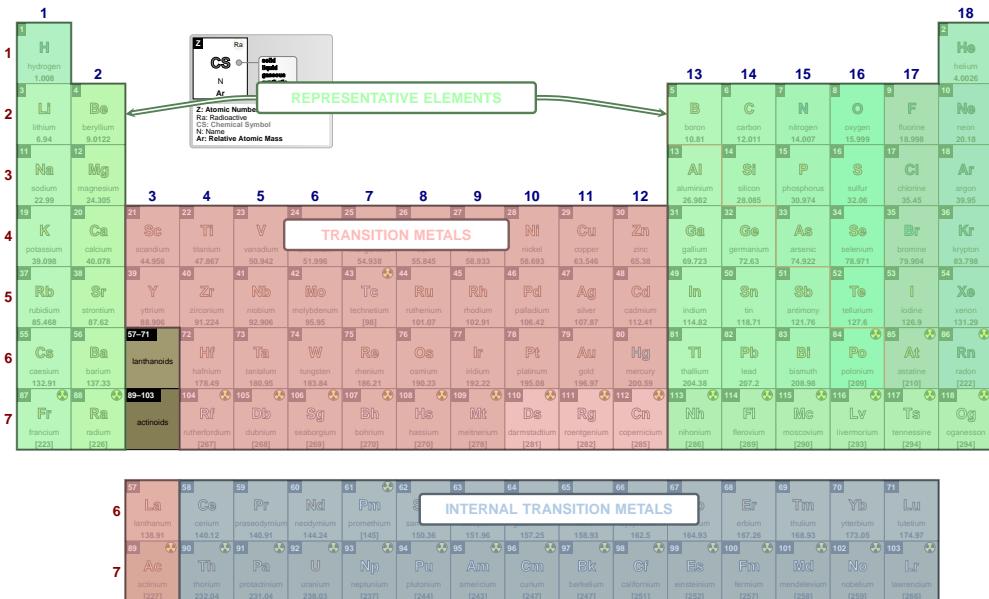
\pgfPT[**show title=false,families font color=blue!50!black**]



families line width default: *0.8pt*

Style to set a common width of the lines surrounding the representative elements, transition metals and internal transition metals *blocks*. The key **show families** is set to **true**.

\pgfPT[**show title=false,show families,families line width=1.5pt**]

**families**

default: {rc=blocor,tc=blocot,ic=blocoi,lw=.8pt,f=\small\bfseries}

Pseudo style to set the keys: **r** family color, **tm** family color, **itm** family color, the common **line width** of the families, the **r** family **line width**, the **tm** family **line width**, the **itm** family **line width**, the families **font**, **r** family **font color**, **tm** family **font color** and/or **itm** family **font color**. None of the keys – rc, tc, ic, lw, rlw, tlw, ilw, f, rfc, tfc and ifc – are mandatory. The key **show families** is set to **true**.

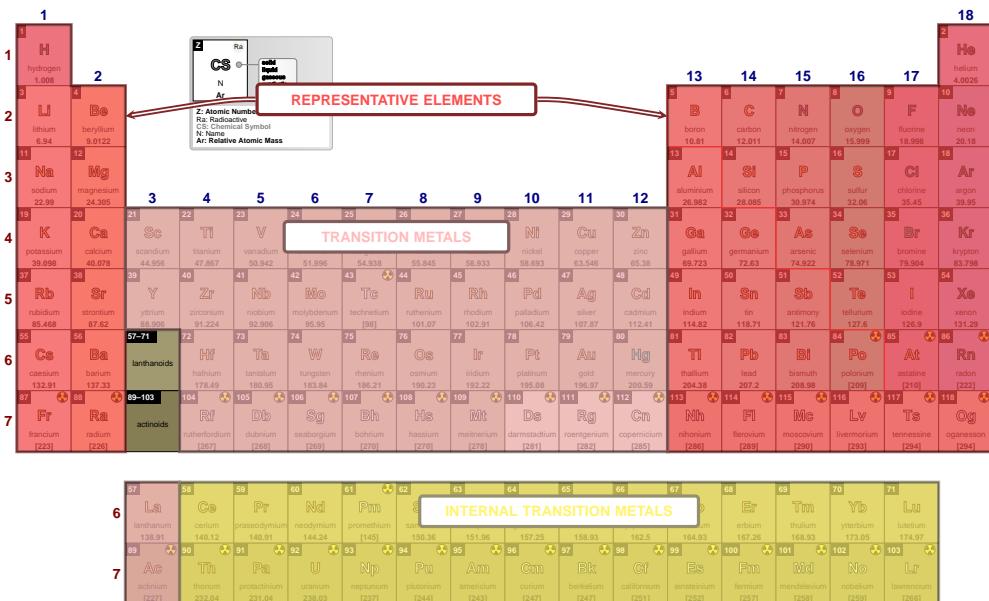
NOTE:

The colors provided to the color keys of the families could be any defined color via the command \definecolor or by *mixing* colors, using, for instance, the syntax color1!value!color2, as explained in the **xcolor** package documentation.

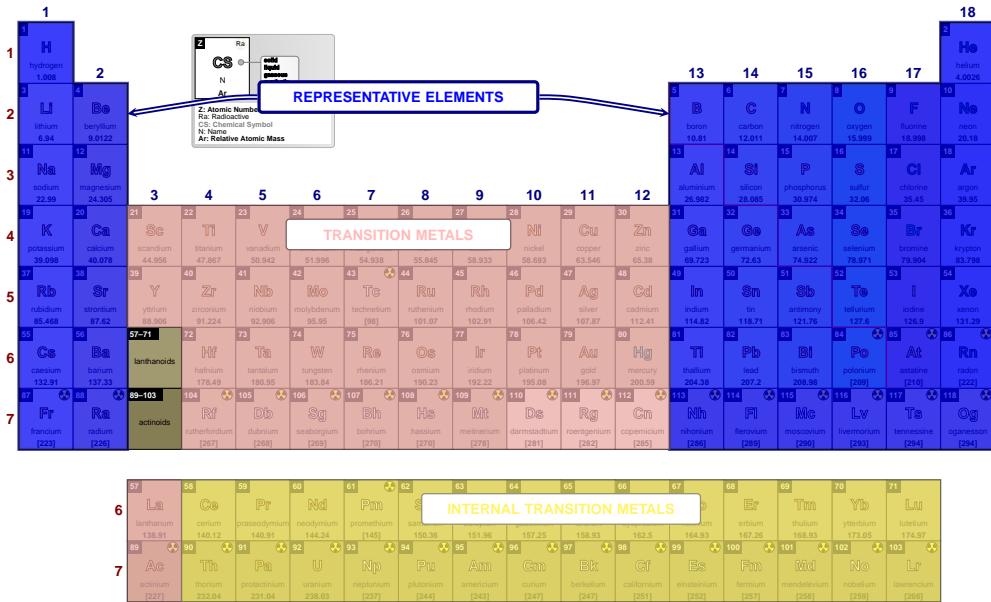
USAGE:

```
families={rc=<color>,tc=<color>,ic=<color>,lw=<length>,rlw=<length>,
tlw=<length>,ilw=<length>,f=<font commands>,rfc=<color>,
tfc=<color>,ifc=<color>}
```

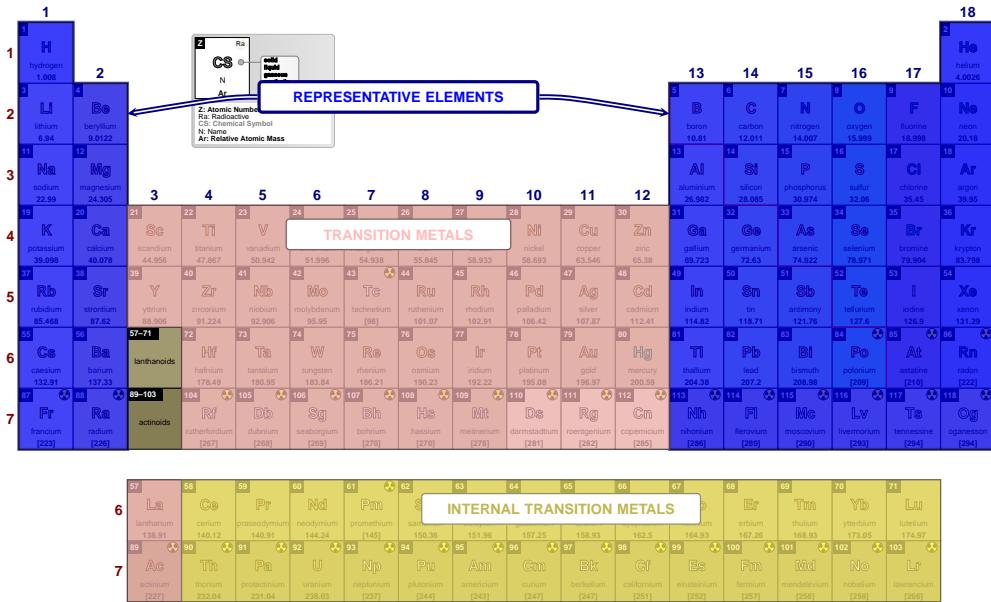
```
\pgfPT[families={rc=red!70!white,ic=yellow!70!white,lw=2pt},show title=false]
```



\pgfPT[families=\{rc=blue,ic=yellow!70!white,rlw=2pt\},show title=false]



\pgfPT[families=\{rc=blue,ic=yellow!70!white,rlw=2pt,ifc=yellow!70!black\},show title=false]



► Periodic variations

show periodic variations

default: `false`

When set to `true` the periodic variations – for atomic radius, ionization energy and/or electron affinity – are shown with two arrows. One horizontal arrow is placed at the top of the Periodic Table for the variation over the period and the other vertically to the left of the Periodic Table for the variation over the group.

NOTE:

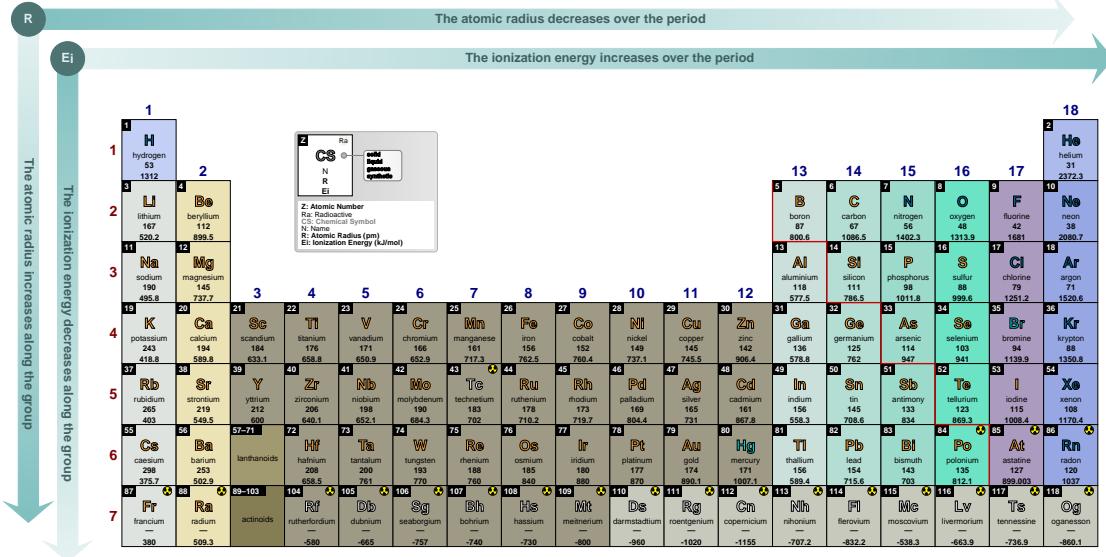
The variations are only shown when the *base cell* of the Periodic Table contains the atomic radius, the ionization energy and/or the electron affinity. If none of them is present setting this key (`show periodic variations`) has no effect.

`\pgfPTstyle[Z list=spd,show title=false]`

`\pgfPT[show periodic variations]`

1	H	2	He
1	hydrogen 1.008	2	helium 4.0028
2	Li	3	B
3	lithium 6.94	4	boron 10.81
4	Mg	5	C
5	magnesium 24.305	6	carbon 12.011
6	Ca	7	N
7	Sc	8	oxygen 15.999
8	Ti	9	nitrogen 14.007
9	V	10	sulfur 32.06
10	Cr	11	phosphorus 30.974
11	Mn	12	chlorine 35.45
12	Fe	13	fluorine 18.998
13	Co	14	neon 20.18
14	Ni	15	Ar
15	Cu	16	argon 39.95
16	Zn	17	Kr
17	Ga	18	xenon 131.29
18	Ge	19	I
19	As	20	Xe
20	Se	21	Rn
21	Br	22	Oganesson 294
22	Te	23	At
23	Sr	24	Rn
24	Y	25	Fr
25	Zr	26	Ra
26	Nb	27	Fr
27	Mo	28	Ra
28	Tc	29	—
29	Ru	30	—
30	Rh	31	—
31	Pd	32	—
32	Ag	33	—
33	Cd	34	—
34	In	35	—
35	Ga	36	—
36	Ge	37	—
37	As	38	—
38	Se	39	—
39	Br	40	—
40	Te	41	—
41	Sr	42	—
42	Y	43	—
43	Zr	44	—
44	Nb	45	—
45	Mo	46	—
46	Tc	47	—
47	Ru	48	—
48	Rh	49	—
49	Pd	50	—
50	Ag	51	—
51	Cd	52	—
52	In	53	—
53	Ga	54	—
54	Ge	55	—
55	As	56	—
56	Se	57	—
57	Br	58	—
58	Te	59	—
59	Sr	60	—
60	Y	61	—
61	Zr	62	—
62	Nb	63	—
63	Mo	64	—
64	Tc	65	—
65	Ru	66	—
66	Rh	67	—
67	Pd	68	—
68	Ag	69	—
69	Cd	70	—
70	In	71	—
71	Ga	72	—
72	Ge	73	—
73	As	74	—
74	Se	75	—
75	Br	76	—
76	Te	77	—
77	Sr	78	—
78	Y	79	—
79	Zr	80	—
80	Nb	81	—
81	Mo	82	—
82	Tc	83	—
83	Ru	84	—
84	Rh	85	—
85	Pd	86	—
86	Ag	87	—
87	Cd	88	—
88	In	89	—
89	Ga	90	—
90	Ge	91	—
91	As	92	—
92	Se	93	—
93	Br	94	—
94	Te	95	—
95	Sr	96	—
96	Y	97	—
97	Zr	98	—
98	Nb	99	—
99	Mo	100	—
100	Tc	101	—
101	Ru	102	—
102	Rh	103	—
103	Pd	104	—
104	Ag	105	—
105	Cd	106	—
106	In	107	—
107	Ga	108	—
108	Ge	109	—
109	As	110	—
110	Se	111	—
111	Br	112	—
112	Te	113	—
113	Sr	114	—
114	Y	115	—
115	Zr	116	—
116	Nb	117	—
117	Mo	118	—
118	Tc	119	—
119	Ru	120	—
120	Rh	121	—
121	Pd	122	—
122	Ag	123	—
123	Cd	124	—
124	In	125	—
125	Ga	126	—
126	Ge	127	—
127	As	128	—
128	Se	129	—
129	Br	130	—
130	Te	131	—
131	Sr	132	—
132	Y	133	—
133	Zr	134	—
134	Nb	135	—
135	Mo	136	—
136	Tc	137	—
137	Ru	138	—
138	Rh	139	—
139	Pd	140	—
140	Ag	141	—
141	Cd	142	—
142	In	143	—
143	Ga	144	—
144	Ge	145	—
145	As	146	—
146	Se	147	—
147	Br	148	—
148	Te	149	—
149	Sr	150	—
150	Y	151	—
151	Zr	152	—
152	Nb	153	—
153	Mo	154	—
154	Tc	155	—
155	Ru	156	—
156	Rh	157	—
157	Pd	158	—
158	Ag	159	—
159	Cd	160	—
160	In	161	—
161	Ga	162	—
162	Ge	163	—
163	As	164	—
164	Se	165	—
165	Br	166	—
166	Te	167	—
167	Sr	168	—
168	Y	169	—
169	Zr	170	—
170	Nb	171	—
171	Mo	172	—
172	Tc	173	—
173	Ru	174	—
174	Rh	175	—
175	Pd	176	—
176	Ag	177	—
177	Cd	178	—
178	In	179	—
179	Ga	180	—
180	Ge	181	—
181	As	182	—
182	Se	183	—
183	Br	184	—
184	Te	185	—
185	Sr	186	—
186	Y	187	—
187	Zr	188	—
188	Nb	189	—
189	Mo	190	—
190	Tc	191	—
191	Ru	192	—
192	Rh	193	—
193	Pd	194	—
194	Ag	195	—
195	Cd	196	—
196	In	197	—
197	Ga	198	—
198	Ge	199	—
199	As	200	—
200	Se	201	—
201	Br	202	—
202	Te	203	—
203	Sr	204	—
204	Y	205	—
205	Zr	206	—
206	Nb	207	—
207	Mo	208	—
208	Tc	209	—
209	Ru	210	—
210	Rh	211	—
211	Pd	212	—
212	Ag	213	—
213	Cd	214	—
214	In	215	—
215	Ga	216	—
216	Ge	217	—
217	As	218	—
218	Se	219	—
219	Br	220	—
220	Te	221	—
221	Sr	222	—
222	Y	223	—
223	Zr	224	—
224	Nb	225	—
225	Mo	226	—
226	Tc	227	—
227	Ru	228	—
228	Rh	229	—
229	Pd	230	—
230	Ag	231	—
231	Cd	232	—
232	In	233	—
233	Ga	234	—
234	Ge	235	—
235	As	236	—
236	Se	237	—
237	Br	238	—
238	Te	239	—
239	Sr	240	—
240	Y	241	—
241	Zr	242	—
242	Nb	243	—
243	Mo	244	—
244	Tc	245	—
245	Ru	246	—
246	Rh	247	—
247	Pd	248	—
248	Ag	249	—
249	Cd	250	—
250	In	251	—
251	Ga	252	—
252	Ge	253	—
253	As	254	—
254	Se	255	—
255	Br	256	—
256	Te	257	—
257	Sr	258	—
258	Y	259	—
259	Zr	260	—
260	Nb	261	—
261	Mo	262	—
262	Tc	263	—
263	Ru	264	—
264	Rh	265	—
265	Pd	266	—
266	Ag	267	—
267	Cd	268	—
268	In	269	—
269	Ga	270	—
270	Ge	271	—
271	As	272	—
272	Se	273	—
273	Br	274	—
274	Te	275	—
275	Sr	276	—
276	Y	277	—
277	Zr	278	—
278	Nb	279	—
279	Mo	280	—
280	Tc	281	—
281	Ru	282	—
282	Rh	283	—
283	Pd	284	—
284	Ag	285	—
285	Cd	286	—
286	In	287	—
287	Ga	288	—
288	Ge	289	—
289	As	290	—
290	Se	291	—
291	Br	292	—
292	Te	293	—
293	Sr	294	—
294	Y	295	—
295	Zr	296	—
296	Nb	297	—
297	Mo	298	—
298	Tc	299	—
299	Ru	300	—
300	Rh	301	—
301	Pd	302	—
302	Ag	303	—
303	Cd	304	—
304	In	305	—
305	Ga	306	—
306	Ge	307	—
307	As	308	—
308	Se	309	—
309	Br	310	—
310	Te	311	—
311	Sr	312	—
312	Y	313	—
313	Zr	314	—
314	Nb	315	—
315	Mo	316	—
316	Tc	317	—
317	Ru	318	—
318	Rh	319	—
319	Pd	320	—
320	Ag	321	—
321	Cd	322	—
322	In	323	—
323	Ga	324	—
324	Ge	325	—
325	As	326	—
326	Se	327	—
327	Br	328	—
328	Te	329	

\pgfPT[show periodic variations,cell style=pgfPTREi]

**varR color**

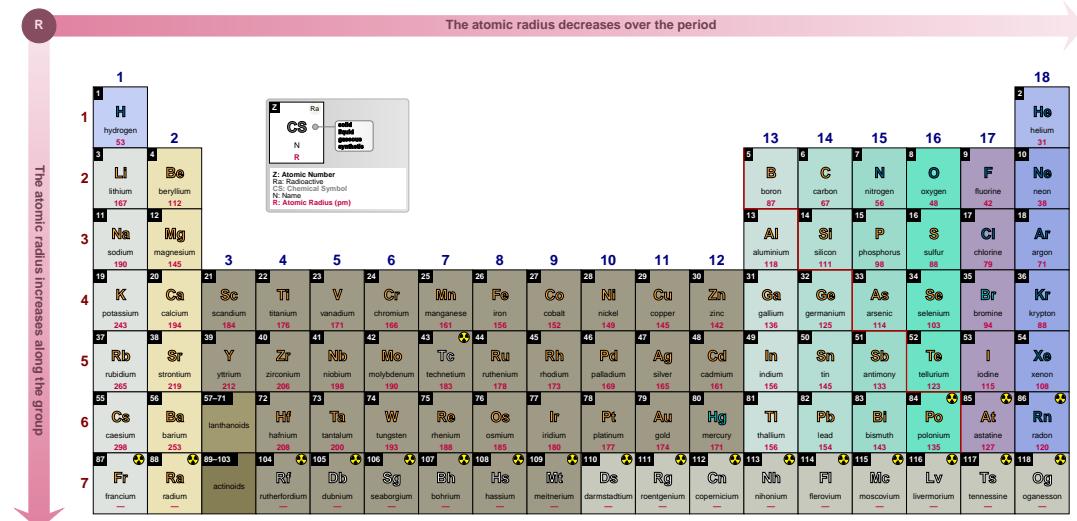
default: RGB: 128,191,191

Sets the color used in the filling of the arrows for the atomic radius variations.

NOTE:

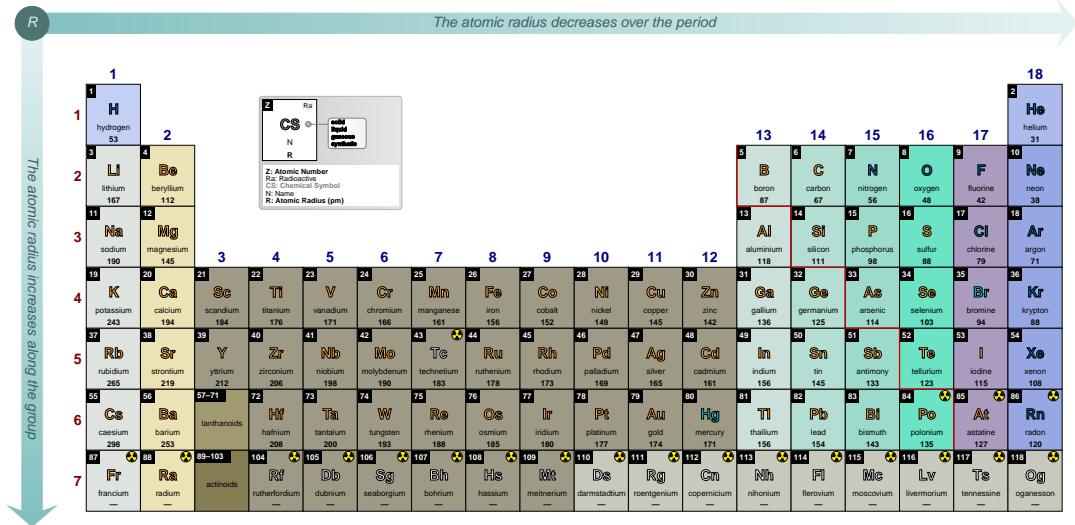
The color provided to **varR color** could be any defined color via the command `\definecolor` or by *mixing* colors, using, for instance, the syntax `color1!value!color2`, as explained in the `xcolor` package documentation.

\pgfPT[show periodic variations,cell style=pgfPTR,varR color=purple!50!white,R color=purple]

**varR font**default: `\footnotesize\bfseries`

Sets the font for the text displayed inside the arrow, describing the variation of the atomic radius.

\pgfPT[**show periodic variations,cell style=pgfPTR,varR font=\small\itshape**]



varR font color

default: (value of varR color)!50!black

Sets the color of the text showing the atomic radius variations displayed inside the corresponding arrows.

See the note in **varR color**.

varEi color

default: RGB: 128,191,191

Sets the color used in the filling of the arrows for the ionization energy variations.

See the note in **varR color**.

varEi font

default: \footnotesize\bfseries

Sets the font for the text displayed inside the arrow, describing the variation of the ionization energy.

varEi font color

default: (value of varEi color)!50!black

Sets the color of the text showing the ionization energy variations displayed inside the corresponding arrows.

See the note in **varR color**.

vareaff color

default: RGB: 128,191,191

Sets the color used in the filling of the arrows for the electron affinity variations.

See the note in **varR color**.

vareaff font

default: \footnotesize\bfseries

Sets the font for the text displayed inside the arrow, describing the variation of the electron affinity.

vareaff font color

default: (value of vareaff color)!50!black

Sets the color of the text showing the electron affinity variations displayed inside the corresponding arrows.

See the note in **varR color**.

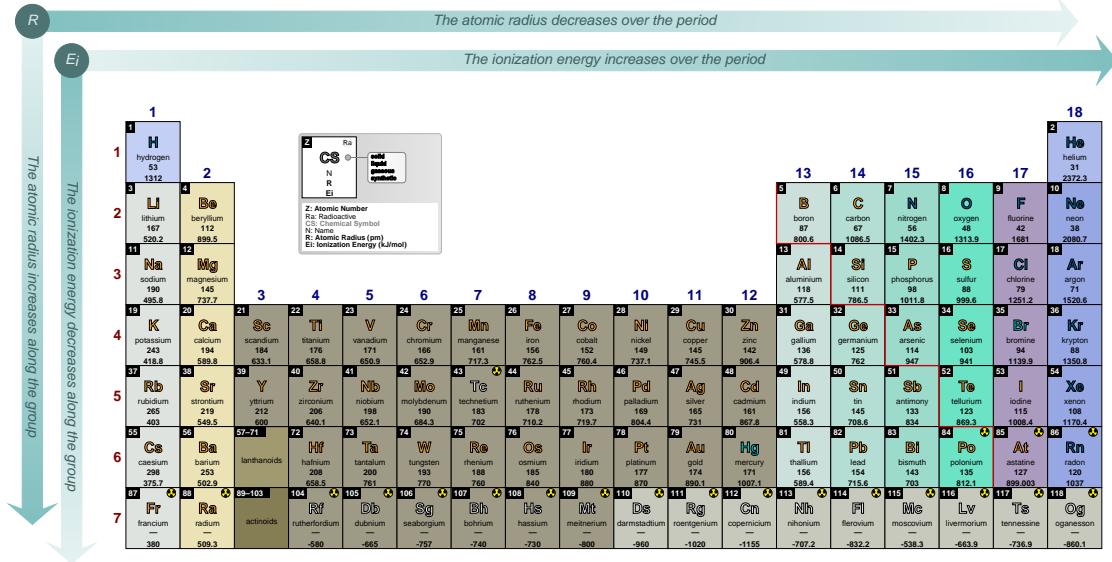
var font

default: \footnotesize\bfseries

Style to set a common font for the variations along the Periodic Table.

Setting **var font=** is equivalent to setting **{varR font=, varEi font=, vareaff font=}**.

\pgfPT[show periodic variations,cell style=pgfPTREi,var font=\small\itshape]

**var color**

default: RGB: 128,191,191

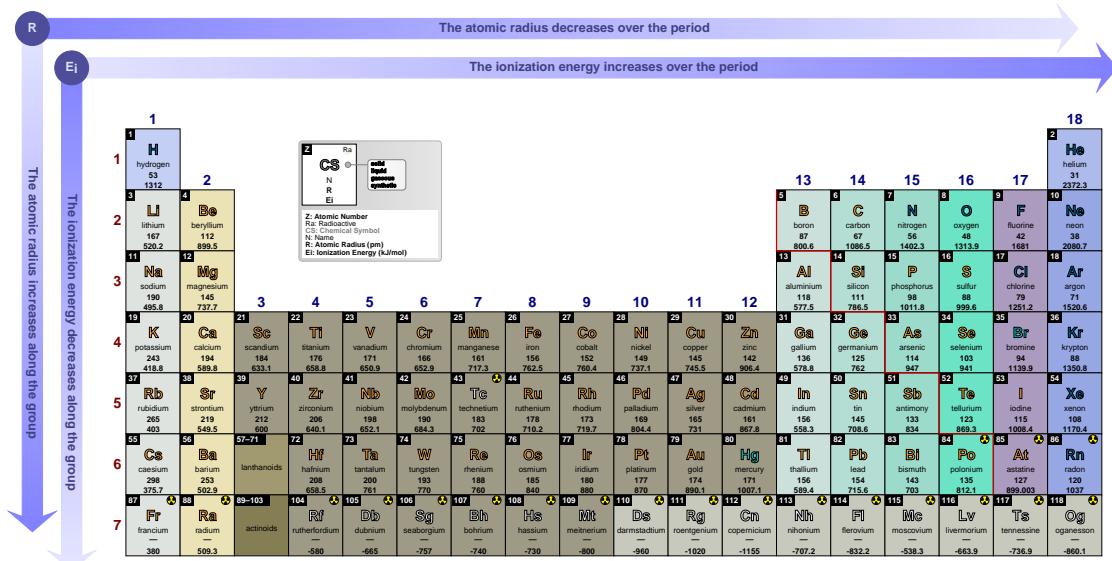
Style to set a common color for the variations along the Periodic Table.

Setting **var color=<color>** is equivalent to setting **{varR color=<color>,varEI color=<color>, varEaff color=<color>}**.**NOTE:**

The color provided to **var color** could be any defined color via the command `\definecolor` or by *mixing* colors, using, for instance, the syntax `color1!value!color2`, as explained in the `xcolor` package documentation.

Keep in mind that setting the variations colors also changes the default text colors for them.

\pgfPT[show periodic variations,cell style=pgfPTREi,var color=blue!50!white]



varRdefault: `{c=colorvariations,f=\footnotesize\bfseries}`

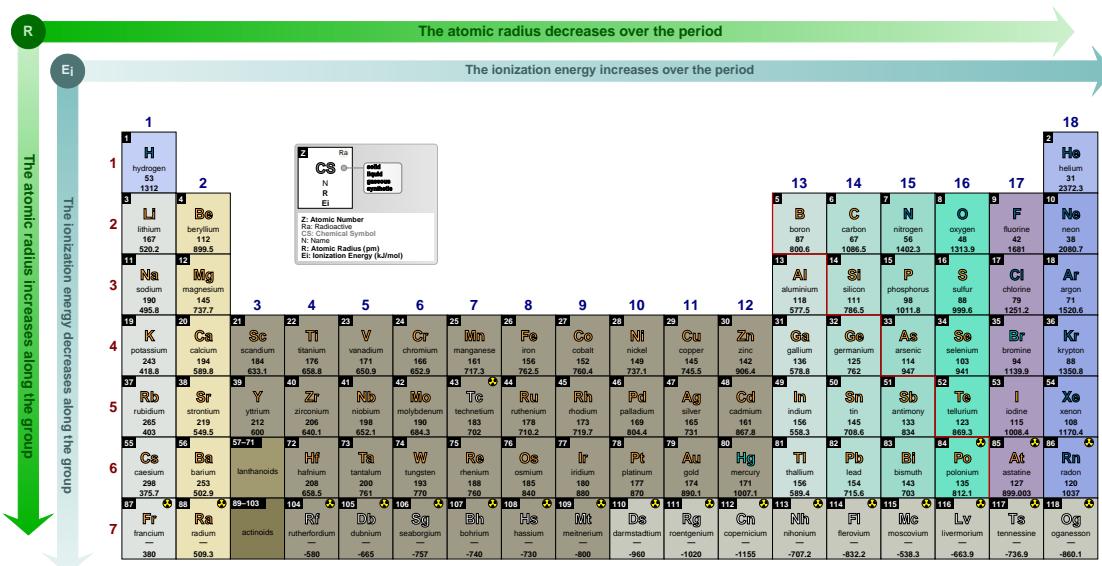
Pseudo style to set the keys: varR **color**, varR **font** and/or varR **font color**. None of the keys – c, f and fc – are mandatory.

NOTE:

The color provided to varR **color** could be any defined color via the command \definecolor or by *mixing* colors, using, for instance, the syntax color1!value!color2, as explained in the **xcolor** package documentation.

USAGE: `varR={c=<color>,f=,fc=<color>}`

`\pgfPT[show periodic variations,cell style=pgfPTREi,
varR={c=green!70!black,f=\small\bfseries}]`

**varEi**default: `{c=colorvariations,f=\footnotesize\bfseries}`

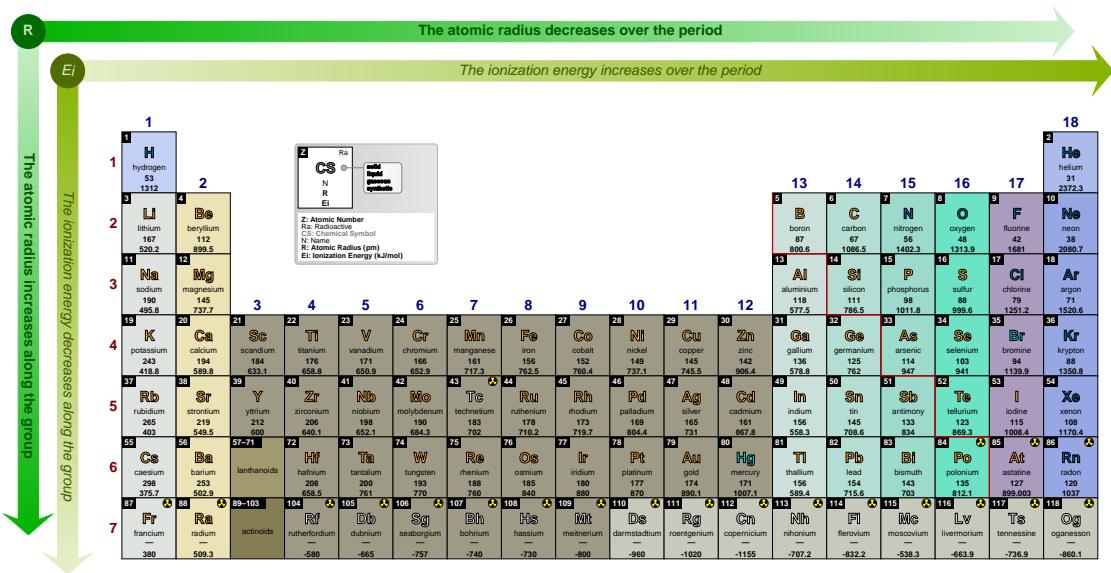
Pseudo style to set the keys: varEi **color**, varEi **font** and/or varEi **font color**. None of the keys – c, f and fc – are mandatory.

NOTE:

The color provided to varEi **color** could be any defined color via the command \definecolor or by *mixing* colors, using, for instance, the syntax color1!value!color2, as explained in the **xcolor** package documentation.

USAGE: `varEi={c=<color>,f=,fc=<color>}`

`\pgfPT[show periodic variations,cell style=pgfPTREi,
varR={c=green!70!black,f=\small\bfseries},
varEi={c=lime!70!black,f=\small\bfseries}]`

**vareaff**

default: {c=colorvariations,f=\footnotesize\bfseries}

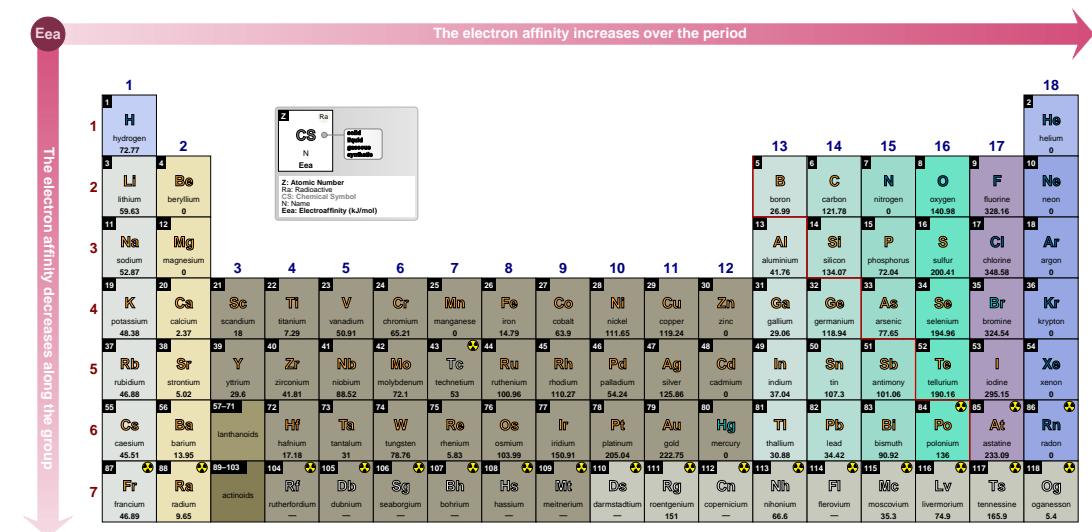
Pseudo style to set the keys: vareaff **color**, vareaff **font** and/or vareaff **font color**. None of the keys – c, f and fc – are mandatory.

NOTE:

The color provided to **vareaff color** could be any defined color via the command \definecolor or by *mixing* colors, using, for instance, the syntax color1!value!color2, as explained in the **xcolor** package documentation.

USAGE: vareaff={c=<color>,f=,fc=<color>}

\pgfPT[show periodic variations,cell style=pgfPTeff,
vareaff={c=purple!70!white,f=\small\bfseries,fc=white}]



\pgfPTresetstyle

► Dark mode

dark mode

default: no value

Style to change the overall appearance of the Periodic Table to a dark mode suitable for on-screen viewing.

This style sets the following keys with the values:

```
back color scheme=solid, back color=black!80, cell line color=black!10, CS outline color=white, cell color=white,
Z backcolor=black!30, Z color=black, background={fill=black}, varR font color=black!20, varEi font color=black!20,
vareff font color=black!20, per+gr={c=white}, title color=white, other languages color=black!40,
legend={bc=black!70,radio=white,CS=white,Z=white,pins style={draw=white,right color=black!75,
left color=black!60,line width=.05pt,rounded corners=2pt},extra style={draw=white,fill=black!70,line width=.05pt,
rounded corners=2pt},box={left color=black!70,right color=black!40,draw=white}}
```

\pgfPT[**dark mode**]

Periodic Table of Elements																	
1 H hydrogen 1.008	2 He helium 4.0026	3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si silicon 28.085	15 P phosphorus 30.974	16 S sulfur 32.06	17 Cl chlorine 35.45	18 Ar argon 39.95
19 K potassium 39.098	20 Ca calcium 40.078	21 Sc scandium 44.956	22 Ti titanium 47.867	23 V vanadium 50.942	24 Cr chromium 51.996	25 Mn manganese 54.938	26 Fe iron 55.845	27 Co cobalt 58.933	28 Ni nickel 58.693	29 Cu copper 63.546	30 Zn zinc 65.38	31 Ga gallium 69.723	32 Ge germanium 72.63	33 As arsenic 74.922	34 Se selenium 78.971	35 Br bromine 79.904	36 Kr krypton 83.798
37 Rb rubidium 85.468	38 Sr strontium 87.62	39 Y yttrium 88.908	40 Zr zirconium 91.224	41 Nb niobium 92.906	42 Mo molybdenum 95.95	43 Tc technetium [90]	44 Ru ruthenium 101.07	45 Rh rhodium 102.91	46 Pd palladium 106.42	47 Ag silver 107.87	48 Cd cadmium 112.41	49 In indium 114.82	50 Sn tin 114.82	51 Sb antimony 115.71	52 Te tellurium 121.76	53 I iodine 126.9	54 Xe xenon 131.29
55 Cs cesium 132.91	56 Ba barium 137.33	57-71 lanthanoids [138.9-140.21]	72 Hf hafnium 178.49	73 Ta tantalum 180.95	74 W tungsten 183.84	75 Re rhenium 186.21	76 Os osmium 190.23	77 Ir iridium 192.22	78 Pt platinum 195.08	79 Au gold 196.97	80 Hg mercury 200.59	81 Tl thallium 204.38	82 Pb lead 207.2	83 Bi bismuth 208.98	84 Po polonium [209]	85 At astatine [210]	86 Rn radon [222]
87 Fr francium [223]	88 Ra radium [226]	89-103 actinoids [237]	104 Rf rutherfordium [267]	105 Db dubnium [268]	106 Sg seaborgium [269]	107 Bh bohrium [270]	108 Hs hassium [270]	109 Mt meitnerium [278]	110 Ds darmstadtium [281]	111 Rg roentgenium [282]	112 Cn copernicium [285]	113 Nh nihonium [286]	114 Fl flerovium [289]	115 Mc moscovium [290]	116 Lv livmorium [293]	117 Ts tennessine [294]	118 Og oganeson [294]
6 La lanthanum 138.9	58 Ce cerium 140.12	59 Pr praseodymium 140.91	60 Nd neodymium 144.24	61 Pm promethium [145]	62 Sm samarium 150.36	63 Eu europium 151.96	64 Gd gadolinium 157.25	65 Tb terbium 158.93	66 Dy dysprosium 162.5	67 Ho holmium 164.93	68 Er erbium 167.26	69 Tm thulium 168.93	70 Yb ytterbium 173.05	71 Lu lutetium 174.97			
89 Ac actinium [227]	90 Th thorium 232.04	91 Pa protactinium 231.04	92 U uranium 238.03	93 Np neptunium [237]	94 Pu plutonium [244]	95 Am americium [243]	96 Cm curium [247]	97 Bk berkelium [247]	98 Cf californium [251]	99 Es einsteinium [252]	100 Fm fermium [257]	101 Md mendelevium [258]	102 No nobelium [259]	103 Lr lawrencium [266]			

► Exercise layout

The **keys** described in this section enable the *exercise layout* of the Periodic Table, i.e., in this mode the *structure* of the Periodic Table is drawn, but there are only a few contents available in the cells.

only cells

default: false

When set to **true** the Periodic Table is drawn with only the cells without any contents.

NOTE:

The following **keys** are also set: `back color scheme=solid`, `show title=false`, `show period numbers=false`, `show group numbers=false`, `show legend=false`, `show MNM line=false`

\pgfPT[only cells]

\pgfPT[Z list={1,...,54},only cells]

only cells plus Zdefault: *false*

When set to **true** the Periodic Table is drawn with only the cells without any contents, except the atomic number (Z).

NOTE:

The following keys are also set: `back color scheme=solid`, `show title=false`, `show period numbers=false`, `show group numbers=false`, `show legend=false`, `show MNM line=false`

\pgfPT[only cells plus Z]

1																									2
3	4																								
11	12																								
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36								
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54								
55	56	57-71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86								
87	88	89-103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118								
57	58	59	60	61	62	63	64	65	66	67	68	69	70	71											
89	90	91	92	93	94	95	96	97	98	99	100	101	102	103											

\pgfPT[only cells plus Z,IUPAC=false]

1																									2
3	4																								
11	12																								
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36								
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54								
55	56	57	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86								
87	88	89	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118								
58	59	60	61	62	63	64	65	66	67	68	69	70	71												
90	91	92	93	94	95	96	97	98	99	100	101	102	103												

only cells with periods and group numbersdefault: *false*

When set to **true** the Periodic Table is drawn with only the cells without any contents. The period and group numbers are shown.

NOTE:

The following keys are also set: **back color scheme=solid**, **show title=false**, **show legend=false**, **show MNM line=false**

\pgfPT[Z list={1,...,36},only cells with periods and group numbers]

only cells with periods and group numbers plus Z

default: *false*

When set to **true** the Periodic Table is drawn with only the cells without any contents, except the atomic number (Z). The period and group numbers are shown.

NOTE:

NOTE: The following **keys** are also set: `back color scheme=solid, show title=false, show legend=false, show MNM line=false`

\pgfPT[Z list={1,...,36},only cells with periods and group numbers plus Z]

Z exercise list

default: {}

Sets the list of atomic numbers to display as letters instead of their chemical symbols.

NOTES:

- ✓ When values are provided to the **Z exercise list** and none of the above **exercise layout** is set, the **exercise layout only cells** is used.
 - ✓ The line dots – ... – notation is not available in the **Z exercise list**, mainly to avoid errors on the desired list. For example `{1,...,4,8,...,16}` is expanded by the `\foreach` statement of TikZ to `{1,2,3,4,8,15}` instead of `{1,2,3,4,8,9,10,11,12,13,14,15,16}`. For achieving that purpose it must be typed `{1,...,4,8,9,...,16}`. Since the goal of **Z exercise list** is typing only a list of specific elements, it will often be easier to type element by element.

```
\pgfPT[Z exercise list={1,2,3,4,9,12,17,18,19,20,25,27,32,34,35,49,54,74,86,87},  
       cell size=3em,Z list={1,...,36}]
```

A								B	
C	D						E		
F							G	H	
I	J			K	L		M	N	O

\pgfPT[Z exercise list=\{1,2,3,4,9,12,17,18,19,20,25,27,32,34,35,49,54,74,86,87\},
cell size=3em,Z list=\{1,...,36\},only cells with periods and group numbers]

A	B
C	D
F	G
I	J
K	L
M	N
O	

exercise list in capitals

default: *true*

When set to **true** the *letters* are typed in capitals, otherwise they are typed as lowercase letters.

```
\pgfPT[Z exercise list={1,2,3,4,9,12,17,18,19,20,25,27,32,34,35,49,54,74,86,87},  
       cell size=3em,Z list={1,...,36},exercise list in capitals=false]
```

a									b
c	d							e	
	f							g	h
i	j				k	l		m	n o

exercise list color

default: *black*

Sets the color of the displayed *letters* in the exercise *layout*.

```
\pgfPT[Z exercise list={1,2,3,4,9,12,17,18,19,20,25,27,32,34,35,49,54,74,86,87},  
       cell size=3em,Z list={1,...,36}, exercise list color=blue!50!black]
```

A										B
C	D								E	
	F								G	H
I	J				K	L			M	N O

exercise list font

default: \bfseries\large

Sets the font of the displayed *letters* in the exercise *layout*.

```
\pgfPT[Z exercise list={1,2,3,4,9,12,17,18,19,20,25,27,32,34,35,49,54,74,86,87},  
       cell size=3em,Z list={1,...,36}, exercise list font=\fontfamily{fmm}\selectfont]
```

\mathcal{A}											\mathcal{B}
\mathcal{C}	\mathcal{D}									\mathcal{E}	
	\mathcal{F}									\mathcal{G}	\mathcal{H}
\mathcal{I}	\mathcal{J}				\mathcal{K}	\mathcal{L}				\mathcal{M}	\mathcal{N}
										\mathcal{O}	

cells+Z*no value*Style to set the key **only cells plus Z** to true.\pgfPT[**cells+Z**]

The first periodic table (top) contains 118 elements, spanning 7 periods and 18 groups. The second periodic table (bottom) contains 47 elements, spanning 6 periods and 18 groups.

cells+p+g*no value*Style to set the key **only cells with periods and group numbers** to true.\pgfPT[**cells+p+g**]

The first periodic table (top) shows the first two periods (1-2) with group numbers 1-18. The second periodic table (bottom) shows the last two periods (6-7) with group numbers 13-18.

cells+p+g+Z*no value*

Style to set the key only cells with periods and group numbers plus Z to true.

\pgfPT[**cells+p+g+Z**]

exnocaps*no value*Style to set the key exercise list in **caps** to false.

\pgfPT[Z exercise list={1,2,3,4,9,12,17,18,19,20,25,27,32,34,35,49,54,74,86,87}, cell size=3em,Z list={1,...,36},exnocaps]

exColordefault: *black*

Style to set the key exercise list color.

\pgfPT[Z exercise list={1,2,3,4,9,12,17,18,19,20,25,27,32,34,35,49,54,74,86,87}, cell size=3em,Z list={1,...,36},exColor=red!50!black]

exFont

default: \bfseries\large

Style to set the key exercise list font.

```
\pgfPT[Z exercise list={1,2,3,4,9,12,17,18,19,20,25,27,32,34,35,49,54,74,86,87},  
       cell size=3em,Z list={1,...,36},exFont=\Large]
```

A									B
C	D							E	
F								G	H
I	J				K	L		M	N O

ex

default: `{caps=true,c=black,f=\bfseries\large}`

Pseudo style to set the keys: exercise list in **capital**s, exercise list **color** and/or exercise list **font**. None of the *keys* – caps, c and f – are mandatory.

USAGE: ex={caps=<true|false>,c=<color>,f=}

```
\pgfPT[Z exercise list={1,2,3,4,9,12,17,18,19,20,25,27,32,34,35,49,54,74,86,87},  
       cell size=3em,Z list={1,...,36},ex={c=blue,f=\Large\bfseries}]
```

A								B
C	D						E	
	F						G	H
I	J			K	L		M	N O

Crosstabulation

The following options and styles are used for customizing the contents available in each individual cell of the Periodic Table, like the *fonts* or the *colors* used in the shown contents.

► The atomic number

z backcolor

default: *black*

Sets the background color of the box where the atomic number is displayed.

```
\p{fPT[Z list=\{1,...,36\},Z backcolor=blue!70!black]}
```

Periodic Table of Elements

1	H	He
hydrogen 1.008		helium 4.0026
2	Be	
lithium 6.94	beryllium 9.0122	
3	Mg	
sodium 22.99	magnesium 24.305	
4	Ca	
potassium 39.098	calcium 40.078	
5	Sc	
scandium 44.956		
6	Ti	
titanium 47.867		
7	V	
vanadium 50.942		
8	Cr	
chromium 51.996		
9	Mn	
manganese 54.938		
10	Fe	
iron 55.845		
11	Co	
cobalt 58.833		
12	Ni	
nickel 58.693		
13	Cu	
copper 63.546		
14	Zn	
zinc 65.38		
15	Ga	
gallium 69.723		
16	Ge	
germanium 72.63		
17	As	
arsenic 74.932		
18	Se	
selenium 78.917		
19	Br	
bromine 79.904		
20	Kr	
krypton 83.798		

Z colordefault: *white*

Sets the color of the atomic number.

\pgfPT[Z list={1,...,36},Z backcolor=black!30,Z color=black]

Periodic Table of Elements																	
1 1 H hydrogen 1.008	2 2 He helium 4.0026	3 3 Li lithium 6.94	4 4 Be beryllium 9.0122	5 5 Na sodium 22.99	6 6 Mg magnesium 24.305	7 7 Cr chromium 51.996	8 8 Fe iron 55.845	9 9 Co cobalt 58.933	10 10 Mn manganese 54.938	11 11 Ni nickel 58.693	12 12 Cu copper 63.546	13 13 B boron 10.81	14 14 Si silicon 28.085	15 15 P phosphorus 30.974	16 16 S sulfur 32.06	17 17 Cl chlorine 35.45	18 18 Ar argon 39.95
19 19 K potassium 39.098	20 20 Ca calcium 40.078	21 21 Sc scandium 44.956	22 22 Ti titanium 47.867	23 23 V vanadium 50.942	24 24 Cr chromium 51.996	25 25 Mn manganese 54.938	26 26 Fe iron 55.845	27 27 Co cobalt 58.933	28 28 Ni nickel 58.693	29 29 Cu copper 63.546	30 30 Zn zinc 65.38	31 31 Ga gallium 69.723	32 32 Ge germanium 72.63	33 33 As arsenic 74.922	34 34 Se selenium 78.971	35 35 Br bromine 79.904	36 36 Kr krypton 83.798
11 11 Na sodium 22.99	12 12 Mg magnesium 24.305	21 21 Sc scandium 44.956	22 22 Ti titanium 47.867	23 23 V vanadium 50.942	24 24 Cr chromium 51.996	25 25 Mn manganese 54.938	26 26 Fe iron 55.845	27 27 Co cobalt 58.933	28 28 Ni nickel 58.693	29 29 Cu copper 63.546	30 30 Zn zinc 65.38	31 31 Ga gallium 69.723	32 32 Ge germanium 72.63	33 33 As arsenic 74.922	34 34 Se selenium 78.971	35 35 Br bromine 79.904	36 36 Kr krypton 83.798

Z fontdefault: *\tiny\bfseries*

Sets the font of the atomic number.

\pgfPT[Z list={1,...,36},Z font=\fontfamily{pag}\selectfont\tiny]

Periodic Table of Elements																	
1 1 H hydrogen 1.008	2 2 He helium 4.0026	3 3 Li lithium 6.94	4 4 Be beryllium 9.0122	5 5 Na sodium 22.99	6 6 Mg magnesium 24.305	7 7 Cr chromium 51.996	8 8 Fe iron 55.845	9 9 Co cobalt 58.933	10 10 Mn manganese 54.938	11 11 Ni nickel 58.693	12 12 Cu copper 63.546	13 13 B boron 10.81	14 14 Si silicon 28.085	15 15 P phosphorus 30.974	16 16 S sulfur 32.06	17 17 Cl chlorine 35.45	18 18 Ar argon 39.95
19 19 K potassium 39.098	20 20 Ca calcium 40.078	21 21 Sc scandium 44.956	22 22 Ti titanium 47.867	23 23 V vanadium 50.942	24 24 Cr chromium 51.996	25 25 Mn manganese 54.938	26 26 Fe iron 55.845	27 27 Co cobalt 58.933	28 28 Ni nickel 58.693	29 29 Cu copper 63.546	30 30 Zn zinc 65.38	31 31 Ga gallium 69.723	32 32 Ge germanium 72.63	33 33 As arsenic 74.922	34 34 Se selenium 78.971	35 35 Br bromine 79.904	36 36 Kr krypton 83.798
11 11 Na sodium 22.99	12 12 Mg magnesium 24.305	21 21 Sc scandium 44.956	22 22 Ti titanium 47.867	23 23 V vanadium 50.942	24 24 Cr chromium 51.996	25 25 Mn manganese 54.938	26 26 Fe iron 55.845	27 27 Co cobalt 58.933	28 28 Ni nickel 58.693	29 29 Cu copper 63.546	30 30 Zn zinc 65.38	31 31 Ga gallium 69.723	32 32 Ge germanium 72.63	33 33 As arsenic 74.922	34 34 Se selenium 78.971	35 35 Br bromine 79.904	36 36 Kr krypton 83.798

Z use box widthdefault: *false*If true, the width specified in the constructed cell is used, otherwise, the *natural* width of the box containing Z value is used.

\pgfPT[Z list={1,...,36},Z use box width]

Periodic Table of Elements																	
1 1 H hydrogen 1.008	2 2 He helium 4.0026	3 3 Li lithium 6.94	4 4 Be beryllium 9.0122	5 5 Na sodium 22.99	6 6 Mg magnesium 24.305	7 7 Cr chromium 51.996	8 8 Fe iron 55.845	9 9 Co cobalt 58.933	10 10 Mn manganese 54.938	11 11 Ni nickel 58.693	12 12 Cu copper 63.546	13 13 B boron 10.81	14 14 Si silicon 28.085	15 15 P phosphorus 30.974	16 16 S sulfur 32.06	17 17 Cl chlorine 35.45	18 18 Ar argon 39.95
19 19 K potassium 39.098	20 20 Ca calcium 40.078	21 21 Sc scandium 44.956	22 22 Ti titanium 47.867	23 23 V vanadium 50.942	24 24 Cr chromium 51.996	25 25 Mn manganese 54.938	26 26 Fe iron 55.845	27 27 Co cobalt 58.933	28 28 Ni nickel 58.693	29 29 Cu copper 63.546	30 30 Zn zinc 65.38	31 31 Ga gallium 69.723	32 32 Ge germanium 72.63	33 33 As arsenic 74.922	34 34 Se selenium 78.971	35 35 Br bromine 79.904	36 36 Kr krypton 83.798
11 11 Na sodium 22.99	12 12 Mg magnesium 24.305	21 21 Sc scandium 44.956	22 22 Ti titanium 47.867	23 23 V vanadium 50.942	24 24 Cr chromium 51.996	25 25 Mn manganese 54.938	26 26 Fe iron 55.845	27 27 Co cobalt 58.933	28 28 Ni nickel 58.693	29 29 Cu copper 63.546	30 30 Zn zinc 65.38	31 31 Ga gallium 69.723	32 32 Ge germanium 72.63	33 33 As arsenic 74.922	34 34 Se selenium 78.971	35 35 Br bromine 79.904	36 36 Kr krypton 83.798

Z aligndefault: *left*Sets the alignment of the atomic number value to *left*, *center* or *right* with respect to its containing box. It only takes effect when **Z use box width** is true.

\pgfPT[Z list={1,...,36},Z use box width,Z align=center]

Periodic Table of Elements																										
1	H	hydrogen 1.008	2														18									
3	Li	lithium 6.94	4	Be	beryllium 9.0122												He									
11	Na	sodium 22.99	12	Mg	magnesium 24.305	3	4	5	6	7	8	9	10	11	12		helium 4.0026									
19	K	potassium 39.098	20	Ca	calcium 40.078	21	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn										
41			22	Scandium 44.956	23	Scandium 47.867	24	Vanadium 50.942	25	Chromium 51.996	26	Manganese 54.938	27	Cobalt 55.845	28	Nickel 58.933	29	Copper 63.546	30	Zinc 65.38	Ga	Ge	As	Se	Br	Kr
5	B	boron 10.81	6	C	carbon 12.011	7	N	O	P	S	F	13	14	15	16	17	18									
13	Al	aluminum 26.982	14	Si	silicon 28.085	15	Phosphorus 30.974	16	Sulfur 32.06	17	Chlorine 35.45	10	Neon 20.18													
19	Ga	Gallium 69.723	20	Ge	germanium 72.63	21	As	Ar	S	Cl	Ar	14	15	16	17	18										
31	Zn	Zinc 65.38	32	Ge	germanium 74.922	33	As	arsenic 74.922	34	S	chlorine 78.971	35	Br	Bromine 79.904	36	Kr	Krypton 83.798									
31	Ga	Gallium 69.723	32	Ge	germanium 72.63	33	As	arsenic 74.922	34	S	chlorine 78.971	35	Br	Bromine 79.904	36	Kr	Krypton 83.798									
31	Ga	Gallium 69.723	32	Ge	germanium 72.63	33	As	arsenic 74.922	34	S	chlorine 78.971	35	Br	Bromine 79.904	36	Kr	Krypton 83.798									

Z padding

default: 0.25ex

Sets the padding between the atomic number value and the box that contains it. It only takes effect when Z use box width is true.

\pgfPT[Z list={1,...,36},Z use box width,Z align=right,Z padding=1em]

Periodic Table of Elements																										
1	H	hydrogen 1.008	2														18									
3	Li	lithium 6.94	4	Be	beryllium 9.0122												He									
11	Na	sodium 22.99	12	Mg	magnesium 24.305	3	4	5	6	7	8	9	10	11	12		helium 4.0026									
19	K	potassium 39.098	20	Ca	calcium 40.078	21	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn										
41			22	Scandium 44.956	23	Scandium 47.867	24	Vanadium 50.942	25	Chromium 51.996	26	Manganese 54.938	27	Cobalt 55.845	28	Nickel 58.933	29	Copper 63.546	30	Zinc 65.38	Ga	Ge	As	Se	Br	Kr
5	B	boron 10.81	6	C	carbon 12.011	7	N	O	P	S	F	13	14	15	16	17	18									
13	Al	aluminum 26.982	14	Si	silicon 28.085	15	Phosphorus 30.974	16	Sulfur 32.06	17	Chlorine 35.45	10	Neon 20.18													
19	Ga	Gallium 69.723	20	Ge	germanium 72.63	21	As	Ar	S	Cl	Ar	14	15	16	17	18										
31	Zn	Zinc 65.38	32	Ge	germanium 74.922	33	As	arsenic 74.922	34	S	chlorine 78.971	35	Br	Bromine 79.904	36	Kr	Krypton 83.798									
31	Ga	Gallium 69.723	32	Ge	germanium 72.63	33	As	arsenic 74.922	34	S	chlorine 78.971	35	Br	Bromine 79.904	36	Kr	Krypton 83.798									

Z box

no value

Style equivalent to Z use box width=true.

\pgfPT[Z list={1,...,36},Z box]

Periodic Table of Elements																										
1	H	hydrogen 1.008	2														18									
3	Li	lithium 6.94	4	Be	beryllium 9.0122												He									
11	Na	sodium 22.99	12	Mg	magnesium 24.305	3	4	5	6	7	8	9	10	11	12		helium 4.0026									
19	K	potassium 39.098	20	Ca	calcium 40.078	21	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn										
41			22	Scandium 44.956	23	Scandium 47.867	24	Vanadium 50.942	25	Chromium 51.996	26	Manganese 54.938	27	Cobalt 55.845	28	Nickel 58.933	29	Copper 63.546	30	Zinc 65.38	Ga	Ge	As	Se	Br	Kr
5	B	boron 10.81	6	C	carbon 12.011	7	N	O	P	S	F	13	14	15	16	17	18									
13	Al	aluminum 26.982	14	Si	silicon 28.085	15	Phosphorus 30.974	16	Sulfur 32.06	17	Chlorine 35.45	10	Neon 20.18													
19	Ga	Gallium 69.723	20	Ge	germanium 72.63	21	As	Ar	S	Cl	Ar	14	15	16	17	18										
31	Zn	Zinc 65.38	32	Ge	germanium 74.922	33	As	arsenic 74.922	34	S	chlorine 78.971	35	Br	Bromine 79.904	36	Kr	Krypton 83.798									
31	Ga	Gallium 69.723	32	Ge	germanium 72.63	33	As	arsenic 74.922	34	S	chlorine 78.971	35	Br	Bromine 79.904	36	Kr	Krypton 83.798									

Z

default: {bc=black,c=white,f=\tiny\bfseries,boxwd=false,align=left,pad=.25ex}

Pseudo style to set the keys: Z backcolor, Z color, Z font, Z use box width, Z align and/or Z padding. None of the keys – bc, c, f, boxwd, align and pad – are mandatory.

USAGE:

Z={bc=<color>,c=<color>,f=,boxwd=<true|false>,align=<left|center|right>,pad=<length>}

```
\pgfPT[Z list={1,...,36},Z={bc=blue,f=\tiny\bfseries\itshape}]
```

Periodic Table of Elements																	
1	H	2															18
1	hydrogen 1.008	2															He helium 4.0026
3	Li	4	Be														
2	lithium 6.94	9.0122															
11	Na	12	Mg														
3	sodium 22.99	24.305	magnesium 24.305														
19	K	20	Ca														
4	potassium 39.098	40.078	calcium 40.078														
21	Sc	22	Ti														
22	scandium 44.956	47.867	titanium 50.942														
23	V	24	Cr														
24	vanadium 50.942	51.996	chromium 51.996														
25	Mn	26	Fe														
26	manganese 54.938	55.845	iron 55.845														
27	Co	28	Ni														
28	cobalt 58.933	58.933	nickel 58.933														
29	Cu	30	Zn														
30	copper 63.546	63.546	zinc 65.38														
31	Ga	32	Ge														
32	gallium 69.723	72.63	germanium 72.63														
33	As	34	Se														
34	arsenic 74.922	78.971	selenium 78.971														
35	Br	36	Kr														
36	bromine 79.904	83.798	krypton 83.798														

► The chemical symbol

CS solid

default: RGB: 255,166,51

Sets the color of the chemical symbol for elements that are in the solid state at normal temperature and pressure (NTP).

```
\pgfPT[Z list={1,...,54},CS solid=red]
```

Periodic Table of Elements																	
1	H	2															18
1	hydrogen 1.008	2															He helium 4.0026
3	Li	4	Be														
2	lithium 6.94	9.0122															
11	Na	12	Mg														
3	sodium 22.99	24.305	magnesium 24.305														
19	K	20	Ca														
4	potassium 39.098	40.078	calcium 40.078														
37	Rb	38	Str														
38	rubidium 85.468	87.62	strontium 88.906														
39	Y	40	Zr														
40	yttrium 88.906	91.224	zirconium 92.906														
41	Nb	42	Mo														
42	niobium 95.95	95.95	molybdenum 95.95														
43	Tc	44	Ru														
44	technetium [98]	101.07	ruthenium 102.91														
45	Rh	46	Pd														
46	rhodium 106.42	106.42	palladium 106.42														
47	Ag	48	Cd														
48	silver 107.87	107.87	cadmium 112.41														
49	In	50	In														
50	indium 114.82	114.82	tin 116.71														
51	Sn	52	Sn														
52	tin 116.71	116.71	antimony 121.76														
53	Sb	54	Sb														
54	antimony 121.76	121.76	tellurium 127.6														
55	I	56	I														
56	iodine 126.9	126.9	xenon 131.29														

CS liquid

default: RGB: 0,204,204

Sets the color of the chemical symbol for elements that are in a liquid state at normal temperature and pressure (NTP).

```
\pgfPT[Z list={1,...,54},CS liquid=red]
```

Periodic Table of Elements																	
1	H	2															18
1	hydrogen 1.008	2															He helium 4.0026
3	Li	4	Be														
2	lithium 6.94	9.0122															
11	Na	12	Mg														
3	sodium 22.99	24.305	magnesium 24.305														
19	K	20	Ca														
4	potassium 39.098	40.078	calcium 40.078														
37	Sc	38	Y														
38	scandium 88.906	91.224	yttrium 92.906														
39	Zr	40	Nb														
40	zirconium 92.906	92.906	niobium 95.95														
41	Mo	42	Tc														
42	molybdenum 95.95	95.95	technetium [98]														
43	Ru	44	Rh														
44	ruthenium 101.07	101.07	ruthenium 102.91														
45	Pd	46	Pd														
46	palladium 106.42	106.42	palladium 106.42														
47	Ag	48	Cd														
48	silver 107.87	107.87	cadmium 112.41														
49	In	50	In														
50	indium 114.82	114.82	tin 116.71														
51	Sn	52	Sn														
52	tin 116.71	116.71	antimony 121.76														
53	Sb	54	Sb														
54	antimony 121.76	121.76	tellurium 127.6														
55	I	56	I														
56	iodine 126.9	126.9	xenon 131.29														

CS gas

default: RGB: 0,102,153

Sets the color of the chemical symbol for elements that are in a gaseous state at normal temperature and pressure (NTP).

\pgfPT[Z list={1,...,54},CS gas=red]

Periodic Table of Elements																																						
1	H	2	He	3	Li	4	Be	5	Na	6	Mg	7	Al	8	Si	9	P	10	S	11	F	12	Ne	13	B	14	C	15	N	16	O	17	Cl	18	He			
1	hydrogen 1.008	2	beryllium 9.0122	3	lithium 6.94	4	magnesium 24.305	5	scandium 44.955	6	titanium 47.867	7	vandium 50.942	8	chromium 51.996	9	manganese 54.938	10	iron 55.845	11	cobalt 58.933	12	nickel 58.693	13	boron 10.81	14	carbon 12.011	15	nitrogen 14.007	16	oxygen 15.999	17	fluorine 18.998	18	helium 4.0026			
2	potassium 39.098	3	calcium 40.078	4	strontium 87.62	5	rubidium 85.468	6	yttrium 88.900	7	zirconium 91.224	8	niobium 92.906	9	molybdenum 95.95	10	technetium [98]	11	ruthenium 101.07	12	rhodium 102.91	13	osmium 106.42	14	rhodium 106.42	15	germanium 72.63	16	phosphorus 30.974	17	sulfur 32.06	18	chlorine 35.45					
4	Ca	5	Sc	6	Ti	7	V	8	Cr	9	Mn	10	Fe	11	Co	12	Ni	13	Cu	14	Zn	15	Ga	16	Ge	17	As	18	Kr									
5	Rb	6	Sr	7	Y	8	Zr	9	Nb	10	Mo	11	Tc	12	Ru	13	Rh	14	Pd	15	Ag	16	Cd	17	In	18	Br	19	Xe									
6	Cs	7	Ba	8	Hf	9	Ta	10	W	11	Re	12	Os	13	Ir	14	Pt	15	Au	16	Hg	17	Tl	18	Pb	19	Bi	20	Po									
7	Fr	8	Ra	9	actinoids	10	netherfordium	11	dubium	12	seaborgium	13	bohrium	14	hassium	15	meitnerium	16	darmstadtium	17	roentgenium	18	copernicium	19	nh	20	fl	21	mc	22	lv	23	ts	24	og			
6	La	7	Ce	8	Pr	9	Nd	10	Pm	11	Sm	12	Eu	13	Gd	14	Tb	15	Dy	16	Ho	17	Er	18	Tm	19	Yb	20	Lu	21		22		23		24		
7	Ac	8	Th	9	Pa	10	U	11	Np	12	Pu	13	Am	14	Cm	15	Bk	16	Cf	17	Es	18	Fm	19	Md	20	No	21	Lr	22		23		24		25		
6	lanthanum 138.91	7	cerium 140.12	8	praseodymium 140.91	9	neodymium 144.24	10	promethium [145]	11	samarium 150.36	12	europtium 151.96	13	europium 157.25	14	gadolinium 158.93	15	terbium 162.5	16	dysprosium 164.93	17	holmium 167.26	18	erbium 168.93	19	thulium 173.05	20	yterbium 174.97	21	lutetium 174.97	22		23		24		25
7	actinium [227]	8	thorium 232.04	9	protactinium 231.04	10	uranium 238.03	11	neptunium [237]	12	plutonium [244]	13	americium [243]	14	curium [247]	15	berkelium [247]	16	californium [251]	17	einsteinium [252]	18	fermium [257]	19	mendelevium [258]	20	nobelium [259]	21	lawrencium [266]	22		23		24		25		

CS synt

default: RGB: 236,236,236

Sets the color of the chemical symbol for elements that are synthetic.

\pgfPT[CS synt=red]

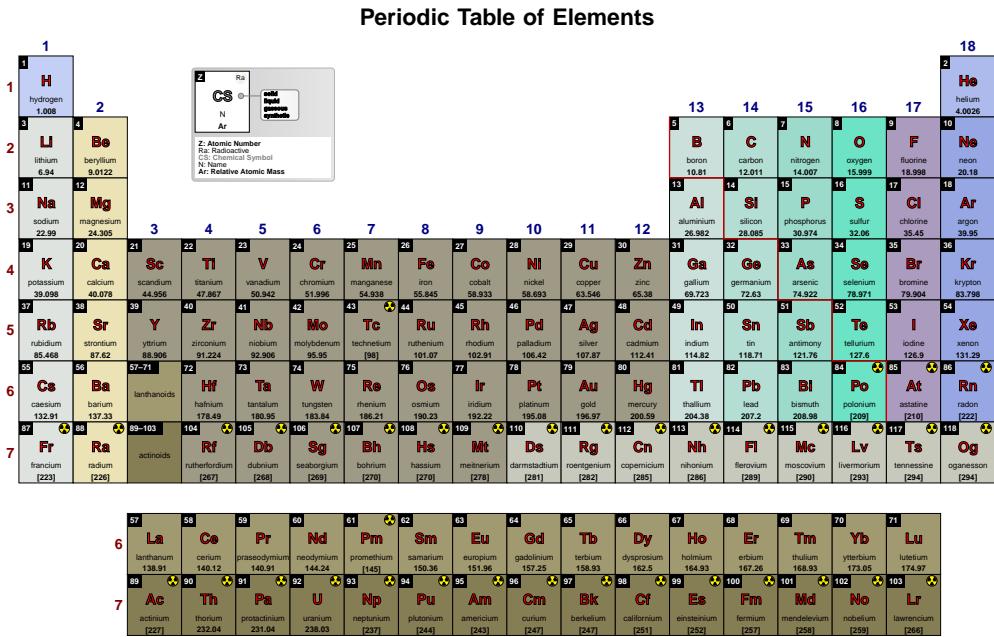
Periodic Table of Elements																																							
1	H	2	He	3	Li	4	Be	5	Na	6	Mg	7	Al	8	Si	9	P	10	S	11	F	12	Ne	13	B	14	C	15	N	16	O	17	Cl	18	He				
1	potassium 39.098	2	calcium 40.078	3	strontium 87.62	4	rubidium 85.468	5	yttrium 88.900	6	zirconium 91.224	7	niobium 92.906	8	molybdenum 95.95	9	technetium [98]	10	ruthenium 101.07	11	rhodium 102.91	12	rhodium 106.42	13	osmium 106.42	14	rhodium 106.42	15	germanium 72.63	16	phosphorus 30.974	17	sulfur 32.06	18	chlorine 35.45	19	kr	20	x
4	Ca	5	Sc	6	Ti	7	V	8	Cr	9	Mn	10	Fe	11	Co	12	Ni	13	Cu	14	Zn	15	Ga	16	Ge	17	As	18	Se	19	Br	20	Kr						
5	Rb	6	Sr	7	Y	8	Zr	9	Nb	10	Mo	11	Tc	12	Ru	13	Rh	14	Pd	15	Ag	16	Cd	17	In	18	Sn	19	Sb	20	Te	21	I	22	Xe				
6	Cs	7	Ba	8	Hf	9	Ta	10	W	11	Re	12	Os	13	Ir	14	Pt	15	Au	16	Hg	17	Tl	18	Pb	19	Bi	20	Po	21	At	22	Rn	23					
7	Fr	8	Ra	9	actinoids	10	netherfordium	11	dubium	12	seaborgium	13	bohrium	14	hassium	15	meitnerium	16	darmstadtium	17	roentgenium	18	copernicium	19	nh	20	fl	21	mc	22	lv	23	ts	24	og				
6	La	7	Ce	8	Pr	9	Nd	10	Pm	11	Sm	12	Eu	13	Gd	14	Tb	15	Dy	16	Ho	17	Er	18	Tm	19	Yb	20	Lu	21		22		23		24			
7	Ac	8	Th	9	Pa	10	U	11	Np	12	Pu	13	Am	14	Cm	15	Bk	16	Cf	17	Es	18	Fm	19	Md	20	No	21	Lr	22		23		24		25			

CS all

default: black

Style to set a common color to the chemical symbols, equivalent to CS solid=<color>, CS liquid=<color>, CS gas=<color>, CS synt=<color>.

\pgfPT[CS all=red]



\pgfPT[Z list={1,...,36},CS render mode=fill]

Periodic Table of Elements																	
1 1 H hydrogen 1.008	2 2 He helium 4.0026	3 3 Li lithium 6.94	4 4 Be beryllium 9.0122	5 5 B boron 10.81	6 6 C carbon 12.011	7 7 N nitrogen 14.007	8 8 O oxygen 15.999	9 9 F fluorine 18.998	10 10 Ne neon 20.18	11 11 Na sodium 22.99	12 12 Mg magnesium 24.305	13 13 Mn manganese 54.938	14 14 Al aluminum 26.982	15 15 Si silicon 28.085	16 16 P phosphorus 30.974	17 17 S sulfur 32.06	18 18 Ar argon 39.95
19 19 K potassium 39.098	20 20 Ca calcium 40.078	21 21 Sc scandium 44.955	22 22 Ti titanium 47.867	23 23 V vanadium 50.942	24 24 Cr chromium 51.996	25 25 Mn manganese 54.938	26 26 Fe iron 55.845	27 27 Co cobalt 58.933	28 28 Ni nickel 58.693	29 29 Cu copper 63.546	30 30 Zn zinc 65.38	31 31 Ga gallium 69.723	32 32 Ge germanium 72.63	33 33 As arsenic 74.922	34 34 Se selenium 78.971	35 35 Br bromine 79.904	36 36 Kr krypton 83.798
1 1 Ra radioactive 0.0122	2 2 Cs chemical symbol N name Ar relative atomic mass	3 3 Ra radioactive 0.0122	4 4 Cs chemical symbol N name Ar relative atomic mass	5 5 Ra radioactive 0.0122	6 6 Cs chemical symbol N name Ar relative atomic mass	7 7 Ra radioactive 0.0122	8 8 Cs chemical symbol N name Ar relative atomic mass	9 9 Ra radioactive 0.0122	10 10 Cs chemical symbol N name Ar relative atomic mass	11 11 Ra radioactive 0.0122	12 12 Cs chemical symbol N name Ar relative atomic mass	13 13 Ra radioactive 0.0122	14 14 Cs chemical symbol N name Ar relative atomic mass	15 15 Ra radioactive 0.0122	16 16 Cs chemical symbol N name Ar relative atomic mass	17 17 Ra radioactive 0.0122	18 18 Cs chemical symbol N name Ar relative atomic mass

\pgfPT[Z list={1,...,36},CS render mode=outline]

Periodic Table of Elements																	
1 1 H hydrogen 1.008	2 2 He helium 4.0026	3 3 Li lithium 6.94	4 4 Be beryllium 9.0122	5 5 B boron 10.81	6 6 C carbon 12.011	7 7 N nitrogen 14.007	8 8 O oxygen 15.999	9 9 F fluorine 18.998	10 10 Ne neon 20.18	11 11 Na sodium 22.99	12 12 Mg magnesium 24.305	13 13 Mn manganese 54.938	14 14 Al aluminum 26.982	15 15 Si silicon 28.085	16 16 P phosphorus 30.974	17 17 S sulfur 32.06	18 18 Ar argon 39.95
19 19 K potassium 39.098	20 20 Ca calcium 40.078	21 21 Sc scandium 44.955	22 22 Ti titanium 47.867	23 23 V vanadium 50.942	24 24 Cr chromium 51.996	25 25 Mn manganese 54.938	26 26 Fe iron 55.845	27 27 Co cobalt 58.933	28 28 Ni nickel 58.693	29 29 Cu copper 63.546	30 30 Zn zinc 65.38	31 31 Ga gallium 69.723	32 32 Ge germanium 72.63	33 33 As arsenic 74.922	34 34 Se selenium 78.971	35 35 Br bromine 79.904	36 36 Kr krypton 83.798
1 1 Ra radioactive 0.0122	2 2 Cs chemical symbol N name Ar relative atomic mass	3 3 Ra radioactive 0.0122	4 4 Cs chemical symbol N name Ar relative atomic mass	5 5 Ra radioactive 0.0122	6 6 Cs chemical symbol N name Ar relative atomic mass	7 7 Ra radioactive 0.0122	8 8 Cs chemical symbol N name Ar relative atomic mass	9 9 Ra radioactive 0.0122	10 10 Cs chemical symbol N name Ar relative atomic mass	11 11 Ra radioactive 0.0122	12 12 Cs chemical symbol N name Ar relative atomic mass	13 13 Ra radioactive 0.0122	14 14 Cs chemical symbol N name Ar relative atomic mass	15 15 Ra radioactive 0.0122	16 16 Cs chemical symbol N name Ar relative atomic mass	17 17 Ra radioactive 0.0122	18 18 Cs chemical symbol N name Ar relative atomic mass

CS outline colordefault: *black*

Sets the outline color for the chemical symbol.

\pgfPT[Z list={1,...,36},CS outline color=red]

Periodic Table of Elements																	
1 1 H hydrogen 1.008	2 2 He helium 4.0026	3 3 Li lithium 6.94	4 4 Be beryllium 9.0122	5 5 B boron 10.81	6 6 C carbon 12.011	7 7 N nitrogen 14.007	8 8 O oxygen 15.999	9 9 F fluorine 18.998	10 10 Ne neon 20.18	11 11 Na sodium 22.99	12 12 Mg magnesium 24.305	13 13 Mn manganese 54.938	14 14 Al aluminum 26.982	15 15 Si silicon 28.085	16 16 P phosphorus 30.974	17 17 S sulfur 32.06	18 18 Ar argon 39.95
19 19 K potassium 39.098	20 20 Ca calcium 40.078	21 21 Sc scandium 44.955	22 22 Ti titanium 47.867	23 23 V vanadium 50.942	24 24 Cr chromium 51.996	25 25 Mn manganese 54.938	26 26 Fe iron 55.845	27 27 Co cobalt 58.933	28 28 Ni nickel 58.693	29 29 Cu copper 63.546	30 30 Zn zinc 65.38	31 31 Ga gallium 69.723	32 32 Ge germanium 72.63	33 33 As arsenic 74.922	34 34 Se selenium 78.971	35 35 Br bromine 79.904	36 36 Kr krypton 83.798
1 1 Ra radioactive 0.0122	2 2 Cs chemical symbol N name Ar relative atomic mass	3 3 Ra radioactive 0.0122	4 4 Cs chemical symbol N name Ar relative atomic mass	5 5 Ra radioactive 0.0122	6 6 Cs chemical symbol N name Ar relative atomic mass	7 7 Ra radioactive 0.0122	8 8 Cs chemical symbol N name Ar relative atomic mass	9 9 Ra radioactive 0.0122	10 10 Cs chemical symbol N name Ar relative atomic mass	11 11 Ra radioactive 0.0122	12 12 Cs chemical symbol N name Ar relative atomic mass	13 13 Ra radioactive 0.0122	14 14 Cs chemical symbol N name Ar relative atomic mass	15 15 Ra radioactive 0.0122	16 16 Cs chemical symbol N name Ar relative atomic mass	17 17 Ra radioactive 0.0122	18 18 Cs chemical symbol N name Ar relative atomic mass

CS outline widthdefault: *0.05*Sets the outline width of the chemical symbol. It is any positive numerical value **without dimensions** (1.0 is roughly 1.0pt).

\pgfPT[Z list={1,...,36},CS outline width=.2]

Periodic Table of Elements																	
1 1 H hydrogen 1.008	2 2 He helium 4.0026	3 3 Li lithium 6.94	4 4 Be beryllium 9.0122	5 5 B boron 10.81	6 6 C carbon 12.011	7 7 N nitrogen 14.007	8 8 O oxygen 15.999	9 9 F fluorine 18.998	10 10 Ne neon 20.18	11 11 Na sodium 22.99	12 12 Mg magnesium 24.305	13 13 Mn manganese 54.938	14 14 Al aluminum 26.982	15 15 Si silicon 28.085	16 16 P phosphorus 30.974	17 17 S sulfur 32.06	18 18 Ar argon 39.95
19 19 K potassium 39.098	20 20 Ca calcium 40.078	21 21 Sc scandium 44.955	22 22 Ti titanium 47.867	23 23 V vanadium 50.942	24 24 Cr chromium 51.996	25 25 Mn manganese 54.938	26 26 Fe iron 55.845	27 27 Co cobalt 58.933	28 28 Ni nickel 58.693	29 29 Cu copper 63.546	30 30 Zn zinc 65.38	31 31 Ga gallium 69.723	32 32 Ge germanium 72.63	33 33 As arsenic 74.922	34 34 Se selenium 78.971	35 35 Br bromine 79.904	36 36 Kr krypton 83.798
1 1 Ra radioactive 0.0122	2 2 Cs chemical symbol N name Ar relative atomic mass	3 3 Ra radioactive 0.0122	4 4 Cs chemical symbol N name Ar relative atomic mass	5 5 Ra radioactive 0.0122	6 6 Cs chemical symbol N name Ar relative atomic mass	7 7 Ra radioactive 0.0122	8 8 Cs chemical symbol N name Ar relative atomic mass	9 9 Ra radioactive 0.0122	10 10 Cs chemical symbol N name Ar relative atomic mass	11 11 Ra radioactive 0.0122	12 12 Cs chemical symbol N name Ar relative atomic mass	13 13 Ra radioactive 0.0122	14 14 Cs chemical symbol N name Ar relative atomic mass	15 15 Ra radioactive 0.0122	16 16 Cs chemical symbol N name Ar relative atomic mass	17 17 Ra radioactive 0.0122	18 18 Cs chemical symbol N name Ar relative atomic mass

CS

default: `{r=fill and outline,c=black,w=.05,f=\small\bfseries,s=solido,l=liquido,g=gasoso,sy=sintetico}`

Pseudo style to set the keys: CS **render mode**, CS **outline color**, CS **outline width**, CS **font**, CS **solid**, CS **liquid**, CS **gas** and/or CS **synt** and/or the style CS **all**. None of the keys – r, olc, olw , f, s, l, g, sy and all – are mandatory.

USAGE:

```
CS={r=<fill|outline|fill and outline>,olc=<color>,olw=<positive numerical value>
f=<font commands>,s=<color>,l=<color>,g=<color>,sy=<color>,all=<color>}}
```

```
\pgfPT[Z list={1,...,36},CS={r=outline,olc=red,olw=.4},show legend pins=false]
```

Periodic Table of Elements

1	H	2	He	18
1	hydrogen 1.008	2	helium 4.0026	
3	Li	4	Be	
2	lithium 6.94	beryllium 9.0122		
11	Na	12	Mg	
3	sodium 22.99	magnesium 24.305		
19	K	20	Ca	
4	potassium 39.098	calcium 40.078		
21	Sc	22	Ti	
	scandium 44.956	47.867		
23	V	24	Cr	
	vanadium 50.942	chromium 51.996		
25	Mn	26	Fe	
	manganese 54.938	iron 55.845		
27	Co	28	Ni	
	cobalt 58.933	nickel 58.693		
29	Cu	30	Zn	
	copper 63.546	zinc 65.38		
31	Ga	32	Ge	
	gallium 69.723	germanium 72.63		
33	As	34	Se	
	arsenic 74.922	selenium 78.971		
35	Br	36	Kr	
	bromine 79.904	krypton 83.798		

► The name

name colordefault: *black*

Sets the color of the element name.

```
\pgfPTstyle[show title=false]
```

```
\pgfPT[Z list={1,...,36},name color=red]
```

1	H	2	He	18
1	hydrogen 1.008	2	helium 4.0026	
3	Li	4	Be	
2	lithium 6.94	beryllium 9.0122		
11	Na	12	Mg	
3	sodium 22.99	magnesium 24.305		
19	K	20	Ca	
4	potassium 39.098	calcium 40.078		
21	Sc	22	Ti	
	scandium 44.956	47.867		
23	V	24	Cr	
	vanadium 50.942	chromium 51.996		
25	Mn	26	Fe	
	manganese 54.938	iron 55.845		
27	Co	28	Ni	
	cobalt 58.933	nickel 58.693		
29	Cu	30	Zn	
	copper 63.546	zinc 65.38		
31	Ga	32	Ge	
	gallium 69.723	germanium 72.63		
33	As	34	Se	
	arsenic 74.922	selenium 78.971		
35	Br	36	Kr	
	bromine 79.904	krypton 83.798		

name fontdefault: *\tiny*

Sets the font of the element name.

```
\pgfPT[Z list={1,...,36},name font=\itshape\tiny]
```

1	H	2	He	18
1	hydrogen 1.008	2	helium 4.0026	
3	Li	4	Be	
2	lithium 6.94	beryllium 9.0122		
11	Na	12	Mg	
3	sodium 22.99	magnesium 24.305		
19	K	20	Ca	
4	potassium 39.098	calcium 40.078		
21	Sc	22	Ti	
	scandium 44.956	47.867		
23	V	24	Cr	
	vanadium 50.942	chromium 51.996		
25	Mn	26	Fe	
	manganese 54.938	iron 55.845		
27	Co	28	Ni	
	cobalt 58.933	nickel 58.693		
29	Cu	30	Zn	
	copper 63.546	zinc 65.38		
31	Ga	32	Ge	
	gallium 69.723	germanium 72.63		
33	As	34	Se	
	arsenic 74.922	selenium 78.971		
35	Br	36	Kr	
	bromine 79.904	krypton 83.798		

name align

default: center

Sets the alignment of the element name to *left*, *center* or *right* with respect to its containing box.
(new in v1.0.1)

\pgfPT[Z list={1,...,36},name align=left]

A standard periodic table where each element's name is placed to the left of its corresponding cell, centered within the box.

capitalize element names

default: false

If set to **true** the first letter of the name of the elements is a capital letter (except in German where names start with a capital letter since version 2.0.1). If set to **TRUE** the whole name of the elements is in capital letters
(changed in v1.0.1)

\pgfPT[Z list={1,...,36},capitalize element names=true]

A standard periodic table where the first letter of each element's name is capitalized, while the rest of the name is in lowercase.

\pgfPT[Z list={1,...,36},capitalize element names=TRUE]

A standard periodic table where the entire name of each element is in uppercase letters.

name

no value

A style equivalent to `capitalize element names=false`

\pgfPT[Z list={1,...,36},name]

A standard periodic table where the first letter of each element's name is capitalized, while the rest of the name is in lowercase.

Name*no value*A style equivalent to `capitalize element names=true`

\pgfPT[Z list={1,...,36},Name]

1	H	Hydrogen 1.008	18	He	Helium 4.0026
2	B	Boron 10.81	19	C	Carbon 12.011
3	Li	Lithium 6.94	20	N	Nitrogen 14.007
4	Be	Beryllium 9.0122	21	O	Oxygen 15.999
5	Na	Sodium 22.99	22	P	Phosphorus 30.974
6	Mg	Magnesium 24.305	23	S	Sulfur 32.06
7	Al	Aluminum 26.982	24	Cl	Chlorine 35.45
8	Si	Silicon 28.085	25	Ar	Argon 39.95
9	Fe	Iron 55.845	26	F	Fluorine 18.998
10	Cr	Chromium 50.942	27	Ne	Neon 20.18
11	Ti	Titanium 47.867	28	O	Oxygen 15.999
12	V	Vanadium 50.942	29	S	Sulfur 32.06
13	Sc	Scandium 44.956	30	Se	Selenium 78.971
14	Cr	Chromium 51.996	31	Ge	Germanium 72.63
15	Mn	Manganese 54.938	32	As	Arsenic 74.922
16	Fe	Iron 55.845	33	Br	Bromine 79.904
17	Co	Cobalt 58.933	34	Kr	Krypton 83.798
18	Ni	Nickel 58.693	35		
19	Cu	Copper 63.546	36		
20	Zn	Zinc 65.38	37		
21	Ga	Gallium 69.723	38		
22	Ge	Germanium 72.63	39		
23	As	Arsenic 74.922	40		
24	Se	Selenium 78.971	41		
25	Br	Bromine 79.904	42		
26	Kr	Krypton 83.798	43		

NAME*no value*A style equivalent to `capitalized element names=TRUE`

(new in v1.0.1)

\pgfPT[Z list={1,...,36},NAME]

1	H	HYDROGEN 1.008	18	He	HELUM 4.0026
2	B	BERYLLIUM 9.0122	19	C	CARBON 12.011
3	Li	LITHIUM 6.94	20	N	NITROGEN 14.007
4	Be	BERYLLIUM 9.0122	21	O	OXYGEN 15.999
5	Na	MAGNESIUM 24.305	22	P	PHOSPHORUS 30.974
6	Mg	MAGNESIUM 24.305	23	S	SULFUR 32.06
7	Al	ALUMINUM 26.982	24	Cl	CHLORINE 35.45
8	Si	SILICON 28.085	25	Ar	ARGON 39.95
9	Fe	IRON 55.845	26	F	FLUORINE 18.998
10	Cr	CHROMIUM 50.942	27	Ne	NEON 20.18
11	Ti	TITANIUM 47.867	28	O	OXYGEN 15.999
12	V	VANADIUM 50.942	29	S	SULFUR 32.06
13	Sc	SCANDIUM 44.956	30	Se	SELENIUM 78.971
14	Cr	CHROMIUM 51.996	31	Ge	GERMANIUM 72.63
15	Mn	MANGANESE 54.938	32	As	ARSENIC 74.922
16	Fe	IRON 55.845	33	Br	BROMINE 79.904
17	Co	COBALT 58.933	34	Kr	KRYPTON 83.798
18	Ni	NICKEL 58.693	35		
19	Cu	COPPER 63.546	36		
20	Zn	ZINC 65.38	37		
21	Ga	GALLIUM 69.723	38		
22	Ge	GERMANIUM 72.63	39		
23	As	ARSENIC 74.922	40		
24	Se	SELENIUM 78.971	41		
25	Br	BROMINE 79.904	42		
26	Kr	KRYPTON 83.798	43		

The atomic weight**Ar color**default: *black*

Sets the relative atomic mass color.

\pgfPT[Z list={1,...,36},Ar color=red]

1	H	hydrogen 1.008	18	He	helium 4.0026
2	B	beryllium 9.0122	19	C	carbon 12.011
3	Li	lithium 6.94	20	N	nitrogen 14.007
4	Be	beryllium 9.0122	21	O	oxygen 15.999
5	Na	sodium 22.99	22	P	phosphorus 30.974
6	Mg	magnesium 24.305	23	S	sulfur 32.06
7	Al	aluminum 26.982	24	Cl	chlorine 35.45
8	Si	silicon 28.085	25	Ar	argon 39.95
9	Fe	iron 55.845	26	F	fluorine 18.998
10	Cr	chromium 50.942	27	Ne	neon 20.18
11	Ti	titanium 47.867	28	O	oxygen 15.999
12	V	vanadium 50.942	29	S	sulfur 32.06
13	Sc	scandium 44.956	30	Se	sele늄 78.971
14	Cr	chromium 51.996	31	Ge	germanium 72.63
15	Mn	manganese 54.938	32	As	arsenic 74.922
16	Fe	iron 55.845	33	Br	bromine 79.904
17	Co	cobalt 58.933	34	Kr	krypton 83.798
18	Ni	nickel 58.693	35		
19	Cu	copper 63.546	36		
20	Zn	zinc 65.38	37		
21	Ga	gallium 69.723	38		
22	Ge	germanium 72.63	39		
23	As	arsenic 74.922	40		
24	Se	sele늄 78.971	41		
25	Br	bromine 79.904	42		
26	Kr	krypton 83.798	43		

Ar fontdefault: `\tiny\bfseries`

Sets the relative atomic mass font.

`\pgfPT[Z list={1,...,36},Ar font=\scriptsize\bfseries]`

A standard periodic table of elements from Z=1 to Z=36. The font used for element symbols and names is a bold script size. A legend box in the top-left corner provides information about the keys used in the table definition:

- Z: Atomic Number
- Ra: Radioactive
- CS: Chemical Symbol
- N: Name
- Ar: Relative Atomic Mass

Ar labeldefault: `m`Sets the label to be used within the relative atomic mass description. When set to '`m`' the term **mass** is used and when set to '`w`' the term **weight** is used, resulting in *Relative Atomic Mass* and *Atomic Weight* labels respectively.
`\pgfPT[Z list={1,...,36}]`

A standard periodic table of elements from Z=1 to Z=36. The font used for element symbols and names is a standard medium size. A legend box in the top-left corner provides information about the keys used in the table definition:

- Z: Atomic Number
- Ra: Radioactive
- CS: Chemical Symbol
- N: Name
- Ar: Relative Atomic Mass

`\pgfPT[Z list={1,...,36},Ar label=w]`

A standard periodic table of elements from Z=1 to Z=36. The font used for element symbols and names is a standard medium size. A legend box in the top-left corner provides information about the keys used in the table definition:

- Z: Atomic Number
- Ra: Radioactive
- CS: Chemical Symbol
- N: Name
- Ar: Atomic Weight

Ar precisiondefault: `-1`

Sets the relative atomic mass precision, i.e., the decimal places displayed in the relative atomic mass value, performing the respective rounding, without zero padding the value.

NOTE:

Rounding is performed over the relative atomic mass data values which actually have a maximum of 4 decimal places. So giving this key a value of -1 (the value of relative atomic mass as-is) or 4 has the same effect.

Therefore the values provided to this key should be any integer between -1 and 3, i.e., -1, 0, 1, 2 or 3. Any other integer provided will be processed as -1.

\pgfPT[Z list={1,...,36}]

1 H hydrogen 1.008	2 He helium 4.0026
1 Li lithium 6.94	2 Be beryllium 9.0122
3 Na sodium 22.99	4 Mg magnesium 24.305
5 K potassium 39.098	6 Ca calcium 40.078
7 Sc scandium 44.956	8 Ti titanium 47.867
9 V vanadium 50.942	10 Cr chromium 51.996
11 Mn manganese 54.938	12 Fe iron 55.845
13 Co cobalt 58.933	14 Ni nickel 58.693
15 Cu copper 63.546	16 Zn zinc 65.38
17 Ga gallium 69.723	18 Ge germanium 72.63
19 As arsenic 74.922	20 Se selenium 78.971
21 Br bromine 79.904	22 Kr krypton 83.798

\pgfPT[Z list={1,...,36},Ar precision=2]

1 H hydrogen 1.01	2 He helium 4.00
1 Li lithium 6.94	2 Be beryllium 9.01
3 Na sodium 22.99	4 Mg magnesium 24.31
5 K potassium 39.10	6 Ca calcium 40.08
7 Sc scandium 44.96	8 Ti titanium 47.87
9 V vanadium 50.94	10 Cr chromium 52.00
11 Mn manganese 54.94	12 Fe iron 55.85
13 Co cobalt 58.93	14 Ni nickel 58.69
15 Cu copper 63.55	16 Zn zinc 65.38
17 Ga gallium 69.72	18 Ge germanium 72.63
19 As arsenic 74.92	20 Se selenium 78.97
21 Br bromine 79.90	22 Kr krypton 83.80

\pgfPT[Z list={1,...,36},Ar precision=1]

1 H hydrogen 1.01	2 He helium 4.0
1 Li lithium 6.9	2 Be beryllium 9.0
3 Na sodium 23.0	4 Mg magnesium 24.3
5 K potassium 39.1	6 Ca calcium 40.1
7 Sc scandium 45.9	8 Ti titanium 47.9
9 V vanadium 50.9	10 Cr chromium 52.0
11 Mn manganese 54.9	12 Fe iron 55.9
13 Co cobalt 58.9	14 Ni nickel 58.7
15 Cu copper 63.6	16 Zn zinc 65.4
17 Ga gallium 69.7	18 Ge germanium 72.6
19 As arsenic 74.9	20 Se selenium 79.0
21 Br bromine 79.9	22 Kr krypton 83.9

Ar

default: {c=black,f=\tiny\bfseries,l=m,p=-1}

Pseudo style to set the keys: Ar color, Ar font, Ar label and/or Ar precision. None of the keys – c, f, l and p – are mandatory.

USAGE: Ar={c=<color>,f=,l=<m|w>p=<integer value>}

\pgfPT[Z list={1,...,36},Ar={c=red!50!black,p=2}]

1 H hydrogen 1.01	2 He helium 4.00
1 Li lithium 6.94	2 Be beryllium 9.01
3 Na sodium 22.99	4 Mg magnesium 24.31
5 K potassium 39.10	6 Ca calcium 40.08
7 Sc scandium 44.96	8 Ti titanium 47.87
9 V vanadium 50.94	10 Cr chromium 52.00
11 Mn manganese 54.94	12 Fe iron 55.85
13 Co cobalt 58.93	14 Ni nickel 58.93
15 Cu copper 63.55	16 Zn zinc 65.38
17 Ga gallium 69.72	18 Ge germanium 72.63
19 As arsenic 74.92	20 Se selenium 78.97
21 Br bromine 79.90	22 Kr krypton 83.80

```
\pgfPT[Z list={1,...,36},Ar={c=red!50!black,p=1,l=w}]
```

1	H hydrogen 1.0	2	He helium 4.0
3	Li lithium 6.9	4	Be beryllium 9.0
5	Na sodium 23.0	6	Mg magnesium 24.3
7	Al aluminum 27.0	8	Si silicon 28.1
9	P phosphorus 31.0	10	S sulfur 32.1
11	Cl chlorine 35.5	12	Ar argon 40.0
13	B boron 10.8	14	C carbon 12.0
15	N nitrogen 14.0	16	O oxygen 16.0
17	F fluorine 19.0	18	Ne neon 20.2
19	K potassium 39.1	20	Ca calcium 40.1
21	Sc scandium 45.0	22	Ti titanium 47.9
23	V vanadium 50.9	24	Cr chromium 52.0
25	Mn manganese 54.9	26	Fe iron 55.9
27	Co cobalt 58.9	28	Ni nickel 58.7
29	Cu copper 63.6	30	Zn zinc 65.4
31	Ga gallium 69.7	32	Ge germanium 72.6
33	As arsenic 74.9	34	Se selenium 78.9
35	Br bromine 79.9	36	Kr krypton 83.8

► The oxidation states

O color

default: *black*

Sets the color of the oxidation states.

```
\pgfPTbuildcell(5,3)% 5 rows by 3 columns  
[(1;1-2;Z),(1;3;radio),(2-3;1.5-3.5;CS),(4;1-3;name),(5;1-3;O)]
```

\pgfPTstyle[show title=false]

```
\pgfPT[Z list={1,...,36},O color=red]
```

O font

default: \tiny\bfseries

Sets the font of the oxidation states.

\pgfPT[Z list={1,...,36},O font=\itshape\tiny]

O Romandefault: *false*

When set to **true** the oxidation states are displayed in Roman numerals, otherwise they are displayed in arabic numerals.
(new in v2.1.1)

\pgfPT[Z list=spd,O Roman,group numbers=CAS]

IA		IIA		VIIIA																																		
1	H	2	Be	3	B	4	C	5	N	6	O	7	F	8	S	9	Cl	10	Ar	11	Na	12	Mg	13	Al	14	Si	15	P	16	S	17	Cl	18	He			
hydrogen st		beryllium +II		boron +III	carbon +IV	manganese +IV,+VI	nitrogen +V	oxygen -II	fluorine -I	sulfur +VI	chlorine -I	argon —	lithium +I	boron +III	silicon +IV	phosphorus +V	sulfur +VI	chlorine -I	argon —	neon —	potassium +I	calcium +II	scandium +III	vanadium +IV,+V	chromium +IV,+VI	manganese +IV,+VI	iron +II,+III	cobalt +II,+III	nickel +II,+III	copper +I,+II	zinc +II	gallium +III	germanium +IV	arsenic +III	selenium +VI	bromine +VI	krypton —	
0.08988		0.534		0.968	1.738	1.550	2.985	4.506	6.110	7.150	7.210	7.860	8.900	8.308	8.360	7.140	5.910	5.323	4.810	3.1028	3.749	0.890	1.550	2.985	4.506	6.110	7.150	7.210	7.860	8.900	8.308	8.360	7.140	5.910	5.323	4.810	3.1028	3.749
1.00000		1.850		1.738	1.550	1.550	2.985	4.506	6.110	7.150	7.210	7.860	8.900	8.308	8.360	7.140	5.910	5.323	4.810	3.1028	3.749	0.890	1.550	2.985	4.506	6.110	7.150	7.210	7.860	8.900	8.308	8.360	7.140	5.910	5.323	4.810	3.1028	3.749

The density**d color**default: *black*

Sets the density value text color.

```
\pgfPTbuildcellstyle{myd}{(5,3)}% 5 rows by 3 columns
[(1;1-2;Z),(1;3;radio),(2-3;1.5-3.5;CS),(4;1-3;name),(5;1-3;d)]
\pgfPT[Z list={1,...,36},cell style=myd,show title=false]
```

IA		IIA		VIIIA																																		
1	H	2	Be	3	B	4	C	5	N	6	O	7	F	8	S	9	Cl	10	Ar	11	Na	12	Mg	13	Al	14	Si	15	P	16	S	17	Cl	18	He			
hydrogen st		beryllium +II		boron +III	carbon +IV	manganese +IV,+VI	nitrogen +V	oxygen -II	fluorine -I	sulfur +VI	chlorine -I	argon —	lithium +I	boron +III	silicon +IV	phosphorus +V	sulfur +VI	chlorine -I	argon —	neon —	potassium +I	calcium +II	scandium +III	vanadium +IV,+V	chromium +IV,+VI	manganese +IV,+VI	iron +II,+III	cobalt +II,+III	nickel +II,+III	copper +I,+II	zinc +II	gallium +III	germanium +IV	arsenic +III	selenium +VI	bromine +VI	krypton —	
0.08988		1.850		1.738	1.550	1.550	2.985	4.506	6.110	7.150	7.210	7.860	8.900	8.308	8.360	7.140	5.910	5.323	4.810	3.1028	3.749	0.890	1.550	2.985	4.506	6.110	7.150	7.210	7.860	8.900	8.308	8.360	7.140	5.910	5.323	4.810	3.1028	3.749
1.00000		1.850		1.738	1.550	1.550	2.985	4.506	6.110	7.150	7.210	7.860	8.900	8.308	8.360	7.140	5.910	5.323	4.810	3.1028	3.749	0.890	1.550	2.985	4.506	6.110	7.150	7.210	7.860	8.900	8.308	8.360	7.140	5.910	5.323	4.810	3.1028	3.749

\pgfPT[Z list={1,...,36},cell style=myd,show title=false,d color=red]

IA		IIA		VIIIA																																		
1	H	2	Be	3	B	4	C	5	N	6	O	7	F	8	S	9	Cl	10	Ar	11	Na	12	Mg	13	Al	14	Si	15	P	16	S	17	Cl	18	He			
hydrogen st		beryllium +II		boron +III	carbon +IV	manganese +IV,+VI	nitrogen +V	oxygen -II	fluorine -I	sulfur +VI	chlorine -I	argon —	lithium +I	boron +III	silicon +IV	phosphorus +V	sulfur +VI	chlorine -I	argon —	neon —	potassium +I	calcium +II	scandium +III	vanadium +IV,+V	chromium +IV,+VI	manganese +IV,+VI	iron +II,+III	cobalt +II,+III	nickel +II,+III	copper +I,+II	zinc +II	gallium +III	germanium +IV	arsenic +III	selenium +VI	bromine +VI	krypton —	
0.08988		1.850		1.738	1.550	1.550	2.985	4.506	6.110	7.150	7.210	7.860	8.900	8.308	8.360	7.140	5.910	5.323	4.810	3.1028	3.749	0.890	1.550	2.985	4.506	6.110	7.150	7.210	7.860	8.900	8.308	8.360	7.140	5.910	5.323	4.810	3.1028	3.749
1.00000		1.850		1.738	1.550	1.550	2.985	4.506	6.110	7.150	7.210	7.860	8.900	8.308	8.360	7.140	5.910	5.323	4.810	3.1028	3.749	0.890	1.550	2.985	4.506	6.110	7.150	7.210	7.860	8.900	8.308	8.360	7.140	5.910	5.323	4.810	3.1028	3.749

d fontdefault: `\tiny\bfseries`

Sets the density value text font.

```
\pgfPT[Z list={1,...,36},cell style=myd,show title=false,d font=\tiny\itshape]
```

A standard periodic table where the density values for each element are displayed in a small, italicized font directly below their respective element boxes. The density values are: hydrogen (0.08988), lithium (0.534), beryllium (1.850), sodium (0.968), magnesium (1.738), potassium (0.890), calcium (1.550), scandium (2.985), titanium (4.506), vanadium (6.110), chromium (7.150), manganese (7.210), iron (7.860), cobalt (8.900), nickel (8.908), copper (8.960), zinc (7.140), gallium (5.910), germanium (5.323), arsenic (5.727), selenium (4.810), bromine (3.1028), and krypton (3.749).

d unitdefault: `both`

Sets the unit for the density of the elements. The two possible values to this key are `g/dm3`, `g/cm3` (g/cm^3) and `both` (g/dm^3 for elements in the gaseous state and g/cm^3 for all other elements). *(new in v1.0.1)*

```
\pgfPT[Z list={1,...,36},cell style=myd,show title=false]
```

A standard periodic table where the density values for each element are displayed in a small, italicized font directly below their respective element boxes. The density values are: hydrogen (0.08988), lithium (0.534), beryllium (1.850), sodium (0.968), magnesium (1.738), potassium (0.890), calcium (1.550), scandium (2.985), titanium (4.506), vanadium (6.110), chromium (7.150), manganese (7.210), iron (7.860), cobalt (8.900), nickel (8.908), copper (8.960), zinc (7.140), gallium (5.910), germanium (5.323), arsenic (5.727), selenium (4.810), bromine (3.1028), and krypton (3.749).

```
\pgfPT[Z list={1,...,36},cell style=myd,show title=false,d unit=g/cm3]
```

A standard periodic table where the density values for each element are displayed in a small, italicized font directly below their respective element boxes. The density values are: hydrogen (0.08988), lithium (0.534), beryllium (1.850), sodium (0.968), magnesium (1.738), potassium (0.890), calcium (1.550), scandium (2.985), titanium (4.506), vanadium (6.110), chromium (7.150), manganese (7.210), iron (7.860), cobalt (8.900), nickel (8.908), copper (8.960), zinc (7.140), gallium (5.910), germanium (5.323), arsenic (5.727), selenium (4.810), bromine (3.1028), and krypton (3.749).

```
\pgfPT[Z list={1,...,36},cell style=myd,show title=false,d unit=g/dm3]
```

A standard periodic table where the density values for each element are displayed in a small, italicized font directly below their respective element boxes. The density values are: hydrogen (0.08988), lithium (0.534), beryllium (1.850), sodium (0.968), magnesium (1.738), potassium (0.890), calcium (1.550), scandium (2.985), titanium (4.506), vanadium (6.110), chromium (7.150), manganese (7.210), iron (7.860), cobalt (8.900), nickel (8.908), copper (8.960), zinc (7.140), gallium (5.910), germanium (5.323), arsenic (5.727), selenium (4.810), bromine (3.1028), and krypton (3.749).

d precision

default: -1

Sets the density precision, *i.e.*, the decimal places displayed in their value, performing the respective rounding, without zero padding the value.

NOTE:

Rounding is performed over density values which actually have a maximum 5 or 8 decimal places, when the values are in g/dm^3 or in g/cm^3 , respectively.. So giving this key a value of -1 (the value of the density as-is) or 5 or 8 has the same effect.

Therefore the values provided to this key should be any integer between -1 and 4 (g/dm^3) or 7 (g/cm^3). Any other integer provided will be processed as -1.

```
\pgfPTstyle[Z list={1,...,54},cell style=myd,show title=false]
\pgfPT
```

1 H hydrogen 0.000988	2 He helium 0.1786
3 Li lithium 0.534	4 Be beryllium 1.850
5 Na sodium 0.968	6 Mg magnesium 1.738
7 K potassium 0.890	8 Ca calcium 1.550
9 Rb rubidium 1.532	10 Sr strontium 2.640
11 Sc scandium 2.985	12 Ti titanium 4.506
13 V vanadium 5.110	14 Cr chromium 7.150
15 Mn manganese 7.210	16 Fe iron 7.860
17 Co cobalt 8.900	18 Ni nickel 8.908
19 Ru ruthenium 12.410	20 Rh rhodium 12.023
21 Pd palladium 10.490	22 Ag silver 10.490
23 Cd cadmium 8.650	24 Zn zinc 7.140
25 Ga gallium 5.910	26 Ge germanium 5.323
27 In indium 7.310	28 As arsenic 5.727
29 Sn tin 7.265	30 Se selenium 4.810
31 Sb antimony 6.697	32 Te tellurium 6.240
33 I iodine 4.933	34 Br bromine 3.1028
35 Kr krypton 3.749	36 Xe xenon 5.894

```
\pgfPT[d precision=0]
```

1 H hydrogen 0	2 He helium 0
3 Li lithium 1	4 Be beryllium 2
5 Na sodium 1	6 Mg magnesium 2
7 K potassium 1	8 Ca calcium 2
9 Rb rubidium 2	10 Sr strontium 3
11 Sc scandium 3	12 Ti titanium 5
13 V vanadium 6	14 Cr chromium 7
15 Mn manganese 7	16 Fe iron 8
17 Co cobalt 9	18 Ni nickel 9
19 Ru ruthenium 10	20 Rh rhodium 11
21 Pd palladium 11	22 Ag silver 12
23 Cd cadmium 9	24 Zn zinc 7
25 Ga gallium 6	26 Ge germanium 5
27 In indium 7	28 As arsenic 6
29 Sn tin 7	30 Se selenium 5
31 Sb antimony 7	32 Te tellurium 6
33 I iodine 5	34 Br bromine 3
35 Kr krypton 4	36 Xe xenon 6

```
\pgfPT[d precision=1]
```

1 H hydrogen 0.1	2 He helium 0.2
3 Li lithium 0.5	4 Be beryllium 1.9
5 Na sodium 1.0	6 Mg magnesium 1.7
7 K potassium 0.9	8 Ca calcium 1.6
9 Rb rubidium 1.5	10 Sr strontium 2.6
11 Sc scandium 3.0	12 Ti titanium 6.1
13 V vanadium 6.1	14 Cr chromium 7.2
15 Mn manganese 7.2	16 Fe iron 7.9
17 Co cobalt 8.9	18 Ni nickel 8.9
19 Ru ruthenium 11.0	20 Rh rhodium 12.5
21 Pd palladium 12.0	22 Ag silver 10.5
23 Cd cadmium 8.7	24 Zn zinc 7.1
25 Ga gallium 5.9	26 Ge germanium 5.3
27 In indium 7.3	28 As arsenic 5.7
29 Sn tin 7.3	30 Se selenium 4.8
31 Sb antimony 6.7	32 Te tellurium 6.2
33 I iodine 4.9	34 Br bromine 3.1
35 Kr krypton 3.8	36 Xe xenon 5.9

\pgfPT[d precision=2]

1	H	He
hydrogen 0.09		helium 0.18
2	B	F
lithium 0.53	beryllium 1.85	fluorine 1.7
3	Mg	Ne
Na 0.97	magnesium 1.74	neon 0.90
4	K	Ar
potassium 0.89	calcium 1.55	argon 1.78
5	Sc	Kr
	scandium 2.99	krypton 3.75
6	Ti	Br
	titanium 4.51	bromine 3.10
7	V	I
	vanadium 6.11	iodine 4.93
8	Cr	Xe
	chromium 7.15	xenon 5.89
9	Mn	
	manganese 7.21	
10	Fe	
	iron 7.86	
11	Co	
	cobalt 8.90	
12	Ni	
	nickel 8.91	
13	Cu	
	copper 8.96	
14	Zn	
	zinc 7.14	
15	Ga	
	gallium 5.91	
16	Ge	
	germanium 5.32	
17	As	
	arsenic 5.73	
18	Se	
	selenium 4.81	
19	Ca	
	calcium 1.55	
20	Sc	
	scandium 2.99	
21	Ti	
	titanium 4.51	
22	V	
	vanadium 6.11	
23	Cr	
	chromium 7.15	
24	Mn	
	manganese 7.21	
25	Fe	
	iron 7.86	
26	Co	
	cobalt 8.90	
27	Ni	
	nickel 8.91	
28	Cu	
	copper 8.96	
29	Zn	
	zinc 7.14	
30	Ga	
	gallium 5.91	
31	Ge	
	germanium 5.32	
32	As	
	arsenic 5.73	
33	Se	
	selenium 4.81	
34	Br	
	bromine 3.10	
35	I	
	iodine 4.93	
36	Xe	
	xenon 5.89	
37	Rb	
	rubidium 1.53	
38	Sr	
	strontium 2.64	
39	Y	
	yttrium 4.47	
40	Zr	
	zirconium 6.52	
41	Nb	
	niobium 8.57	
42	Mo	
	molybdenum 10.28	
43	Tc	
	technetium 11.00	
44	Ru	
	ruthenium 12.45	
45	Rh	
	rhodium 12.02	
46	Pd	
	palladium 10.49	
47	Ag	
	silver 8.65	
48	Cd	
	cadmium 7.31	
49	In	
	indium 7.27	
50	Sn	
	tin 6.70	
51	Sb	
	antimony 6.24	
52	Te	
	tellurium 4.93	
53	I	
	iodine 4.93	

\pgfPT[d precision=3]

1	H	He
hydrogen 0.090		helium 0.179
2	Be	Ne
boron 1.850		neon 0.900
3	Mg	Ar
magnesium 1.738		argon 1.784
4	Ca	Kr
calcium 1.350		krypton 3.749
5	Sc	Br
scandium 2.985		bromine 3.103
6	Ti	Xe
titanium 4.506		xenon 5.894
7	V	I
vanadium 5.110		iodine 4.933
8	Cr	Te
chromium 7.150		tellurium 6.240
9	Mn	Sb
manganese 7.216		sulfur 1.960
10	Fe	Se
iron 7.860		selenium 4.810
11	Co	Br
cobalt 8.900		bromine 3.103
12	Ni	Kr
nickel 8.908		krypton 3.749
13	Cu	He
copper 9.360		helium 0.179
14	Zn	Ne
zinc 7.140		neon 0.900
15	Ga	Ar
gallium 5.910		argon 1.784
16	Ge	Kr
germanium 5.323		krypton 3.749
17	As	Br
arsenic 5.727		bromine 3.103
18	Se	Xe
selenium 4.810		xenon 5.894
19	Sc	I
scandium 2.985		iodine 4.933
20	Tl	Te
titanium 4.506		tellurium 6.240
21	V	Sb
vanadium 5.110		sulfur 1.960
22	Cr	Se
chromium 7.150		selenium 4.810
23	Mn	Br
manganese 7.216		bromine 3.103
24	Fe	Kr
iron 7.860		krypton 3.749
25	Co	He
cobalt 8.900		helium 0.179
26	Ni	Ne
nickel 8.908		neon 0.900
27	Cu	Ar
copper 9.360		argon 1.784
28	Zn	Kr
zinc 7.140		krypton 3.749
29	Ga	Br
gallium 5.910		bromine 3.103
30	Ge	Xe
germanium 5.323		xenon 5.894
31	As	I
arsenic 5.727		iodine 4.933
32	Se	Te
selenium 4.810		tellurium 6.240
33	Br	Sb
bromine 3.103		sulfur 1.960
34	Kr	Se
krypton 3.749		selenium 4.810
35	Br	Br
bromine 3.103		bromine 3.103
36	Xe	Kr
xenon 5.894		krypton 3.749
37	Rb	He
rubidium 1.532		helium 0.179
38	Sr	Ne
strontium 2.640		neon 0.900
39	Y	Ar
yttrium 4.472		argon 1.784
40	Zr	Kr
zirconium 6.520		krypton 3.749
41	Nb	Br
niobium 8.570		bromine 3.103
42	Mo	Xe
molybdenum 10.280		xenon 5.894
43	Tc	I
technetium 11.000		iodine 4.933
44	Ru	Te
rhodium 12.450		tellurium 6.240
45	Rh	Sb
rhodium 12.410		sulfur 1.960
46	Pd	Se
palladium 12.023		selenium 4.810
47	Ag	Br
silver 10.490		bromine 3.103
48	Cd	Kr
cadmium 8.650		krypton 3.749
49	In	He
indium 7.310		helium 0.179
50	Sn	Ne
tin 7.265		neon 0.900
51	Sb	Ar
antimony 6.697		argon 1.784
52	Te	Kr
tellurium 6.240		krypton 3.749
53	I	Br
iodine 4.933		bromine 3.103
54	Xe	Xe
xenon 5.894		xenon 5.894

\pgfPT[d precision=4]

1	Li hydrogen 0.0899	2	He helium 0.1786	18
3	Li lithium 0.534	4	Be beryllium 1.850	19
5	Na sodium 0.968	6	Mg magnesium 1.738	20
7	K potassium 0.890	8	Ca calcium 1.350	21
9	Rb rubidium 1.532	10	Sc scandium 2.985	22
11	Sr strontium 2.640	12	Ti titanium 4.506	23
13	Y yttrium 4.472	14	V vanadium 6.110	24
15	Nd neodymium 6.520	16	Cr chromium 7.150	25
17	Mo molybdenum 8.570	18	Mn manganese 10.280	26
19	Tc technetium 11.000	20	Fe iron 7.860	27
21	Ru rhodium 12.450	22	Co cobalt 8.900	28
23	Rh rhodium 12.410	24	Ni nickel 8.908	29
25	Pd palladium 12.023	26	Cu copper 8.960	30
27	Ag silver 10.490	28	Zn zinc 7.140	31
29	Cd cadmium 8.650	29	Ga gallium 5.910	32
31	In indium 7.310	30	Ge germanium 5.323	33
33	Sn tin 7.265	31	As arsenic 5.727	34
35	Se selenium 4.810	32	Ge germanium 5.323	35
37	Br bromine 3.1028	33	As arsenic 5.727	36
38	Kr krypton 3.749	34	Se selenium 4.810	37
39	Y yttrium 4.472	35	Br bromine 3.1028	38
40	Zr zirconium 6.520	36	Kr krypton 3.749	39
41	Nb niobium 8.570	37	Y yttrium 4.472	40
42	Mo molybdenum 10.280	38	Zr zirconium 6.520	41
43	Tc technetium 11.000	39	Nb niobium 8.570	42
44	Ru rhodium 12.450	40	Mo molybdenum 10.280	43
45	Rh rhodium 12.410	41	Tc technetium 11.000	44
46	Pd palladium 12.023	42	Ru rhodium 12.450	45
47	Ag silver 10.490	43	Rh rhodium 12.410	46
48	Cd cadmium 8.650	44	Pd palladium 12.023	47
49	In indium 7.310	45	Ag silver 10.490	48
50	Sn tin 7.265	46	Cd cadmium 8.650	49
51	Sb antimony 6.697	47	In indium 7.310	50
52	Te tellurium 6.240	48	Sn tin 7.265	51
53	I iodine 4.933	49	Sb antimony 6.697	52
54	Xe xenon 5.894	50	Te tellurium 6.240	53

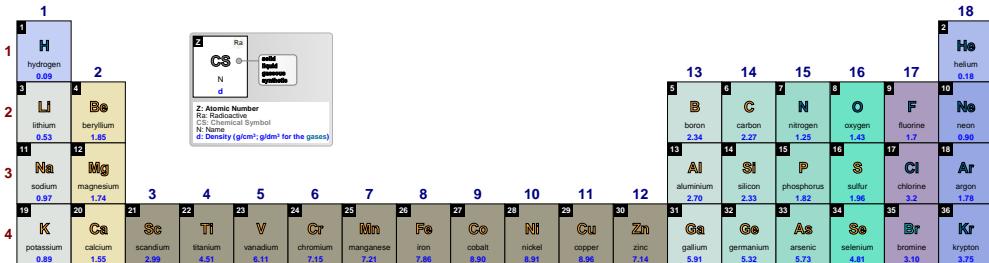
\pgfPT[d precision=5]

ddefault: `{c=black,f=\tiny\bfseries,p=-1,u=both}`

Pseudo style to set the keys: d **c**olor, d **f**ont, d **p**recision and/or d **u**nit. None of the keys – c, f, p and u – are mandatory.

USAGE: `d={c=<color>,f=,p=<integer value>,u=<pm|A>}`

`\pgfPT[Z list={1,...,36},cell style=myd,show title=false,d={c=blue,p=2}]`

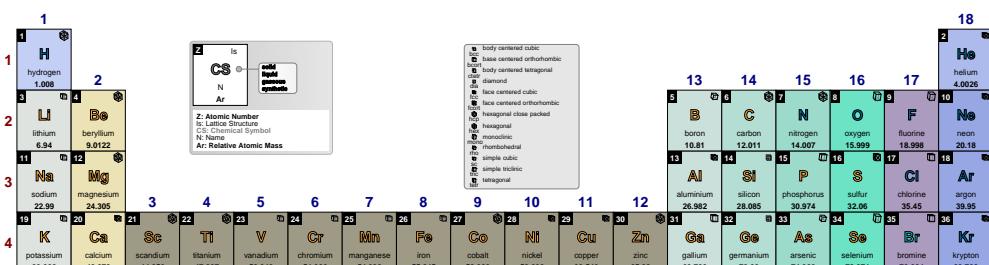


► The lattice structure

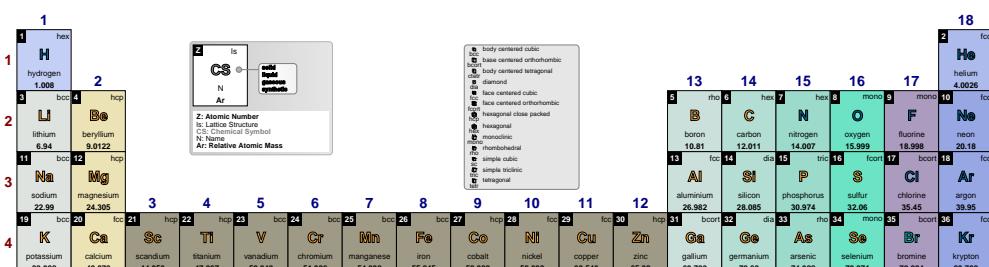
lsdefault: `fig`

Sets what is displayed for the lattice structure: a figure (fig) or text (txt) or both (fig+txt or txt+fig).

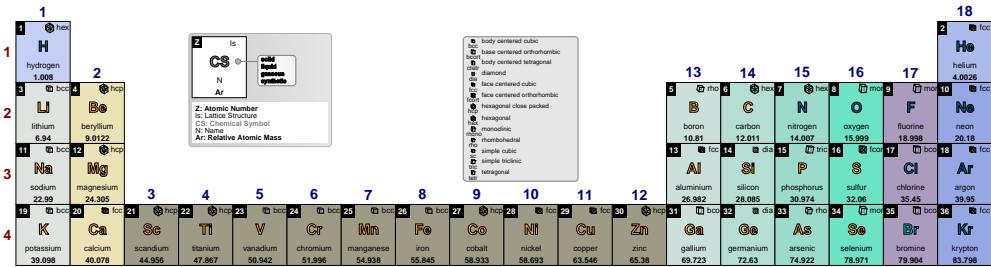
`\pgfPT[Z list={1,...,36},cell style=pgfPTIs]`



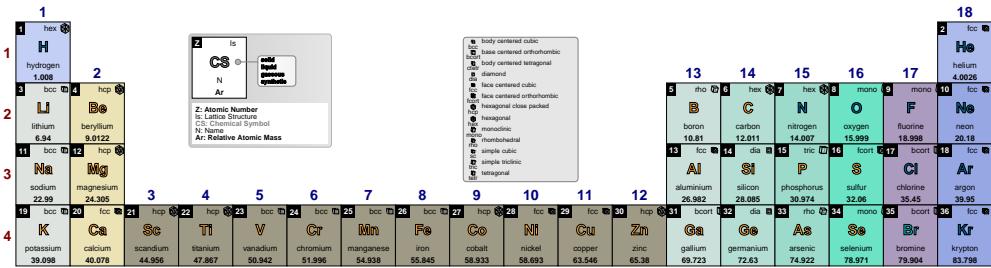
`\pgfPT[Z list={1,...,36},cell style=pgfPTIs,ls=txt]`



\pgfPT[Z list={1,...,36},cell style=pgfPTIs,ls=fig+txt]



\pgfPT[Z list={1,...,36},cell style=pgfPTIs,ls=txt+fig]

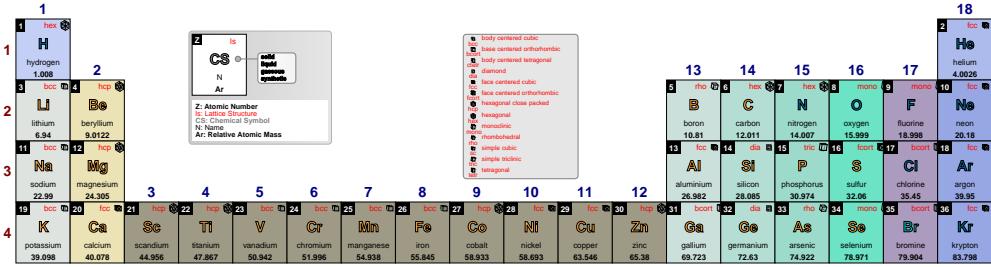


ls color

default: black

Sets the lattice structure text color.

\pgfPT[Z list={1,...,36},cell style=pgfPTIs,ls=txt+fig,ls color=red]

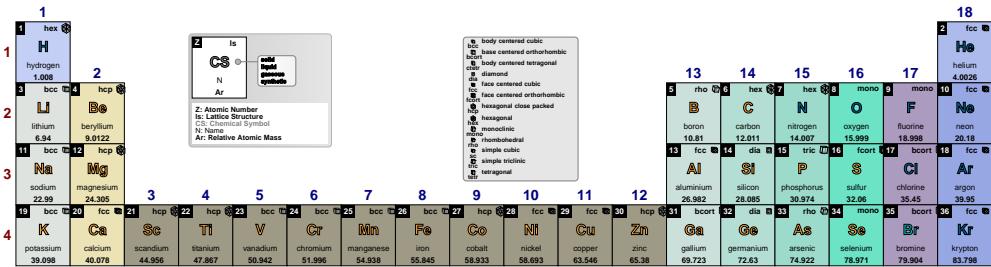


ls font

default: \tiny

Sets the lattice structure text font.

\pgfPT[Z list={1,...,36},cell style=pgfPTIs,ls=txt+fig,ls font=\tiny\bfseries]



ls aligndefault: *right*Sets the alignment of the lattice structure to **left** or **center** or **right**.

\pgfPT[Z list={1,...,36},cell style=pgfPTIs,ls align=center]

A standard periodic table layout with 18 columns and 7 rows. Each cell contains the element symbol, name, atomic number, and atomic mass. A legend box in the upper right corner defines symbols for various crystallographic structures: body centered cubic, base centered orthorhombic, body centered tetragonal, diamond, face centered cubic, face centered orthorhombic, hexagonal close packed, hexagonal, monoclinic, rhombohedral, simple cubic, simple triclinic, and tetragonal.

ls unitdefault: *pm*Sets the unit for the lattice structure constants: a, b and c. The two possible values to this key are **pm** (picometers) and **A** (\AA – angstroms). *(new in v1.0.1)*

\pgfPTbuildcellstyle{myls}(6,3)% 6 rows by 3 columns
 [(1;1-2;Z),(1;3;radio),(2-3;1.5-3.5;CS),(4;1-3;name),(5;1-2.5;ls),(5;2.5-3;lsA),
 (6;1-2.5;lsB),(6;2.5-3;lsC)]

\pgfPTstyle[Z list={1,...,36},cell style=myls,show title=false,ls align=center]

\pgfPT

A standard periodic table layout with 18 columns and 7 rows. Each cell contains the element symbol, name, atomic number, and atomic mass. A legend box in the upper right corner defines symbols for various crystallographic structures: body centered cubic, base centered orthorhombic, body centered tetragonal, diamond, face centered cubic, face centered orthorhombic, hexagonal close packed, hexagonal, monoclinic, rhombohedral, simple cubic, simple triclinic, and tetragonal.

\pgfPT[ls unit=A]

A standard periodic table layout with 18 columns and 7 rows. Each cell contains the element symbol, name, atomic number, and atomic mass. A legend box in the upper right corner defines symbols for various crystallographic structures: body centered cubic, base centered orthorhombic, body centered tetragonal, diamond, face centered cubic, face centered orthorhombic, hexagonal close packed, hexagonal, monoclinic, rhombohedral, simple cubic, simple triclinic, and tetragonal.

ls precision

default: -1

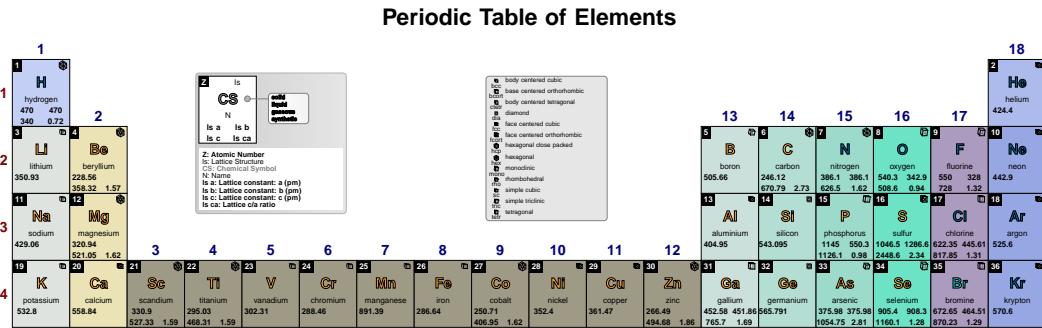
Sets the lattice structure constants - a, b, and c - precision, as also the lattice c/a ratio, i.e., the decimal places displayed in their value, performing the respective rounding, without zero padding the value.

NOTE:

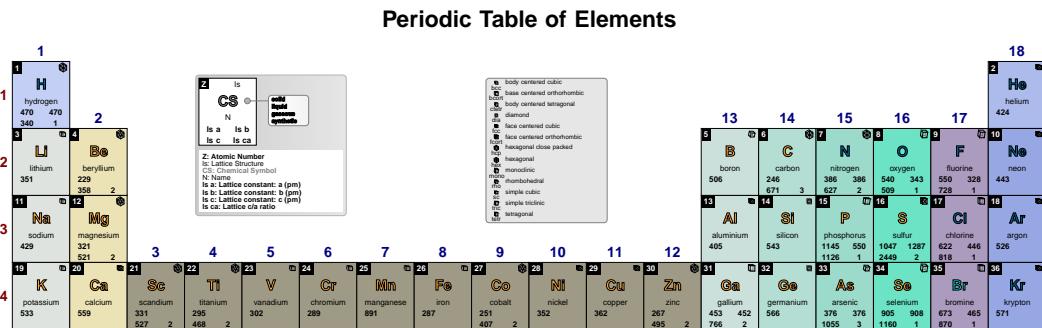
Rounding is performed over the constants data or c/a ratio values which actually have a maximum of 2 or 4 decimal places, when the values are in picometers or in angstroms, respectively. So giving this key a value of -1 (the value of the constants or c/a ratio as-is) or 2 or 4 has the same effect.

Therefore the values provided to this key should be any integer between -1 and 1 (pm) or 3 (\AA). Any other integer provided will be processed as -1.

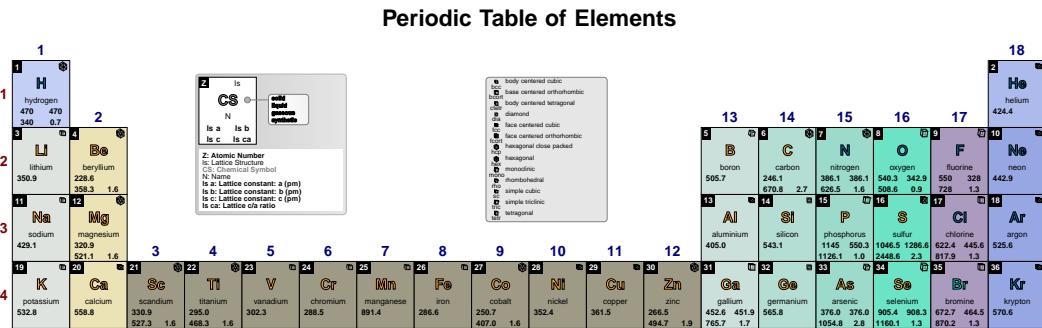
```
\pgfPTbuildcellstyle{myls}{(6,3)}% 6 rows by 3 columns
[(1;1-2;Z),(1;2-3;ls),(2-3;1.5-3.5;CS),(4;1-3;name),(5;1-2.5;lsa),
(5;2.5-3;lsb),(6;1-2.5;lsc),(6;2.5-3;lsca)]
\pgfPTstyle[Z list={1,...,36},cell={w=36pt,h=42pt,style=myls}]
\pgfPT
```



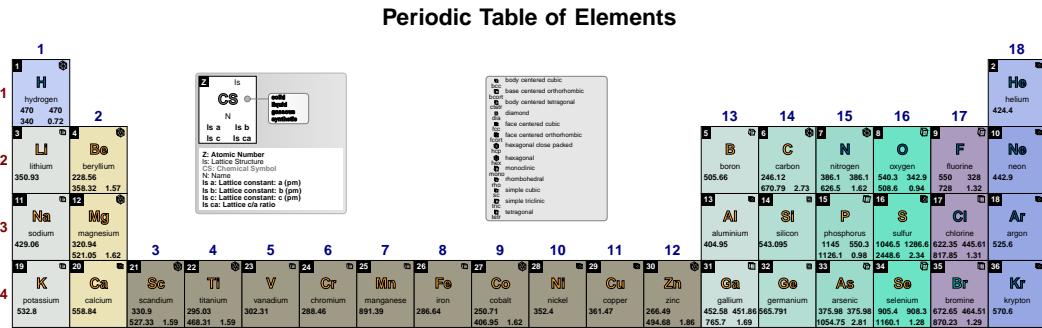
\pgfPT[ls precision=0]



\pgfPT[ls precision=1]



\pgfPT[ls precision=2]



\pgfPT[Is precision=2,Is unit=A]

Periodic Table of Elements

This periodic table displays various properties for each element. A legend on the right side defines symbols and colors used for different crystallographic structures. A separate legend at the bottom left provides information on atomic number, symbol, name, and year of discovery.

lat

default: {Is=fig,c=black,f=\tiny,align=right,p=-1,u=pm}

Pseudo style to set the keys: **Is**, **Is color**, **Is font**, **Is align**, **Is precision** and/or **Is unit**. None of the keys – Is, c, f, align, p and u – are mandatory. (new in v1.0.1)

USAGE: lat={Is=<fig|txt|fig+txt|txt+fig>,c=<color>,f=,
align=<left|center|right>,p=<integer value>,u=<pm|A>}

\pgfPT[Z list={1,...,36},lat={c=blue,f=\tiny\bfseries,u=A,p=2}]

Periodic Table of Elements

This periodic table uses a blue background for most cells. Specific elements like Helium (He) and Hydrogen (H) have their own distinct styling. A legend on the right side defines symbols and colors used for different crystallographic structures.

The year of discovery**DiscY color**

default: black

Sets the color of the discovery year.

\pgfPT[Z list={1,...,36},cell style=pgfPTdisc,DiscY color=red]

Periodic Table of Elements

This periodic table highlights the year of discovery for each element in red. A legend on the right side defines symbols and colors used for different crystallographic structures.

DiscY fontdefault: `\tiny\bfseries`

Sets the font of the discovery year.

```
\pgfPT[Z list={1,...,36},cell style=pgfPTdisc,DiscY  
font=\fontfamily{pbk}\selectfont\tiny\bfseries]
```

Periodic Table of Elements

Periodic Table of Elements																			
1	H	hydrogen	1766	2	Be	beryllium	1798	3	Li	lithium	1817	4	Sc	scandium	1879	5	Ti	titanium	1791
6	Mg	magnesium	1755	7	V	vandium	1830	8	Cr	chromium	1797	9	Mn	manganese	1774	10	Fe	iron	2000BC
11	Na	sodium	1807	12	Co	cobalt	1735	13	Co	cobalt	1751	14	Ni	nickel	1751	15	Cu	copper	8000BC
16	K	potassium	1807	17	Zn	zinc	1746	18	Zn	zinc	1746	19	Ga	gallium	1875	20	Ge	germanium	1886
20	Ca	calcium	1808	21	Sc	scandium	1879	22	Ti	titanium	1791	23	V	vandium	1830	24	Cr	chromium	1797
25	Mn	manganese	1774	26	Fe	iron	2000BC	27	Co	cobalt	1735	28	Fe	iron	2000BC	29	Ni	nickel	1751
30	Co	cobalt	1735	31	Zn	zinc	1746	32	Ga	gallium	1875	33	Ge	germanium	1886	34	As	arsenic	1250
35	Br	bromine	1825	36	Se	selenium	1817	37	As	arsenic	1817	38	Se	selenium	1817	39	Br	bromine	1825
40	Kr	krypton	1898	41	He	helium	1895	42	Ne	neon	1898	43	Ar	argon	1894	44	Kr	krypton	1898

DiscY BC scale

default: 1

Sets the font factor scaling for the Before Christ (BC) acronym in the year of discovery.

```
\pgfPT[Z list={1,...,36},cell style=pgfPTdisc,DiscY BC scale=.8]
```

Periodic Table of Elements

Periodic Table of Elements																			
1	H	hydrogen	1766	2	Be	beryllium	1798	3	Li	lithium	1817	4	Sc	scandium	1879	5	Ti	titanium	1791
6	Mg	magnesium	1755	7	V	vandium	1830	8	Cr	chromium	1797	9	Mn	manganese	1774	10	Fe	iron	2000BC
11	Na	sodium	1807	12	Co	cobalt	1735	13	Co	cobalt	1751	14	Ni	nickel	1751	15	Cu	copper	8000BC
16	K	potassium	1807	17	Zn	zinc	1746	18	Zn	zinc	1746	19	Ga	gallium	1875	20	Ge	germanium	1886
20	Ca	calcium	1808	21	Sc	scandium	1879	22	Ti	titanium	1791	23	V	vandium	1830	24	Cr	chromium	1797
25	Mn	manganese	1774	26	Fe	iron	2000BC	27	Co	cobalt	1735	28	Fe	iron	2000BC	29	Ni	nickel	1751
30	Co	cobalt	1735	31	Zn	zinc	1746	32	Ga	gallium	1875	33	Ge	germanium	1886	34	As	arsenic	1250
35	Br	bromine	1825	36	Se	selenium	1817	37	As	arsenic	1817	38	Se	selenium	1817	39	Br	bromine	1825
40	Kr	krypton	1898	41	He	helium	1895	42	Ne	neon	1898	43	Ar	argon	1894	44	Kr	krypton	1898

The electron distribution

```
\pgfPTbuildcellstyle{electron}(6,3)% 6 rows by 3 columns  
[(1;1-2;Z),(1;3;radio),(2-3;1.5-3.5;CS),(4;1-3;name),  
(5;1-3;eDist),(6;1-3;eConfig)]
```

eDist color

default: black

Sets the electron distribution color.

\pgfPT[Z list={1,...,54},cell style=electron,eDist color=red]

Periodic Table of Elements																																																																																																																																																											
1	H	hydrogen	1s ¹	2	B	beryllium	2s ²	3	Li	lithium	2s ¹	4	Be	beryllium	2s ²	5	Na	sodium	2s ¹																																																																																																																																								
6	K	potassium	2s ¹ 2p ¹	7	Ti	titanium	2s ² 2p ²	8	V	vandium	2s ² 2p ³	9	Cr	chromium	2s ¹ 3s ¹	10	Mn	manganese	2s ² 3s ²	11	Fe	iron	2s ² 3d ⁶	12	Co	cobalt	2s ² 3d ⁷																																																																																																																																
13	Ni	nickel	2s ² 3d ⁸	14	Ru	ruthenium	2s ² 3d ⁹	15	Rh	rhodium	2s ² 3d ¹⁰	16	Pd	palladium	2s ² 3d ¹⁰	17	Ag	silver	2s ² 3d ¹⁰ 4s ¹	18	Ar	argon	2s ² 2p ⁶																																																																																																																																				
19	Rb	rubidium	2s ¹ 3d ¹	20	Sr	strontium	2s ¹ 3d ²	21	Y	yttrium	2s ¹ 3d ¹⁰ 4s ²	22	Zr	zirconium	2s ¹ 3d ¹⁰ 4s ²	23	Nb	niobium	2s ¹ 3d ¹⁰ 4s ²	24	Mo	molybdenum	2s ¹ 3d ¹⁰ 4s ²	25	Tc	technetium	2s ¹ 3d ¹⁰ 4s ²	26	Fe	iron	2s ² 3d ⁶	27	Co	cobalt	2s ² 3d ⁷	28	Ni	nickel	2s ² 3d ⁸	29	Cu	copper	2s ² 3d ¹⁰	30	Zn	zinc	2s ² 3d ¹⁰	31	Ga	gallium	2s ² 3d ¹⁰ 4s ¹	32	Ge	germanium	2s ² 3d ¹⁰ 4s ²	33	As	arsenic	2s ² 3d ¹⁰ 4s ² 4p ³	34	Se	selenium	2s ² 3d ¹⁰ 4s ² 4p ⁴	35	Br	bromine	2s ² 3d ¹⁰ 4s ² 4p ⁵	36	Kr	krypton	2s ² 3d ¹⁰ 4s ² 4p ⁶	37	Rb	rubidium	2s ¹ 3d ¹	38	Sr	strontium	2s ¹ 3d ²	39	Y	yttrium	2s ¹ 3d ¹⁰ 4s ²	40	Zr	zirconium	2s ¹ 3d ¹⁰ 4s ²	41	Nb	niobium	2s ¹ 3d ¹⁰ 4s ²	42	Mo	molybdenum	2s ¹ 3d ¹⁰ 4s ²	43	Tc	technetium	2s ¹ 3d ¹⁰ 4s ²	44	Fe	iron	2s ² 3d ⁶	45	Co	cobalt	2s ² 3d ⁷	46	Ni	nickel	2s ² 3d ⁸	47	Ru	ruthenium	2s ² 3d ⁹	48	Rh	rhodium	2s ² 3d ¹⁰	49	Pd	palladium	2s ² 3d ¹⁰	50	Ag	silver	2s ² 3d ¹⁰ 4s ¹	51	Cd	cadmium	2s ² 3d ¹⁰	52	In	indium	2s ² 3d ¹⁰ 4s ²	53	Sn	tin	2s ² 3d ¹⁰ 4s ² 4p ⁴	54	Sb	antimony	2s ² 3d ¹⁰ 4s ² 4p ⁵	55	Te	tellurium	2s ² 3d ¹⁰ 4s ² 4p ⁶	56	I	iodine	2s ² 3d ¹⁰ 4s ² 4p ⁷	57	Xe	xenon	2s ² 3d ¹⁰ 4s ² 4p ⁸

eDist fontdefault: *tiny\bfseries*

Sets the electron distribution font.

\pgfPT[Z list={1,...,54},cell style=electron,eDist font=\fontfamily{pbk}\selectfont\tiny\bfseries]

Periodic Table of Elements																																																																																																																																																											
1	H	hydrogen	1s ¹	2	B	beryllium	2s ²	3	Li	lithium	2s ¹	4	Be	beryllium	2s ²	5	Na	sodium	2s ¹																																																																																																																																								
6	K	potassium	2s ¹ 2p ¹	7	Ti	titanium	2s ² 2p ²	8	V	vandium	2s ² 2p ³	9	Cr	chromium	2s ¹ 3s ¹	10	Mn	manganese	2s ² 3s ²	11	Fe	iron	2s ² 3d ⁶	12	Co	cobalt	2s ² 3d ⁷	13	Ni	nickel	2s ² 3d ⁸	14	Ru	ruthenium	2s ² 3d ⁹	15	Rh	rhodium	2s ² 3d ¹⁰	16	Pd	palladium	2s ² 3d ¹⁰	17	Ag	silver	2s ² 3d ¹⁰ 4s ¹	18	Ar	argon	2s ² 2p ⁶																																																																																																								
19	Rb	rubidium	2s ¹ 3d ¹	20	Sr	strontium	2s ¹ 3d ²	21	Y	yttrium	2s ¹ 3d ¹⁰ 4s ²	22	Zr	zirconium	2s ¹ 3d ¹⁰ 4s ²	23	Nb	niobium	2s ¹ 3d ¹⁰ 4s ²	24	Mo	molybdenum	2s ¹ 3d ¹⁰ 4s ²	25	Tc	technetium	2s ¹ 3d ¹⁰ 4s ²	26	Fe	iron	2s ² 3d ⁶	27	Co	cobalt	2s ² 3d ⁷	28	Ni	nickel	2s ² 3d ⁸	29	Cu	copper	2s ² 3d ¹⁰	30	Zn	zinc	2s ² 3d ¹⁰	31	Ga	gallium	2s ² 3d ¹⁰ 4s ¹	32	Ge	germanium	2s ² 3d ¹⁰ 4s ²	33	As	arsenic	2s ² 3d ¹⁰ 4s ² 4p ³	34	Se	selenium	2s ² 3d ¹⁰ 4s ² 4p ⁴	35	Br	bromine	2s ² 3d ¹⁰ 4s ² 4p ⁵	36	Kr	krypton	2s ² 3d ¹⁰ 4s ² 4p ⁶	37	Rb	rubidium	2s ¹ 3d ¹	38	Sr	strontium	2s ¹ 3d ²	39	Y	yttrium	2s ¹ 3d ¹⁰ 4s ²	40	Zr	zirconium	2s ¹ 3d ¹⁰ 4s ²	41	Nb	niobium	2s ¹ 3d ¹⁰ 4s ²	42	Mo	molybdenum	2s ¹ 3d ¹⁰ 4s ²	43	Tc	technetium	2s ¹ 3d ¹⁰ 4s ²	44	Fe	iron	2s ² 3d ⁶	45	Co	cobalt	2s ² 3d ⁷	46	Ni	nickel	2s ² 3d ⁸	47	Ru	ruthenium	2s ² 3d ⁹	48	Rh	rhodium	2s ² 3d ¹⁰	49	Pd	palladium	2s ² 3d ¹⁰	50	Ag	silver	2s ² 3d ¹⁰ 4s ¹	51	Cd	cadmium	2s ² 3d ¹⁰	52	In	indium	2s ² 3d ¹⁰ 4s ²	53	Sn	tin	2s ² 3d ¹⁰ 4s ² 4p ⁴	54	Sb	antimony	2s ² 3d ¹⁰ 4s ² 4p ⁵	55	Te	tellurium	2s ² 3d ¹⁰ 4s ² 4p ⁶	56	I	iodine	2s ² 3d ¹⁰ 4s ² 4p ⁷	57	Xe	xenon	2s ² 3d ¹⁰ 4s ² 4p ⁸

eDist sep

default: :

Sets the separator character between energy levels in electron distribution. *If the separator character is a comma it must be provided between curly braces – {,}.*

\pgfPT[Z list={1,...,54},cell style=electron,eDist sep=-]

Periodic Table of Elements																																																																																																																																																											
1	H	hydrogen	1s ¹	2	B	beryllium	2s ²	3	Li	lithium	2s ¹	4	Be	beryllium	2s ²	5	Na	sodium	2s ¹																																																																																																																																								
6	K	potassium	2s ¹ 2p ¹	7	Ti	titanium	2s ² 2p ²	8	V	vandium	2s ² 2p ³	9	Cr	chromium	2s ¹ 3s ¹	10	Mn	manganese	2s ² 3s ²	11	Fe	iron	2s ² 3d ⁶	12	Co	cobalt	2s ² 3d ⁷	13	Ni	nickel	2s ² 3d ⁸	14	Ru	ruthenium	2s ² 3d ⁹	15	Rh	rhodium	2s ² 3d ¹⁰	16	Pd	palladium	2s ² 3d ¹⁰	17	Ag	silver	2s ² 3d ¹⁰ 4s ¹	18	Ar	argon	2s ² 2p ⁶																																																																																																								
19	Rb	rubidium	2s ¹ 3d ¹	20	Sr	strontium	2s ¹ 3d ²	21	Y	yttrium	2s ¹ 3d ¹⁰ 4s ²	22	Zr	zirconium	2s ¹ 3d ¹⁰ 4s ²	23	Nb	niobium	2s ¹ 3d ¹⁰ 4s ²	24	Mo	molybdenum	2s ¹ 3d ¹⁰ 4s ²	25	Tc	technetium	2s ¹ 3d ¹⁰ 4s ²	26	Fe	iron	2s ² 3d ⁶	27	Co	cobalt	2s ² 3d ⁷	28	Ni	nickel	2s ² 3d ⁸	29	Cu	copper	2s ² 3d ¹⁰	30	Zn	zinc	2s ² 3d ¹⁰	31	Ga	gallium	2s ² 3d ¹⁰ 4s ¹	32	Ge	germanium	2s ² 3d ¹⁰ 4s ²	33	As	arsenic	2s ² 3d ¹⁰ 4s ² 4p ³	34	Se	selenium	2s ² 3d ¹⁰ 4s ² 4p ⁴	35	Br	bromine	2s ² 3d ¹⁰ 4s ² 4p ⁵	36	Kr	krypton	2s ² 3d ¹⁰ 4s ² 4p ⁶	37	Rb	rubidium	2s ¹ 3d ¹	38	Sr	strontium	2s ¹ 3d ²	39	Y	yttrium	2s ¹ 3d ¹⁰ 4s ²	40	Zr	zirconium	2s ¹ 3d ¹⁰ 4s ²	41	Nb	niobium	2s ¹ 3d ¹⁰ 4s ²	42	Mo	molybdenum	2s ¹ 3d ¹⁰ 4s ²	43	Tc	technetium	2s ¹ 3d ¹⁰ 4s ²	44	Fe	iron	2s ² 3d ⁶	45	Co	cobalt	2s ² 3d ⁷	46	Ni	nickel	2s ² 3d ⁸	47	Ru	ruthenium	2s ² 3d ⁹	48	Rh	rhodium	2s ² 3d ¹⁰	49	Pd	palladium	2s ² 3d ¹⁰	50	Ag	silver	2s ² 3d ¹⁰ 4s ¹	51	Cd	cadmium	2s ² 3d ¹⁰	52	In	indium	2s ² 3d ¹⁰ 4s ²	53	Sn	tin	2s ² 3d ¹⁰ 4s ² 4p ⁴	54	Sb	antimony	2s ² 3d ¹⁰ 4s ² 4p ⁵	55	Te	tellurium	2s ² 3d ¹⁰ 4s ² 4p ⁶	56	I	iodine	2s ² 3d ¹⁰ 4s ² 4p ⁷	57	Xe	xenon	2s ² 3d ¹⁰ 4s ² 4p ⁸

\pgfPT[Z list={1,...,54},cell style=electron,eDist sep={,}]

Periodic Table of Elements																																			
1	H	2	He	3	Li	4	Be	5	C	6	N	7	O	8	F	9	Ne																		
1	hydrogen	1	helium	2	lithium	2	beryllium	3	carbon	4	nitrogen	5	oxygen	6	fluorine	7	neon																		
2	1s ¹	2	2s ²	3	2s ¹	4	2s ²	5	2s ²	6	2s ²	7	2s ²	8	2s ²	9	2s ²																		
3	1s ² 2s ¹	2	1s ² 2s ²	3	1s ² 2s ¹	4	1s ² 2s ²	5	1s ² 2s ²	6	1s ² 2s ²	7	1s ² 2s ²	8	1s ² 2s ²	9	1s ² 2s ²																		
4	1s ² 2s ² 2p ¹	2	1s ² 2s ² 2p ²	3	1s ² 2s ² 2p ³	4	1s ² 2s ² 2p ⁴	5	1s ² 2s ² 2p ⁵	6	1s ² 2s ² 2p ⁶	7	1s ² 2s ² 2p ⁷	8	1s ² 2s ² 2p ⁸	9	1s ² 2s ² 2p ⁹																		
5	1s ² 2s ² 2p ⁶ 3s ¹	2	1s ² 2s ² 2p ⁶ 3s ²	3	1s ² 2s ² 2p ⁶ 3s ¹	4	1s ² 2s ² 2p ⁶ 3s ²	5	1s ² 2s ² 2p ⁶ 3s ¹	6	1s ² 2s ² 2p ⁶ 3s ²	7	1s ² 2s ² 2p ⁶ 3s ¹	8	1s ² 2s ² 2p ⁶ 3s ²	9	1s ² 2s ² 2p ⁶ 3s ¹																		
10	1s ² 2s ² 2p ⁶ 3s ¹ 3p ¹	2	1s ² 2s ² 2p ⁶ 3s ¹ 3p ²	3	1s ² 2s ² 2p ⁶ 3s ¹ 3p ³	4	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁴	5	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁵	6	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶	7	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁷	8	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁸	9	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁹	10	1s ² 2s ² 2p ⁶ 3s ¹ 3p ¹⁰																
11	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	2	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	3	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	4	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	5	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	6	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	7	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	8	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	9	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	10	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	11	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹														
12	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ² 3d ¹	2	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ² 3d ²	3	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	4	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	5	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	6	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	7	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	8	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	9	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	10	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	11	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	12	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹												
13	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ² 3d ³	2	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ² 3d ⁴	3	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	4	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	5	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	6	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	7	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	8	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	9	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	10	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	11	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	12	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	13	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹										
14	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ² 3d ⁵	2	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ² 3d ⁶	3	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	4	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	5	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	6	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	7	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	8	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	9	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	10	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	11	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	12	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	13	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	14	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹								
15	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ² 3d ⁷	2	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ² 3d ⁸	3	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	4	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	5	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	6	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	7	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	8	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	9	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	10	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	11	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	12	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	13	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	14	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	15	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹						
16	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ² 3d ⁹	2	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ² 3d ¹⁰	3	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	4	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	5	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	6	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	7	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	8	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	9	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	10	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	11	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	12	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	13	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	14	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	15	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	16	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹				
17	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ² 3d ¹⁰	2	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ² 3d ¹¹	3	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	4	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	5	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	6	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	7	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	8	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	9	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	10	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ²	11	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	12	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	13	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	14	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	15	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	16	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	17	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹	18	1s ² 2s ² 2p ⁶ 3s ¹ 3p ⁶ 4s ¹

The <content name>'s list:

- ✓ **R:** atomic radius
- ✓ **Rcov:** covalent radius
- ✓ **Rion:** ionic radius
- ✓ **Ei:** first ionization energy
- ✓ **eneg:** electronegativity (Pauling)
- ✓ **eaaff:** electroaffinity
- ✓ **Tmelt:** melting point (Kelvin)
- ✓ **TmeltC:** melting point (Celsius degrees)
- ✓ **Tboil:** boiling point (Kelvin)
- ✓ **TboilC:** boiling point (Celsius degrees)
- ✓ **eConfig:** electronic configuration (increasing n)
- ✓ **eConfign!**: electronic configuration (increasing n+l)
- ✓ **Cp:** specific heat capacity
- ✓ **kT:** thermal conductivity
- ✓ **Isa:** lattice constant - a
- ✓ **Isb:** lattice constant - b
- ✓ **Isc:** lattice constant - c
- ✓ **Isca:** lattice c/a ratio
- ✓ **DiscC:** country of discovery
- ✓ **spectra:** visible range spectral lines

<content name> color default: black

Sets the <content name> color.

\pgfPT[Z list={1,...,36},name color=blue]

Periodic Table of Elements																	
1	H	2	He	3	Li	4	Be	5	C	6	N	7	O	8	F	9	Ne
1	hydrogen	1	helium	2	lithium	2	beryllium	3	carbon	4	nitrogen	5	oxygen	6	fluorine	7	neon
2	1s ¹	2	2s ²	3	2s ¹	4	2s ²	5	2s ²	6	2s ²	7	2s ²	8	2s ²	9	2s ²
3	1s ² 2s ¹	2	1s ² 2s ²	3	1s ² 2s ¹	4	1s ² 2s ²	5	1s ² 2s ²	6	1s ² 2s ²	7	1s ² 2s ²	8	1s ² 2s ²	9	1s ² 2s ²
4	1s ² 2s ² 2p ¹	2	1s ² 2s ² 2p ²	3	1s ² 2s ² 2p ³	4	1s ² 2s ² 2p ⁴	5	1s ² 2s ² 2p ⁵	6	1s ² 2s ² 2p ⁶	7	1s ² 2s ² 2p ⁷	8	1s ² 2s ² 2p ⁸	9	1s ² 2s ² 2p ⁹
5	1s ² 2s ² 2p ⁶ 3s ¹	2	1s ² 2s ² 2p ⁶ 3s ²	3	1s ² 2s ² 2p ⁶ 3s ¹	4	1s ² 2s<										

<content name> fontdefault: `\tiny\bfseries`Sets the `<content name>` font.
`\pgfPT[Z list={1,...,36},name font=\tiny\itshape]`

Periodic Table of Elements

A standard periodic table of elements with the following features:

- Cell Content:** The element symbol and its name are in a small italicized font.
- Key:** A legend in the top-left corner defines symbols: Z (Atomic Number), Ra (Radioactive), CS (Chemical Symbol), N (Name), and O (Oxidation States).
- Elements:** All elements from Hydrogen (H) to Krypton (Kr) are included.

cell fontdefault: `\bfseries\tiny`

Style to set the font for all cell contents, except for the Z and Chemical Symbol fonts.

`\pgfPT[Z list={1,...,36},cell font=\tiny\itshape]`

Periodic Table of Elements

A standard periodic table of elements with the following features:

- Cell Content:** The element symbol and its name are in a small italicized font.
- Key:** A legend in the top-left corner defines symbols: Z (Atomic Number), Ra (Radioactive), CS (Chemical Symbol), N (Name), and O (Oxidation States).
- Elements:** All elements from Hydrogen (H) to Krypton (Kr) are included.

cell colordefault: `black`

Style to set the color for all cell contents, except for the Z and Chemical Symbol colors.

`\pgfPT[Z list={1,...,36},cell color=blue]`

Periodic Table of Elements

A standard periodic table of elements with the following features:

- Cell Content:** The element symbol and its name are in a small black font.
- Key:** A legend in the top-left corner defines symbols: Z (Atomic Number), Ra (Radioactive), CS (Chemical Symbol), N (Name), and O (Oxidation States).
- Elements:** All elements from Hydrogen (H) to Krypton (Kr) are included.

The precision of the *other contents*, which have numerical values, can also be set by a key. *Atomic radius*, *covalent radius*, and *ionic radius* all have integer values, so precision does not apply to them.

E precision

default: -1

Sets the first ionization energy and the electroaffinity precision, i.e., the decimal places displayed in their value, performing the respective rounding, without zero padding the value.

NOTE:

Rounding is performed over energy values which actually have a maximum of 3 decimal places.

So giving this key a value of -1 (the value of the energy as-is) or 3 has the same effect.

Therefore the values provided to this key should be any integer between -1 and 2, i.e., -1, 0, 1 or 2. Any other integer provided will be processed as -1.

```
\pgfPTbuildcellstyle{myE}{(5,3)}% 5 rows by 3 columns
[(1;1-2;Z),(1;3;radio),(2-3;1.5-3.5;CS),(4;1-3;name),(5;1-2.5;Ei), (5;2.5-3;eaff)]
\pgfPTstyle[Z list={1,...,54},cell style=myE,show title=false]
\pgfPT
```

1 H hydrogen 1312 72.77	2 He helium 2372.3 0
3 Li lithium 520.2 59.63 899.5 0	4 Be beryllium 520.2 59.63 899.5 0
5 Na sodium 495.9 52.87 737.7 0	6 Mg magnesium 495.9 52.87 737.7 0
7 K potassium 418.8 48.38 889.8 2.37	8 Ca calcium 418.8 48.38 889.8 2.37
9 Rb rubidium 403 46.88 549.5 5.02	10 Sr strontium 403 47 550 5 500
11 Sc scandium 633.1 18 658.8 2.4	12 Ti titanium 633.1 18 658.8 7.3
13 V vanadium 650.9 50.9 652.9 65.2	14 Cr chromium 650.9 50.9 652.9 65.2
15 Mn manganese 717.3 0 762.5 14.8	16 Fe iron 717.3 0 762.5 14.8
17 Co cobalt 760.4 63.9 737.1 111.65	18 Ni nickel 760.4 63.9 737.1 111.65
19 Cu copper 745.5 119.24 804.4 54.24	20 Zn zinc 745.5 119.24 804.4 54.24
21 Ga gallium 758.8 29.06 786.8 29.06	22 Ge germanium 758.8 29.06 786.8 29.06
23 Al aluminum 577.5 41.76 786.5 134.07	24 Si silicon 577.5 41.76 786.5 134.07
25 P phosphorus 800.6 26.99 1086.5 121.78	26 S sulfur 800.6 26.99 1086.5 121.78
27 S sulfur 806.4 0 1011.8 72.04	28 Se arsenic 806.4 0 1011.8 72.04
29 Cl chlorine 1313.9 140.98 1681 328.16	30 Ar argon 1313.9 140.98 1681 328.16
31 Br bromine 1251.2 348.58 1681 328.16	32 Kr krypton 1251.2 348.58 1681 328.16
33 I iodine 1139.3 324.54 1681 328.16	34 Xe xenon 1139.3 324.54 1681 328.16
35 Ne neon 2372.3 0 2372.3 0	36 He helium 2372.3 0 2372.3 0

```
\pgfPT[E precision=0]
```

1 H hydrogen 1312 73	2 He helium 2372.3 0
3 Li lithium 520 60 900 0	4 Be beryllium 520 60 900 0
5 Na sodium 495 53 728 0	6 Mg magnesium 495 53 728 0
7 K potassium 419 48 590 2	8 Ca calcium 419 48 590 2
9 Rb rubidium 403 47 550 5	10 Sr strontium 403 47 550 5
11 Sc scandium 633 18 659 7	12 Ti titanium 633 18 659 7
13 V vanadium 651 51 653 65	14 Cr chromium 651 51 653 65
15 Mn manganese 717 0 763 15	16 Fe iron 717 0 763 15
17 Co cobalt 760 64 760 64	18 Ni nickel 760 64 760 64
19 Cu copper 737 112 746 119	20 Zn zinc 737 112 746 119
21 Ga gallium 579 29 762 119	22 Ge germanium 579 29 762 119
23 Al aluminum 578 42 787 134	24 Si silicon 578 42 787 134
25 P phosphorus 801 27 1087 122	26 S sulfur 801 27 1087 122
27 S sulfur 806 0 1014 141	28 Se arsenic 806 0 1014 141
29 Cl chlorine 1314 141 1681 328	30 Ar argon 1314 141 1681 328
31 Br bromine 1251 349 1681 349	32 Kr krypton 1251 349 1681 349
33 I iodine 1135 1 1351 0	34 Xe xenon 1135 1 1351 0
35 Ne neon 2372 0 2372 0	36 He helium 2372 0 2372 0

```
\pgfPT[E precision=1]
```

1 H hydrogen 1312 72.8	2 He helium 2372.3 0
3 Li lithium 520.2 59.6 899.5 0	4 Be beryllium 520.2 59.6 899.5 0
5 Na sodium 495.8 52.8 737.7 0	6 Mg magnesium 495.8 52.8 737.7 0
7 K potassium 418.8 48.4 589.8 2.4	8 Ca calcium 418.8 48.4 589.8 2.4
9 Rb rubidium 403 46.8 549.5 5.0	10 Sr strontium 403 46.8 549.5 5.0
11 Sc scandium 633.1 18 658.8 2.4	12 Ti titanium 633.1 18 658.8 7.3
13 V vanadium 650.9 50.9 652.9 65.2	14 Cr chromium 650.9 50.9 652.9 65.2
15 Mn manganese 717.3 0 762.5 14.8	16 Fe iron 717.3 0 762.5 14.8
17 Co cobalt 760.4 63.9 737.1 111.65	18 Ni nickel 760.4 63.9 737.1 111.65
19 Cu copper 745.5 119.24 804.4 54.24	20 Zn zinc 745.5 119.24 804.4 54.24
21 Ga gallium 578.8 29.06 786.8 29.06	22 Ge germanium 578.8 29.06 786.8 29.06
23 Al aluminum 577.5 41.76 786.5 134.07	24 Si silicon 577.5 41.76 786.5 134.07
25 P phosphorus 800.6 26.99 1086.5 121.78	26 S sulfur 800.6 26.99 1086.5 121.78
27 S sulfur 806.4 0 1011.8 72.04	28 Se arsenic 806.4 0 1011.8 72.04
29 Cl chlorine 1313.9 140.98 1681 328.16	30 Ar argon 1313.9 140.98 1681 328.16
31 Br bromine 1251.2 348.58 1681 328.16	32 Kr krypton 1251.2 348.58 1681 328.16
33 I iodine 1139.3 324.54 1681 328.16	34 Xe xenon 1139.3 324.54 1681 328.16
35 Ne neon 2372.3 0 2372.3 0	36 He helium 2372.3 0 2372.3 0

\pgfPT[E precision=2]

1	H hydrogen 1312 72.77	2	He helium 23723.0	18
1	B boron 53.02 59.53	3	C carbon 69.95 0	10
2	Li lithium 7.0	4	Be beryllium 9.0	11
3	Mg magnesium 49.68 52.67	5	Al aluminum 57.5 41.76	12
4	K potassium 41.88 48.38	6	Si silicon 78.65 134.07	13
5	Ca calcium 50.98 2.37	7	P phosphorus 109.85 121.71	14
6	Sc scandium 43.1 18	8	S sulfur 140.23 142.3	15
7	Ti titanium 56.8 7.28	9	N nitrogen 131.9 140.98	16
8	V vanadium 50.9 50.91	10	O oxygen 1681 328.16	17
9	Cr chromium 58.2 65.21	11	F fluorine 2068.7 0	18
10	Mn manganese 54.94 57.07	12	Ne neon 2068.7 0	
11	Fe iron 56.7 14.78	13	Ar argon 1251.2 3485.6	
12	Co cobalt 59.7 63.9	14	Cl chlorine 1520.6 0	
13	Ni nickel 67.8 111.65	15	Br bromine 199.6 200.4	
14	Cu copper 69.64 119.24	16	Kr krypton 139.8 0	
15	Zn zinc 57.8 29.96	17	Xe xenon 110.4 1708.6	
16	Ga gallium 76.2 118.94	18		
17	Ge germanium 94.7 77.65			
18	As arsenic 94.1 194.96			
19	Se selenium 103.9 324.54			
20	Ga gallium 119.2 135.8			
21	Ge germanium 118.4 125.1			
22	As arsenic 125.1 139.8			
23	Se selenium 135.8 150.8			
24	Ga gallium 150.8 168.6			
25	Ge germanium 168.6 186.4			
26	As arsenic 186.4 206.4			
27	Se selenium 206.4 226.4			
28	Ga gallium 226.4 246.4			
29	Ge germanium 246.4 266.4			
30	As arsenic 266.4 286.4			
31	Se selenium 286.4 306.4			
32	Ga gallium 306.4 326.4			
33	Ge germanium 326.4 346.4			
34	As arsenic 346.4 366.4			
35	Se selenium 366.4 386.4			
36	Ga gallium 386.4 406.4			
37	Ge germanium 406.4 426.4			
38	As arsenic 426.4 446.4			
39	Se selenium 446.4 466.4			
40	Ga gallium 466.4 486.4			
41	Ge germanium 486.4 506.4			
42	As arsenic 506.4 526.4			
43	Se selenium 526.4 546.4			
44	Ga gallium 546.4 566.4			
45	Ge germanium 566.4 586.4			
46	As arsenic 586.4 606.4			
47	Se selenium 606.4 626.4			
48	Ga gallium 626.4 646.4			
49	Ge germanium 646.4 666.4			
50	As arsenic 666.4 686.4			
51	Se selenium 686.4 706.4			
52	Ga gallium 706.4 726.4			
53	Ge germanium 726.4 746.4			
54	As arsenic 746.4 766.4			
55	Se selenium 766.4 786.4			
56	Ga gallium 786.4 806.4			
57	Ge germanium 806.4 826.4			
58	As arsenic 826.4 846.4			
59	Se selenium 846.4 866.4			
60	Ga gallium 866.4 886.4			
61	Ge germanium 886.4 906.4			
62	As arsenic 906.4 926.4			
63	Se selenium 926.4 946.4			
64	Ga gallium 946.4 966.4			
65	Ge germanium 966.4 986.4			
66	As arsenic 986.4 1006.4			
67	Se selenium 1006.4 1026.4			
68	Ga gallium 1026.4 1046.4			
69	Ge germanium 1046.4 1066.4			
70	As arsenic 1066.4 1086.4			
71	Se selenium 1086.4 1106.4			
72	Ga gallium 1106.4 1126.4			
73	Ge germanium 1126.4 1146.4			
74	As arsenic 1146.4 1166.4			
75	Se selenium 1166.4 1186.4			
76	Ga gallium 1186.4 1206.4			
77	Ge germanium 1206.4 1226.4			
78	As arsenic 1226.4 1246.4			
79	Se selenium 1246.4 1266.4			
80	Ga gallium 1266.4 1286.4			
81	Ge germanium 1286.4 1306.4			
82	As arsenic 1306.4 1326.4			
83	Se selenium 1326.4 1346.4			
84	Ga gallium 1346.4 1366.4			
85	Ge germanium 1366.4 1386.4			
86	As arsenic 1386.4 1406.4			
87	Se selenium 1406.4 1426.4			
88	Ga gallium 1426.4 1446.4			
89	Ge germanium 1446.4 1466.4			
90	As arsenic 1466.4 1486.4			
91	Se selenium 1486.4 1506.4			
92	Ga gallium 1506.4 1526.4			
93	Ge germanium 1526.4 1546.4			
94	As arsenic 1546.4 1566.4			
95	Se selenium 1566.4 1586.4			
96	Ga gallium 1586.4 1606.4			
97	Ge germanium 1606.4 1626.4			
98	As arsenic 1626.4 1646.4			
99	Se selenium 1646.4 1666.4			
100	Ga gallium 1666.4 1686.4			
101	Ge germanium 1686.4 1706.4			
102	As arsenic 1706.4 1726.4			
103	Se selenium 1726.4 1746.4			
104	Ga gallium 1746.4 1766.4			
105	Ge germanium 1766.4 1786.4			
106	As arsenic 1786.4 1806.4			
107	Se selenium 1806.4 1826.4			
108	Ga gallium 1826.4 1846.4			
109	Ge germanium 1846.4 1866.4			
110	As arsenic 1866.4 1886.4			
111	Se selenium 1886.4 1906.4			
112	Ga gallium 1906.4 1926.4			
113	Ge germanium 1926.4 1946.4			
114	As arsenic 1946.4 1966.4			
115	Se selenium 1966.4 1986.4			
116	Ga gallium 1986.4 2006.4			
117	Ge germanium 2006.4 2026.4			
118	As arsenic 2026.4 2046.4			
119	Se selenium 2046.4 2066.4			
120	Ga gallium 2066.4 2086.4			
121	Ge germanium 2086.4 2106.4			
122	As arsenic 2106.4 2126.4			
123	Se selenium 2126.4 2146.4			
124	Ga gallium 2146.4 2166.4			
125	Ge germanium 2166.4 2186.4			
126	As arsenic 2186.4 2206.4			
127	Se selenium 2206.4 2226.4			
128	Ga gallium 2226.4 2246.4			
129	Ge germanium 2246.4 2266.4			
130	As arsenic 2266.4 2286.4			
131	Se selenium 2286.4 2306.4			
132	Ga gallium 2306.4 2326.4			
133	Ge germanium 2326.4 2346.4			
134	As arsenic 2346.4 2366.4			
135	Se selenium 2366.4 2386.4			
136	Ga gallium 2386.4 2406.4			
137	Ge germanium 2406.4 2426.4			
138	As arsenic 2426.4 2446.4			
139	Se selenium 2446.4 2466.4			
140	Ga gallium 2466.4 2486.4			
141	Ge germanium 2486.4 2506.4			
142	As arsenic 2506.4 2526.4			
143	Se selenium 2526.4 2546.4			
144	Ga gallium 2546.4 2566.4			
145	Ge germanium 2566.4 2586.4			
146	As arsenic 2586.4 2606.4			
147	Se selenium 2606.4 2626.4			
148	Ga gallium 2626.4 2646.4			
149	Ge germanium 2646.4 2666.4			
150	As arsenic 2666.4 2686.4			
151	Se selenium 2686.4 2706.4			
152	Ga gallium 2706.4 2726.4			
153	Ge germanium 2726.4 2746.4			
154	As arsenic 2746.4 2766.4			
155	Se selenium 2766.4 2786.4			
156	Ga gallium 2786.4 2806.4			
157	Ge germanium 2806.4 2826.4			
158	As arsenic 2826.4 2846.4			
159	Se selenium 2846.4 2866.4			
160	Ga gallium 2866.4 2886.4			
161	Ge germanium 2886.4 2906.4			
162	As arsenic 2906.4 2926.4			
163	Se selenium 2926.4 2946.4			
164	Ga gallium 2946.4 2966.4			
165	Ge germanium 2966.4 2986.4			
166	As arsenic 2986.4 3006.4			
167	Se selenium 3006.4 3026.4			
168	Ga gallium 3026.4 3046.4			
169	Ge germanium 3046.4 3066.4			
170	As arsenic 3066.4 3086.4			
171	Se selenium 3086.4 3106.4			
172	Ga gallium 3106.4 3126.4			
173	Ge germanium 3126.4 3146.4			
174	As arsenic 3146.4 3166.4			
175	Se selenium 3166.4 3186.4			
176	Ga gallium 3186.4 3206.4			
177	Ge germanium 3206.4 3226.4			
178	As arsenic 3226.4 3246.4			
179	Se selenium 3246.4 3266.4			
180	Ga gallium 3266.4 3286.4			
181	Ge germanium 3286.4 3306.4			
182	As arsenic 3306.4 3326.4			
183	Se selenium 3326.4 3346.4			
184	Ga gallium 3346.4 3366.4			
185	Ge germanium 3366.4 3386.4			
186	As arsenic 3386.4 3406.4			
187	Se selenium 3406.4 3426.4			
188	Ga gallium 3426.4 3446.4			
189	Ge germanium 3446.4 3466.4			
190	As arsenic 3466.4 3486.4			
191	Se selenium 3486.4 3506.4			
192	Ga gallium 3506.4 3526.4			
193	Ge germanium 3526.4 3546.4			
194	As arsenic 3546.4 3566.4			
195	Se selenium 3566.4 3586.4			
196	Ga gallium 3586.4 3606.4			
197	Ge germanium 3606.4 3626.4			
198	As arsenic 3626.4 3646.4			
199	Se selenium 3646.4 3666.4			
200	Ga gallium 3666.4 3686.4			
201	Ge germanium 3686.4 3706.4			

\pgfPT[E precision=3]

1	H hydrogen 1312.77	2	Ra Ra	18
3	Li lithium 202.59	4	Be beryllium 899.5 0	
5	Na sodium 495.8 52.97	6	Mg magnesium 737.7 0	
7	K potassium 418.8 46.38	8	Ca calcium 60.02	
9	Sc scandium 20.37	10	Ti titanium 65.8 7.28	
11	V vanadium 56.8 5.91	12	Cr chromium 56.9 65.21	
13	Mn manganese 54.9 5.73	14	Fe iron 56.8 5.72	
15	Co cobalt 59.73 0	16	Ni nickel 58.7 5.63	
17	Cu copper 63.9 5.54	18	Zn zinc 65.4 5.52	
19	Ga gallium 69.7 5.47	20	Ge germanium 72.6 11.98	
21	As arsenic 72.9 11.94	22	Se selenium 74.7 10.65	
23	Br bromine 79.9 10.66	24	Kr krypton 83.8 10.60	
25	Tc technetium 90.2 10.56	26	Ru rhodium 102.9 10.52	
27	Rh rhodium 101.0 10.46	28	Pd palladium 104.4 10.42	
29	Ag silver 107.8 10.34	30	Cd cadmium 109.4 10.24	
31	In indium 113.4 10.14	32	Sn tin 114.8 10.03	
33	Sb antimony 118.8 10.00	34	Te tellurium 121.4 9.97	
35	I iodine 126.9 9.94	36	Xe xenon 131.3 9.90	
37	Rb rubidium 40.3 4.68	38	Sr strontium 45.9 5.02	
39	Y yttrium 60.0 2.98	40	Zr zirconium 64.0 4.18	
41	Nb niobium 85.8 8.52	42	Mo molybdenum 96.4 7.21	
43	Tc technetium 98.2 8.52	44	Ru ruthenium 102.0 10.96	
45	Rh rhodium 107.9 11.07	46	Pd palladium 104.4 10.42	
47	Ag silver 108.7 10.34	48	Cd cadmium 109.4 10.24	
49	In indium 113.4 10.14	50	Sn tin 114.8 10.03	
51	Sb antimony 118.8 10.00	52	Te tellurium 121.4 9.97	
53	I iodine 126.9 9.94	54	Xe xenon 131.3 9.90	
55	He helium 232.73 0	56	No neon 165.328.160.07	
57	F fluorine 108.6 14.09	58	Cl chlorine 125.12348.5 120.6 0	
59	Ar argon 199.6 220.4	60	Kr krypton 119.9 324.54 159.8 0	

T precision

default: -1

Sets the melting point and boiling point precision, i.e., the decimal places displayed in their value, performing the respective rounding, without zero padding the value.

NOTE:

Rounding is performed over melting or boiling point values which actually have a maximum, respectively, of 4 or 2 decimal places. So giving this key a value of -1 (the value of the melting or boiling point as-is) or, respectively, 4 or 2 has the same effect.

Therefore the values provided to this key should be any integer between -1 and 3 or 2. Any other integer provided will be processed as -1.

```
\pgfPTbuildcellstyle{myT}{(6,3)}% 6 rows by 3 columns
```

```
[([1;1-2;Z],(1;3;radio),(2-3;1.5-3.5;CS),(4;1-3;name),(5;1-2.5;Tmelt),
(5;2.5-3;Tboil),(6;1-2.5;TmeltC),(6;2.5-3;TboilC)])
```

```
\pgfPTstyle[Z list={1,...,36},cell style=myT,Tmelt color=blue!50!black,TmeltC  
color=blue,Tboil color=red!50!black,TboilC color=red,show title=false]
```

\pgfPT

1	H hydrogen 13.99 20.271 [33.16 32.871]	2	Ra radioactive [only found in nuclear synthesis]
3	Li lithium 45.65 1603 180.5 1330	4	Be beryllium 2742 1287 2469
5	Ns neon 370.944 1156.08	6	Mg magnesium 923.1363
7	Ne neon 370.944 1156.08	8	Ar argon 150.8 109.8

\pgfPT[T precision=0]

1	H	hydrogen	14	20	259	259
2	He	helium	—	—	—	—
3	Li	lithium	1560	2742	1267	2469
4	Be	beryllium	1603	2742	1267	2469
5	Mg	magnesium	923	1363	983	1969
6	Ca	calcium	1115	1757	842	1484
7	Sc	scandium	3109	1941	3560	2835
8	Ti	titanium	2183	3680	2180	2755
9	V	vandium	1910	3407	1907	2492
10	Cr	chromium	1519	2334	1811	3134
11	Mn	manganese	1246	2001	1538	2801
12	Fe	iron	1768	3200	1728	3003
13	Co	cobalt	1495	2927	1495	2730
14	Ni	nickel	1577	2835	693	1180
15	Cu	copper	1984	2562	419.53	907
16	Zn	zinc	303	2673	1211	3106
17	Ga	gallium	302.92	2673	1211.4	3106
18	Ge	germanium	302.98	2633	1090	887
1	As	arsenic	494	958	221	685
2	Se	selenium	265.8	332	—	—
3	Br	bromine	—	—	—	—
4	Kr	krypton	116	120	—	—

Z: Atomic Number
Ra: Radioactive
Cs: Chemical Symbol
N: Name
MPK: Melting Point (K)
BPK: Boiling Point (K)
MPC: Melting Point (°C)
BPC: Boiling Point (°C)

\pgfPT[T precision=1]

1	H	hydrogen	14.0	20.3	259.2	252.0
2	He	helium	—	—	—	—
3	Li	lithium	1560	2742	1267	2469
4	Be	beryllium	1603	2742	1267	2469
5	Mg	magnesium	923	1363	983	1969
6	Ca	calcium	1115	1757	842	1484
7	Sc	scandium	3109	1941	3560	2835
8	Ti	titanium	2183	3680	2180	2755
9	V	vandium	1910	3407	1907	2492
10	Cr	chromium	1519	2334	1811	3134
11	Mn	manganese	1246	2001	1538	2801
12	Fe	iron	1768	3200	1728	3003
13	Co	cobalt	1495	2927	1495	2730
14	Ni	nickel	1577	2835	692.7	1180
15	Cu	copper	1984	2562	419.53	907
16	Zn	zinc	303.92	2673	1211.4	3106
17	Ga	gallium	302.98	2633	1090	887
18	Ge	germanium	302.98	2633	817	614
1	As	arsenic	494	958	221	685
2	Se	selenium	265.8	332	—	—
3	Br	bromine	—	—	—	—
4	Kr	krypton	116	120	—	—

Z: Atomic Number
Ra: Radioactive
Cs: Chemical Symbol
N: Name
MPK: Melting Point (K)
BPK: Boiling Point (K)
MPC: Melting Point (°C)
BPC: Boiling Point (°C)

\pgfPT[T precision=2]

1	H	hydrogen	13.99	20.27	259.16	252.0
2	He	helium	—	—	—	—
3	Li	lithium	1560	2742	1267	2469
4	Be	beryllium	1603	2742	1267	2469
5	Mg	magnesium	923	1363	983	1969
6	Ca	calcium	1115	1757	842	1484
7	Sc	scandium	3109	1941	3560	2835
8	Ti	titanium	2183	3680	2180	2755
9	V	vandium	1910	3407	1907	2492
10	Cr	chromium	1519	2334	1811	3134
11	Mn	manganese	1246	2001	1538	2801
12	Fe	iron	1768	3200	1728	3003
13	Co	cobalt	1495	2927	1495	2730
14	Ni	nickel	1577	2835	692.7	1180
15	Cu	copper	1984	2562	419.53	907
16	Zn	zinc	303.92	2673	1211.4	3106
17	Ga	gallium	302.98	2633	1090	887
18	Ge	germanium	302.98	2633	817	614
1	As	arsenic	494	958	221	685
2	Se	selenium	265.8	332	—	—
3	Br	bromine	—	—	—	—
4	Kr	krypton	116	120	—	—

Z: Atomic Number
Ra: Radioactive
Cs: Chemical Symbol
N: Name
MPK: Melting Point (K)
BPK: Boiling Point (K)
MPC: Melting Point (°C)
BPC: Boiling Point (°C)

\pgfPT[T precision=3]

1	H	hydrogen	13.99	20.271	259.16	252.0
2	He	helium	—	—	—	—
3	Li	lithium	1560	2742	1267	2469
4	Be	beryllium	1603	2742	1267	2469
5	Mg	magnesium	923	1363	983	1969
6	Ca	calcium	1115	1757	842	1484
7	Sc	scandium	3109	1941	3560	2835
8	Ti	titanium	2183	3680	2180	2755
9	V	vandium	1910	3407	1907	2492
10	Cr	chromium	1519	2334	1811	3134
11	Mn	manganese	1246	2001	1538	2801
12	Fe	iron	1768	3200	1728	3003
13	Co	cobalt	1495	2927	1495	2730
14	Ni	nickel	1577	2835	692.7	1180
15	Cu	copper	1984	2562	419.53	907
16	Zn	zinc	303.92	2673	1211.4	3106
17	Ga	gallium	302.98	2633	1090	887
18	Ge	germanium	302.98	2633	817	614
1	As	arsenic	494	958	221	685
2	Se	selenium	265.8	332	—	—
3	Br	bromine	—	—	—	—
4	Kr	krypton	116	120	—	—

Z: Atomic Number
Ra: Radioactive
Cs: Chemical Symbol
N: Name
MPK: Melting Point (K)
BPK: Boiling Point (K)
MPC: Melting Point (°C)
BPC: Boiling Point (°C)

\pgfPT[T precision=4]

1	H	hydrogen	13.99	20.271	259.16	252.0
2	He	helium	—	—	—	—
3	Li	lithium	1560	2742	1267	2469
4	Be	beryllium	1603	2742	1267	2469
5	Mg	magnesium	923	1363	983	1969
6	Ca	calcium	1115	1757	842	1484
7	Sc	scandium	3109	1941	3560	2835
8	Ti	titanium	2183	3680	2180	2755
9	V	vandium	1910	3407	1907	2492
10	Cr	chromium	1519	2334	1811	3134
11	Mn	manganese	1246	2001	1538	2801
12	Fe	iron	1768	3200	1728	3003
13	Co	cobalt	1495	2927	1495	2730
14	Ni	nickel	1577	2835	692.7	1180
15	Cu	copper	1984	2562	419.53	907
16	Zn	zinc	303.92	2673	1211.4	3106
17	Ga	gallium	302.98	2633	1090	887
18	Ge	germanium	302.98	2633	817	614
1	As	arsenic	494	958	221	685
2	Se	selenium	265.8	332	—	—
3	Br	bromine	—	—	—	—
4	Kr	krypton	116	120	—	—

Z: Atomic Number
Ra: Radioactive
Cs: Chemical Symbol
N: Name
MPK: Melting Point (K)
BPK: Boiling Point (K)
MPC: Melting Point (°C)
BPC: Boiling Point (°C)

Cp precision

default: -1

Sets the specific heat capacity precision, i.e., the decimal places displayed in their value, performing the respective rounding, without zero padding the value.

NOTE:

Rounding is performed over density values which actually have a maximum 3 decimal places. So giving this key a value of -1 (the value of the melting or boiling point as-is) or 3 has the same effect.

Therefore the values provided to this key should be any integer between -1 and 2. Any other integer provided will be processed as -1.

```
\pgfPTbuildcellstyle{myCp}{(5,3)}% 5 rows by 3 columns
[(1;1-2;Z),(1;3;radio),(2-3;1.5-3.5;CS),(4;1-3;name),(5;1-3;Cp)]
\pgfPTstyle[Z list={1,...,36},cell style=myCp]
\pgfPT
```

Periodic Table of Elements

1 1 H hydrogen 28.836	2 2 Be beryllium 16.443	18 2 He helium 20.786
3 2 Li lithium 24.88	4 3 Be beryllium 16.443	
11 3 Na sodium 28.23	12 4 Mg magnesium 24.869	
19 4 K potassium 29.6	20 5 Ca calcium 25.929	
21 Sc scandium 25.52	22 Ti titanium 25.06	13 5 B boron 11.087
23 V vanadium 24.89	24 Cr chromium 23.35	14 6 C carbon 8.517
25 Mn manganese 26.32	26 Fe iron 25.1	15 7 N nitrogen 29.124
27 Co cobalt 24.81	28 Ni nickel 26.07	16 8 O oxygen 29.378
29 Cu copper 24.44	30 Zn zinc 25.39	17 9 F fluorine 31.304
31 Ga gallium 25.86	32 Ge germanium 23.222	18 10 Ne neon 20.786
33 As arsenic 24.64	34 Se selenium 25.363	19 11 Cl chlorine 33.949
35 Br bromine 75.69	36 Kr krypton 20.786	20 Ar argon 20.786

\pgfPT[Cp precision=0]

Periodic Table of Elements

1 1 H hydrogen 28.8	2 2 Be beryllium 16.4	18 2 He helium 21
3 2 Li lithium 24.9	4 3 Be beryllium 16.4	
11 3 Na sodium 28	12 4 Mg magnesium 25	
19 4 K potassium 30	20 5 Ca calcium 26	
21 Sc scandium 26	22 Ti titanium 25	13 5 B boron 11
23 V vanadium 25	24 Cr chromium 23	14 6 C carbon 9
25 Mn manganese 26	26 Fe iron 25	15 7 N nitrogen 29
27 Co cobalt 25	28 Ni nickel 26	16 8 O oxygen 29
29 Cu copper 24	30 Zn zinc 25	17 9 F fluorine 31
31 Ga gallium 26	32 Ge germanium 23	18 10 Ne neon 21
33 As arsenic 25	34 Se selenium 25	19 11 Cl chlorine 34
35 Br bromine 76	36 Kr krypton 21	20 Ar argon 21

\pgfPT[Cp precision=1]

Periodic Table of Elements

1 1 H hydrogen 28.8	2 2 Be beryllium 16.4	18 2 He helium 20.8
3 2 Li lithium 24.9	4 3 Be beryllium 16.4	
11 3 Na sodium 28.2	12 4 Mg magnesium 24.9	
19 4 K potassium 29.6	20 5 Ca calcium 25.9	
21 Sc scandium 25.5	22 Ti titanium 25.1	13 5 B boron 11.1
23 V vanadium 24.9	24 Cr chromium 23.4	14 6 C carbon 8.5
25 Mn manganese 26.3	26 Fe iron 25.1	15 7 N nitrogen 29.1
27 Co cobalt 24.8	28 Ni nickel 26.1	16 8 O oxygen 29.4
29 Cu copper 24.4	30 Zn zinc 25.4	17 9 F fluorine 31.3
31 Ga gallium 25.9	32 Ge germanium 23.2	18 10 Ne neon 20.8
33 As arsenic 24.6	34 Se selenium 25.4	19 11 Cl chlorine 34.0
35 Br bromine 75.7	36 Kr krypton 20.8	20 Ar argon 20.8

\pgfPT[Cp precision=2]

Periodic Table of Elements																																																																																																											
1	H	2	He	3	Li	4	Be	5	Cs	6	Ra	7	B	8	C	9	N	10	O	11	F	12	Ne	13	14	15	16	17	18																																																																														
1	hydrogen	28.84	2	beryllium	16.44	3	lithium	24.86	4	radioactive	28.84	5	chemical symbol	25.06	6	name	24.89	7	specific heat capacity (Jmol⁻¹K¹)	26.32	8	28.84	9	20.79	10	helium	20.79	11	20.79	12	neon	20.79	13																																																																										
1	potassium	28.36	2	calcium	25.53	3	scandium	25.52	4	titanium	25.06	5	vanadium	24.89	6	chromium	23.35	7	manganese	26.32	8	iron	25.1	9	cobalt	24.81	10	nickel	26.07	11	copper	24.44	12	zinc	25.39	13																																																																							
1	sodium	28.23	2	magnesium	24.87	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36																																																																				
1	potassium	29.6	2	calcium	25.53	3	scandium	25.52	4	titanium	25.06	5	vanadium	24.89	6	chromium	23.35	7	manganese	26.32	8	iron	25.1	9	cobalt	24.81	10	nickel	26.07	11	copper	24.44	12	zinc	25.39	13	gallium	25.86	14	germanium	23.22	15	phosphorus	23.82	16	sulfur	22.75	17	chlorine	33.95	18	fluorine	31.30	19	oxygen	29.38	20	neon	20.79	21	argon	20.79	22	helium	20.79	23	neon	20.79	24	argon	20.79	25	helium	20.79	26	neon	20.79	27	argon	20.79	28	helium	20.79	29	neon	20.79	30	argon	20.79	31	helium	20.79	32	neon	20.79	33	argon	20.79	34	helium	20.79	35	neon	20.79	36	argon	20.79

\pgfPT[Cp precision=3]

Periodic Table of Elements																																																																																																											
1	H	2	He	3	Li	4	Be	5	Cs	6	Ra	7	B	8	C	9	N	10	O	11	F	12	Ne	13	14	15	16	17	18																																																																														
1	hydrogen	28.836	2	beryllium	16.443	3	lithium	24.86	4	radioactive	28.836	5	chemical symbol	25.06	6	name	24.89	7	specific heat capacity (Jmol⁻¹K¹)	26.32	8	iron	25.1	9	cobalt	24.81	10	nickel	26.07	11	copper	24.44	12	zinc	25.39	13																																																																							
1	potassium	28.36	2	calcium	25.53	3	scandium	25.52	4	titanium	25.06	5	vanadium	24.89	6	chromium	23.35	7	manganese	26.32	8	iron	25.1	9	cobalt	24.81	10	nickel	26.07	11	copper	24.44	12	zinc	25.39	13	gallium	25.86	14	germanium	23.22	15	phosphorus	23.82	16	sulfur	22.75	17	chlorine	33.949	18	fluorine	31.304	19	oxygen	29.376	20	neon	20.786	21	argon	20.786	22	helium	20.786	23	neon	20.786	24	argon	20.786	25	helium	20.786	26	neon	20.786	27	argon	20.786	28	helium	20.786	29	neon	20.786	30	argon	20.786	31	helium	20.786	32	neon	20.786	33	argon	20.786	34	helium	20.786	35	neon	20.786	36	argon	20.786
1	potassium	29.6	2	calcium	25.529	3	scandium	25.52	4	titanium	25.06	5	vanadium	24.89	6	chromium	23.35	7	manganese	26.32	8	iron	25.1	9	cobalt	24.81	10	nickel	26.07	11	copper	24.44	12	zinc	25.39	13	gallium	25.86	14	germanium	23.22	15	phosphorus	23.82	16	sulfur	22.75	17	chlorine	33.949	18	fluorine	31.304	19	oxygen	29.376	20	neon	20.786	21	argon	20.786	22	helium	20.786	23	neon	20.786	24	argon	20.786	25	helium	20.786	26	neon	20.786	27	argon	20.786	28	helium	20.786	29	neon	20.786	30	argon	20.786	31	helium	20.786	32	neon	20.786	33	argon	20.786	34	helium	20.786	35	neon	20.786	36	argon	20.786

kT precision

default: -1

Sets the thermal conductivity precision, i.e., the decimal places displayed in their value, performing the respective rounding, without zero padding the value.

NOTE:

Rounding is performed over density values which actually have a maximum 5 decimal places. So giving this key a value of -1 (the value of the melting or boiling point as-is) or 5 has the same effect.

Therefore the values provided to this key should be any integer between -1 and 4. Any other integer provided will be processed as -1.

```
\pgfPTbuildcellstyle{mykT}(5,3)% 5 rows by 3 columns
[(1;1-2;Z),(1;3;radio),(2-3;1.5-3.5;CS),(4;1-3;name),(5;1-3;kT)]
\pgfPTstyle[Z list={1,...,36},cell style=mykT,show title=false]
\pgfPT
```

1	H	2	He	3	Li	4	Be	5	Cs	6	Ra	7	B	8	C	9	N	10	O	11	F	12	Ne	13	14	15	16	17	18																																																																														
1	hydrogen	0.1605	2	beryllium	200	3	lithium	84.8	4	radioactive	28.836	5	chemical symbol	158	6	name	24.89	7	specific heat capacity (Jmol⁻¹K¹)	23.35	8	iron	100	9	cobalt	90.9	10	nickel	401	11	copper	116	12	zinc	40.6	13	gallium	60.2	14	germanium	50.2	15	phosphorus	0.02583	16	sulfur	0.236	17	chlorine	0.0277	18	fluorine	0.0491	19	oxygen	0.02658	20	neon	0.0491	21	argon	0.01772	22	helium	0.1513	23	neon	0.0491	24	argon	0.0089	25	helium	0.0277	26	neon	0.0491	27	argon	0.0089	28	helium	0.1513	29	neon	0.0491	30	argon	0.0089	31	helium	0.0277	32	neon	0.0491	33	argon	0.0089	34	helium	0.1513	35	neon	0.0491	36	argon	0.0089
1	potassium	102.5	2	calcium	201	3	scandium	15.8	4	titanium	21.9	5	vanadium	30.7	6	chromium	93.9	7	manganese	7.81	8	iron	80.4	9	cobalt	100	10	nickel	90.9	11	copper	401	12	zinc	116	13	gallium	40.6	14	germanium	60.2	15	phosphorus	0.02583	16	sulfur	0.236	17	chlorine	0.0277	18	fluorine	0.0491	19	oxygen	0.02658	20	neon	0.0491	21	argon	0.01772	22	helium	0.1513	23	neon	0.0491	24	argon	0.0089	25	helium	0.0277	26	neon	0.0491	27	argon	0.0089	28	helium	0.1513	29	neon	0.0491	30	argon	0.0089	31	helium	0.0277	32	neon	0.0491	33	argon	0.0089	34	helium	0.1513	35	neon	0.0491	36	argon	0.0089
1	potassium	102.5	2	calcium	201	3	scandium	15.8	4	titanium	21.9	5	vanadium	30.7	6	chromium	93.9	7	manganese	7.81	8	iron	80.4	9	cobalt	100	10	nickel	90.9	11	copper	401	12	zinc	116	13	gallium	40.6	14	germanium	60.2	15	phosphorus	0.02583	16	sulfur	0.236	17	chlorine	0.0277	18	fluorine	0.0491	19	oxygen	0.02658	20	neon	0.0491	21	argon	0.01772	22	helium	0.1513	23	neon	0.0491	24	argon	0.0089	25	helium	0.0277	26	neon	0.0491	27	argon	0.0089	28	helium	0.1513	29	neon	0.0491	30	argon	0.0089	31	helium	0.0277	32	neon	0.0491	33	argon	0.0089	34	helium	0.1513	35	neon	0.0491	36	argon	0.0089

\pgfPT[kT precision=0]

\pgfPT[kT precision=1]

\pgfPT[kT precision=2]

1	H hydrogen 0.18	2	He helium 0.15
3	Li lithium 84.8	4	Be beryllium 200
5	Mg magnesium 156	6	O oxygen 0.03
7	Na sodium 142	8	S sulfur 0.21
9	K potassium 180.5	10	Cl chlorine 0.01
11	Ca calcium 404.0	12	Ar argon 0.02
13	Sc scandium 80.9	14	Ne neon 0.05
15	Ti titanium 16.0	16	F fluorine 0.03
17	V vanadium 19.9	18	Kr krypton 0.04
19	Cr chromium 24.9		
20	Mn manganese 54.9		
21	Fe iron 55.8		
22	Co cobalt 59.7		
23	Ni nickel 58.7		
24	Cu copper 63.6		
25	Zn zinc 65.4		
26	Ga gallium 69.7		
27	Ge germanium 72.6		
28	As arsenic 75.7		
29	Se selenium 78.9		
30	Br bromine 80.3		
31			
32			
33			
34			
35			

\pgfPT[kT precision=3]

1	H hydrogen 0.181	2	He helium 0.151
3	Li lithium 6.48	4	Be beryllium 200
5	Mg magnesium 156	6	Ca calcium 119.5
7	Sc scandium 41.95	8	Ti titanium 48.0
9	V vanadium 50.94	10	Cr chromium 52.0
11	Mn manganese 54.94	12	Fe iron 55.85
13	Co cobalt 58.93	14	Ni nickel 58.73
15	Cu copper 63.55	16	Zn zinc 65.40
17	Ga gallium 69.72	18	Ge germanium 72.61
19	As arsenic 74.94	20	Se selenium 78.96
21	Br bromine 80.00	22	Kr krypton 83.80
23	Ra radioactive 226Ra	24	CS chemical symbol KT
25	Th radioactive 232Th	26	U radioactive 238U
27	N name KT	28	P phosphorus 31P
29	O oxygen 32O	30	S sulfur 32S
31	Cl chlorine 35Cl	32	Ar argon 36Ar
33	F fluorine 19F	34	Kr krypton 83Kr
35	Ne neon 10Ne	36	

\pgfPT[kT precision=4]

1	H	He
hydrogen 0.1805		helium 0.1513
2	Be	
boron 84.8		fluorine 0.0277
3	Mg	Ne
magnesium 142		neon 0.0491
4	Ca	Ar
potassium 19		argon 0.0177
5	Sc	Kr
calcium 20		krayton
6	Ti	
scandium 21		
7	V	
titanium 22		
8	Cr	
vanadium 23		
9	Mn	
chromium 24		
10	Fe	
manganese 25		
11	Co	
iron 26		
12	Ni	
cobalt 27		
13	Cu	
nickel 28		
14	Zn	
copper 29		
15	Ga	
zinc 30		
16	Ge	
gallium 31		
17	As	
germanium 32		
18	Se	
arsenic 33		
19	Br	
selenium 34		
20	Kr	
bromine 35		

\pgfPT[kT precision=5]

1	2	18
1 H hydrogen 0.1605	2 Be beryllium 200	2 He helium 0.1513
3 Li lithium 84.8	4 B boron 27.4	10 Ne neon 0.0491
11 Na sodium 142	12 Mg magnesium 156	13 Al aluminum 237
19 K potassium 102.5	20 Ca calcium 201	14 Si silicon 149
21 Sc scandium 15.8	22 Ti titanium 21.9	15 P phosphorus 0.236
23 V vanadium 30.7	24 Cr chromium 93.9	16 S sulfur 0.205
25 Mn manganese 7.81	26 Fe iron 89.4	17 Cl chlorine 0.0889
27 Co cobalt 100	28 Ni nickel 99.9	18 Ar argon 0.01772
29 Cu copper 491	30 Zn zinc 116	31 Ga gallium 40.6
32 Ge germanium 50.2	33 As arsenic 50.2	34 Se selenium 0.519
35 Br bromine 0.122	36 Kr krypton 0.00943	

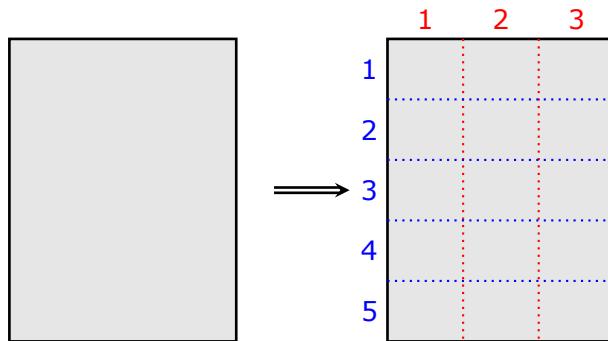
Z: Atomic Number
R: Radii
Cs: Chemical Symbol
N: Heat Capacity
KT: Thermal Conductivity (Wm⁻¹K⁻¹)

\pgfPTresetstyle

Designing cells with \pgfPTbuildcell

To start designing the *base cell* of the Periodic Table it is necessary to keep in mind that each cell will be split into **n** rows and **k** columns.

As a running example, **5** rows and **3** columns will be used:

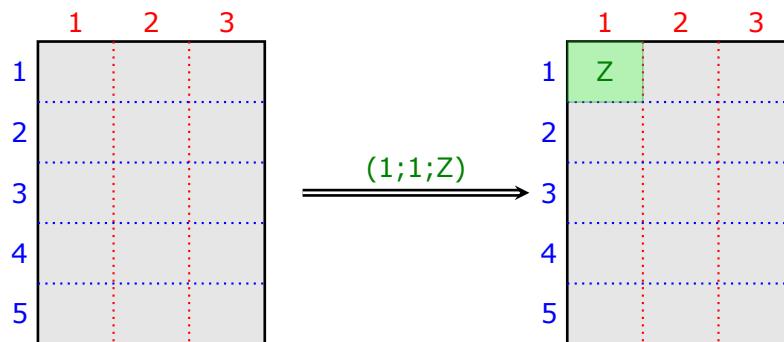


The next task is to assign contents to the cell by typing *trios* with the structure

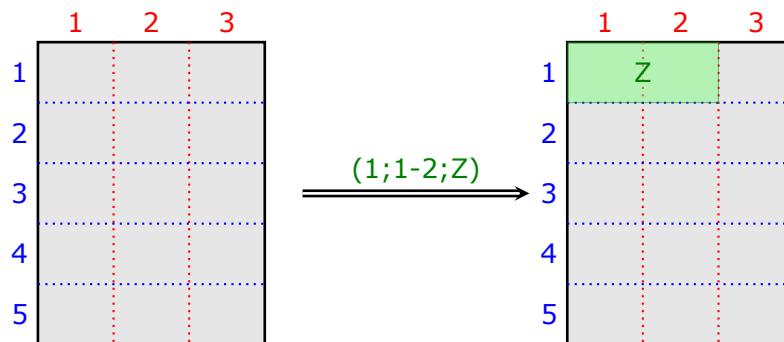
- (**row;column;content**)
- or (**start row-end row;start column-end column;content**)
- or a combination of both.

The available **contents** are: Z, name, CS, Ar, Ar*, radio, R, Rcov, Rion, Ei, eneg, eaff, O, Tmelt, TmeltC, Tboil, TboilC, eDist, eConfign, eConfignl, d, Cp, kT, ls, lsa, lsb, lsc, lsc, DiscY, DiscC and spectra.

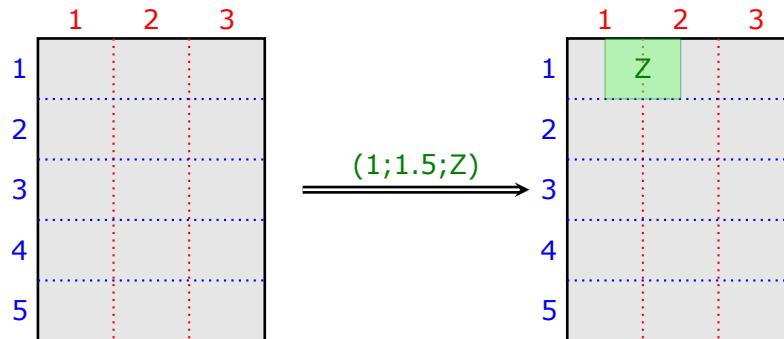
Assigning, for instance, **(1;1;Z)** will show the atomic number in the first row and in the first column,



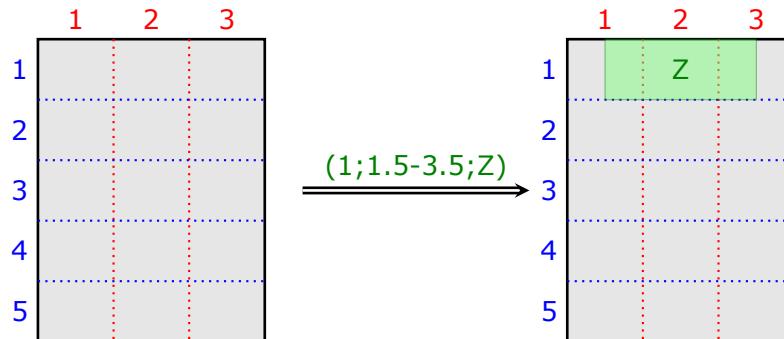
while the assignment **(1;1-2;Z)** will show the atomic number in the first row and filling the first and second columns,



It is also possible to start at a *fraction* of a line or column. If it is intended to start a line at the middle of the first column the value used should be **1.5**, which means that the start value is at the half (0.5) of the first column (1), observing that 1.5 is 0.5 plus 1:



As in the second example above it is possible to end up in a specified *fraction* of a line or column:



The row, column syntax

Both lines and columns share the same syntax, where **n** is any integer between 1 and the number of rows and **f** is the fractional part of any number between 0 and 1:

- (1) If only the row number **n** is provided the *content* is placed at the row **n**.
- (2) If the row number **n** is provided followed by a **dot** and a number **f**, the *content* is placed at the fraction **f** of the row **n**.
- (3) If the start row **n_s** and the end row **n_e** are provided separated by a **dash**, i.e., **n_s-n_e**, the *content* is placed filling all the rows from **n_s** to **n_e**.
The **dot** notation described in (2) can be used both on **n_s** and **n_e**.
- (4) All of the items above apply to columns in the same way.

✖ The cell contents

- ✓ **Z** – the atomic number of the elements.
- ✓ **name** – the name of the elements.
- ✓ **CS** – the chemical symbol of the elements.
- ✓ **Ar** – the relative atomic mass (atomic weight) of the elements.
- ✓ **Ar*** – the standard relative atomic mass (standard atomic weight) of the elements.

- ✓ **radio** – radioactivity of the elements. If the element is radioactive the figure ☢ is placed in the cell, otherwise nothing is shown.
- ✓ **R** – the atomic radius of the elements. The atomic radius shown is the calculated radius and is expressed in picometers.
- ✓ **Rcov** – the covalent radius of the elements. The covalent radius shown is for single bonds and is expressed in picometers.
- ✓ **Rion** – the ionic radius of the elements. The radius shown is the effective ionic radius in picometers.
- ✓ **Ei** – the first ionization energy of the elements, measured in $\text{kJ} \cdot \text{mol}^{-1}$. All data from rutherfordium onwards is predicted.
- ✓ **eneg** – the Pauling electronegativity of the elements.
- ✓ **eaff** – the electroaffinity (electron affinity) of the elements, measured in $\text{kJ} \cdot \text{mol}^{-1}$. Estimated negative values have been replaced by zero, since the negative ions formed in these cases are always unstable (they may have lifetimes of the order of microseconds to milliseconds, and invariably autodetach after some time).
- ✓ **O** – the common oxidation states of the elements.
- ✓ **Tmelt** – the melting point, in Kelvin, of the elements.
- ✓ **TmeltC** – the melting point, in degrees Celsius, of the elements.
- ✓ **Tboil** – the boiling point, in Kelvin, of the elements.
- ✓ **TboilC** – the boiling point, in degrees Celsius, of the elements.
- ✓ **eDist** – the electron distribution of the elements.
- ✓ **eConfign** – the electronic configuration, in increasing n (principal quantum number), of the element, corresponding to the *spectroscopic* order of orbital energies, that is, the reverse of the order in which electrons are removed from a given atom to form positive ions.

Note: the short version of the electronic configuration is used, i.e., [previous noble gas]remaining electrons. For example, for scandium it is: [Ar]3d¹4s²
- ✓ **eConfignl** – the electronic configuration, in increasing sum of n and ℓ (azimuthal quantum number), of the element, following the order based on the Madelung rule.

Note: the short version of the electronic configuration is used, i.e., [previous noble gas]remaining electrons. For example, for scandium it is: [Ar]4s²3d¹
- ✓ **d** – the density of the elements, in the corresponding physical state, at 25°C and 1 atm.
- ✓ **Cp** – the specific heat capacity of the elements in $\text{J} \cdot \text{mol}^{-1} \cdot \text{K}^{-1}$ at 25°C and 100 kPa.
- ✓ **kT** – the thermal conductivity of the elements in $\text{J} \cdot \text{m}^{-1} \cdot \text{K}^{-1}$ at 25°C.
- ✓ **Is** – the lattice structure of the elements at 1 bar and mostly at 25°C.
- ✓ **Isa** – the lattice constant a of the elements in picometers at 1 bar and mostly at 25°C.
- ✓ **Isb** – the lattice constant b of the eligible elements in picometers at 1 bar and mostly at 25°C.
- ✓ **Isc** – the lattice constant c of the eligible elements in picometers at 1 bar and mostly at 25°C.
- ✓ **Isca** – the lattice c/a ratio of the eligible elements at 1 bar and mostly at 25°C.
- ✓ **DiscY** – the discovery year of the elements.
- ✓ **DiscC** – the discovery country or in, a few cases, region (Middle East or Asia Minor) of the elements.
- ✓ **spectra** – the emission spectrum of the elements. The spectrum is only shown if available. The spectra are pre-built using the package `pgf-spectra` via the commands:

```
\pgfspectraStyle[back=visible40,line width=1pt,width=180pt,height=45pt,%
    relative intensity,relative intensity threshold=.375,%
    brightness=.5,charge=all,Imin=.125,gamma=1]
\foreach \SQ in {H,He,...,Bi,Po,Rn,Fr,...,Es}{%
    \pgfspectra[element=\SQ]{%
}}
```

✖ Built-in cell styles

There is a set of *built-in* cell styles that could be used for the described purposes:

- ✓ **pgfPT2lang** – a cell layout to use with the name in two languages.

Built-in style pgfPT2lang

The build command:

```
\pgfPTbuildcell(6,3)[%
    [(1;1-2;Z),(1;3;radio),(2-3;1.5-3.5;CS),(4-5;1-3;name),(6;1-3;Ar)]]
```

	1	2	3
1	Z		radio
2			
3		CS	
4			
5		name	
6			
7	Ar		

scale 1.6:1

- ✓ **pgfPT3lang** – a cell layout to use with the name in three languages.

Built-in style pgfPT3lang

The build command:

```
\pgfPTbuildcell(7,3)[%
    [(1;1-2;Z),(1;3;radio),(2-3;1.5-3.5;CS),(4-6;1-3;name),(7;1-3;Ar)]]
```

	1	2	3
1	Z		radio
2			
3		CS	
4			
5		name	
6			
7	Ar		

scale 1.6:1

- ✓ **pgfPTR** – a cell layout to display the atomic radius and its periodic variations (if of course the `show periodic variations` key is set to true).

Built-in style pgfPTR

The build command:

```
\pgfPTbuildcell(5,3)[%
    [(1;1-2;Z),(1;3;radio),(2-3;1.5-3.5;CS),(4;1-3;name),(5;1-3;R)]]
```

	1	2	3
1	Z		radio
2			
3		CS	
4			
5		R	

scale 1.6:1

- ✓ **pgfPTEi** – a cell layout to display the first ionization energy and its periodic variations (if of course the `show periodic variations` key is set to true).

Built-in style pgfPTEi

The build command:

```
\pgfPTbuildcell(5,3)%
```

```
[(1;1-2;Z),(1;3;radio),(2-3;1.5-3.5;CS),(4;1-3;name),(5;1-3;Ei)]
```

	1	2	3
1	Z	radio	
2		CS	
3			
4		name	
5		Ei	

scale 1.6:1

- ✓ **pgfPTeaff** – a cell layout to display the electron affinity and its periodic variations (if of course the `show periodic variations` key is set to true).

Built-in style pgfPTeaff

The build command:

```
\pgfPTbuildcell(5,3)%
```

```
[(1;1-2;Z),(1;3;radio),(2-3;1.5-3.5;CS),(4;1-3;name),(5;1-3;eaff)]
```

	1	2	3
1	Z	radio	
2		CS	
3			
4		name	
5		eaff	

scale 1.6:1

- ✓ **pgfPTREi** – a cell layout to display the atomic radius and first ionization energy and their periodic variations (if of course the `show periodic variations` key is set to true).

Built-in style pgfPTREi

The build command:

```
\pgfPTbuildcell(6,3)%
```

```
[(1;1-2;Z),(1;3;radio),(2-3;1.5-3.5;CS),(4;1-3;name),(5;1-3;R),(6;1-3;Ei)]
```

	1	2	3
1	Z	radio	
2		CS	
3			
4		name	
5		R	
6		Ei	

scale 1.6:1

- ✓ **pgfPTIs** – a cell layout to display the lattice system.

Built-in style pgfPTIs

The build command:

```
\pgfPTbuildcell(5,3)%
```

```
[(1;1-2.5;Z),(1;2.5-3;Is),(2-3;1.5-3.5;CS),(4;1-3;name),(5;1-3;Ar)]
```

	1	2	3
1	Z	Is	
2		CS	
3			
4		name	
5		Ar	

scale 1.6:1

✓ **pgfPTdisc** – a cell layout to display the discovery country and discovery year.

Built-in style pgfPTdisc

The build command:

\pgfPTbuildcell(6,3)%

[(1;1-2;Z),(1;3;radio),(2-3;1.5-3.5;CS),(4;1-3;name),(5;1-3;DiscC),(6;1-3;DiscY)]

	1	2	3
1	Z		radio
2		CS	
3			
4		name	
5		DiscC	
6		DiscY	

scale 1.6:1

Designing color schemes

There are three ways to make a new color scheme:

- with the command `\pgfPTnewColorScheme`
- using the *script* in the file [pgfPTcolorSchemes.html](#)
- with the commands provided by the [colorschemes library](#) (see the [libraries section](#)).

✖ Designing a color scheme with `\pgfPTnewColorScheme`

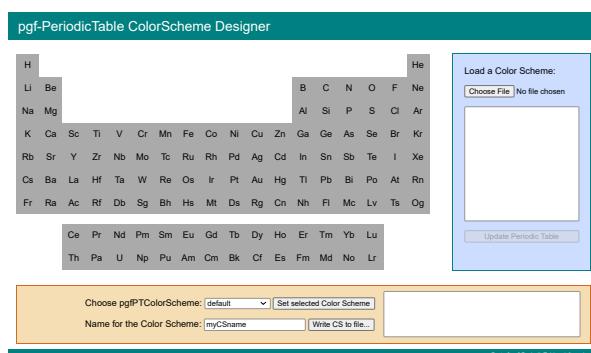
This command provides a way to set the cell background color of each of the 118 elements of the Periodic Table. *If the intention is to set the background color for all of them, it is highly recommended to use the file pgfPTcolorSchemes.html, unless the trailing color begin at a small atomic number.*

Despite that, this command can always be used taking into account:

1. It has the form `\pgfPTnewColorScheme[trailing color]{name}{color list}` where:
 - the first argument (enclosed by square brackets) is optional. If provided, the specified trailing color will be used, otherwise the default color (white) will be used as trailing color.
 - the second and third arguments are mandatory and specify, respectively, the color scheme name and the color list.
2. The **name** is any name made up of letters (only the characters a,...,z and A,...,Z).
3. The **color list** is a comma-separated list where each entry has the format **r/g/b**, representing the red, blue and green values, between 0 and 1, of the color: the first entry of the list will be the background color used in the cell of the element with atomic number 1, the second entry, the background color of the cell of the element with atomic number 2, and so on.

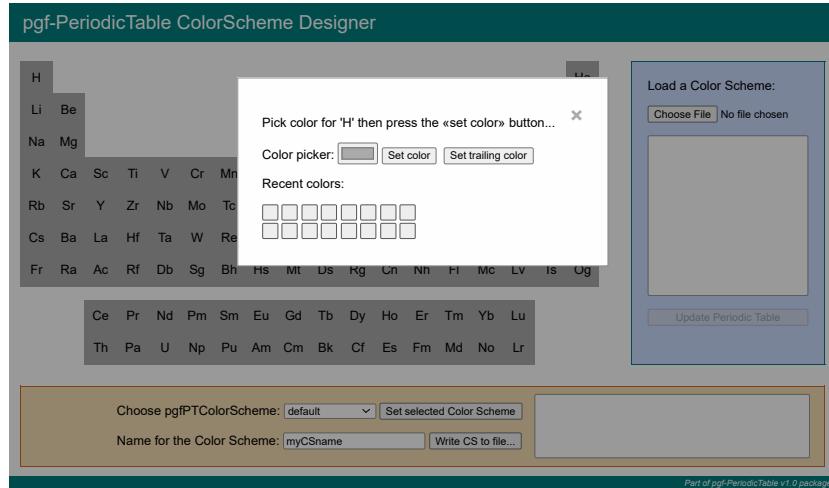
If the color list has ten entries, these entries will set the background colors of the elements with atomic numbers from 1 to 10. For the following atomic numbers, greater than or equal to 11, the trailing color will be used in the color background.

✖ Designing a color scheme with [pgfPTcolorSchemes.html](#)

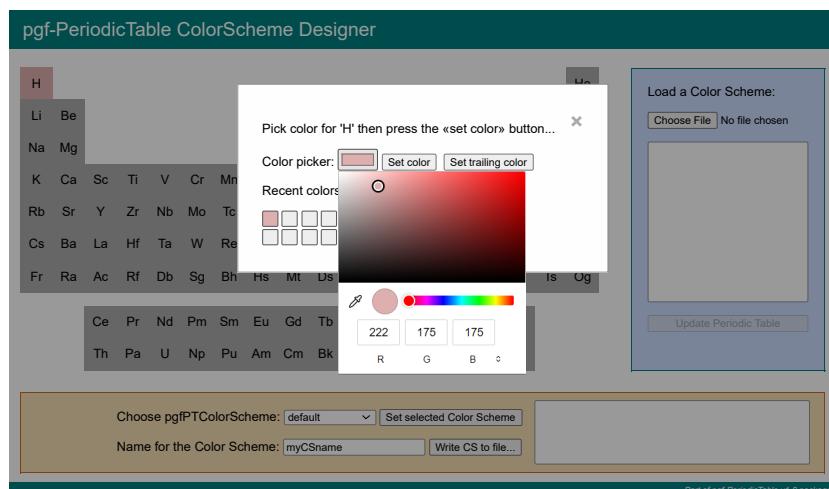


The [pgfPTcolorSchemes.html](#) designer is an *html* file with a little *javascript* code to perform the task of building a color scheme to use with the **back color scheme** key associated with the `\pgfPT` command.

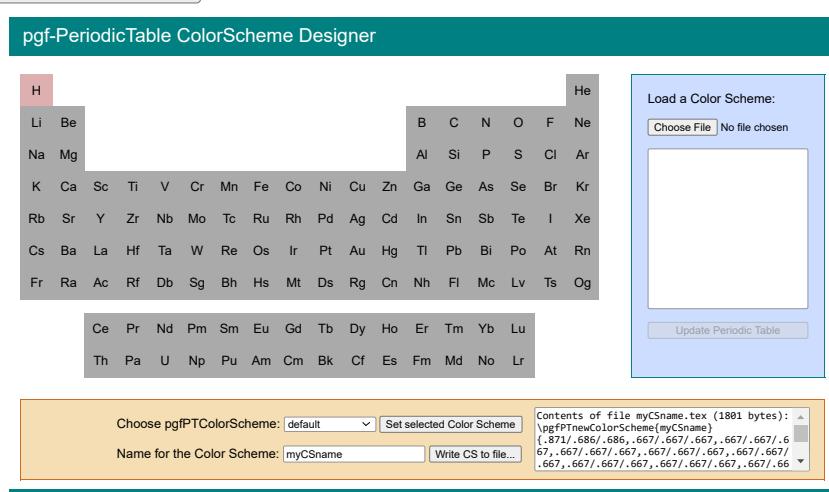
The Periodic Table of the Elements is displayed on the page and clicking on an element opens a color dialog:



Clicking on the Color picker: button opens a color dialog, where there is the possibility to choose the desired color or manually enter one color using one of the three models available (RGB, HSL or HEX):



After changing the desired colors it is possible to save the color scheme in a file by clicking on **Write CS to file...**:

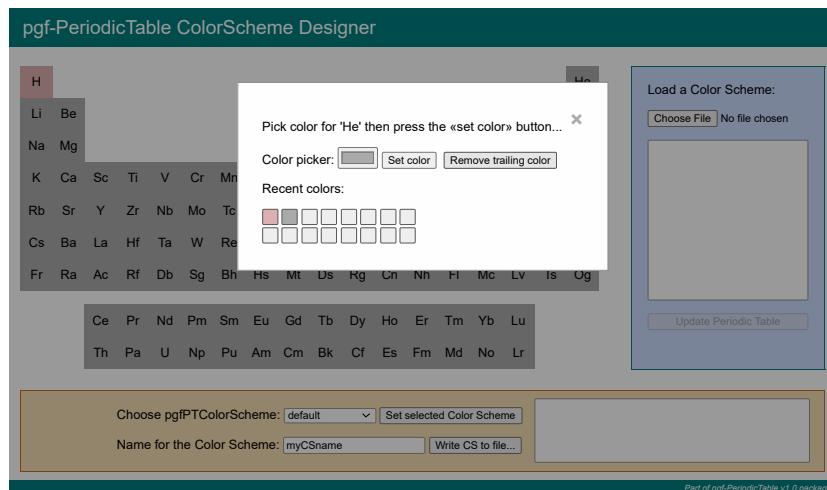


To use a color scheme saved in a file there are two possible ways:

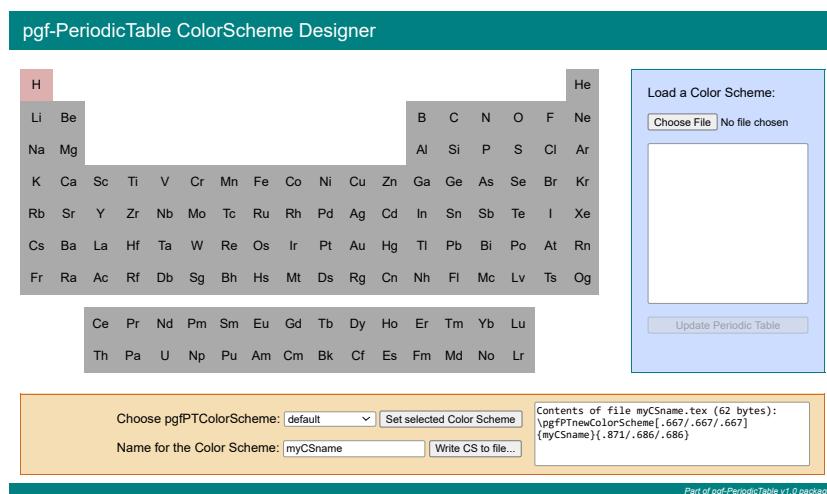
- loading the file in the working document via the `\input` L^AT_EX command, for instance, `\input{myCSname.tex}`.
- or by opening the file and copying and pasting its contents into the working document.

In either case, the operation can be performed at any location in the document, but before the named color scheme is used.

Note that in the previous example there is only one color that has been defined (for hydrogen). In that case, it is useful to set the trailing color in helium by clicking in **Set trailing color** (which automatically changes to **Remove trailing color**). After that only the hydrogen and helium are clickable, all the other elements are locked to click:



Then the saved color scheme will have the optional trailing color and the size will be smaller as only the color codes of the changed elements are stored:



To remove the trailing color click on the last enabled element (in the above case helium) and then click on **Remove trailing color**. After that, all elements can be clicked again.

It is also possible to load a color scheme saved to a file by clicking on **Choose File** and then clicking on **Update Periodic Table** for the color scheme to take effect:

pgf-PeriodicTable ColorScheme Designer

Load a Color Scheme:

Choose File CSTemp.tex

```
\pgfPTNewColorScheme{0.5/.25/.333}{colortest}
{1/1/0.5987,.5/.33/0.25,.25/.25/.57}
```

Update Periodic Table

Choose pgfPTColorScheme: default Set selected Color Scheme

Name for the Color Scheme: myCname Write CS to file...

Part of pgf-PeriodicTable v1.0 package

Finally its possible to load a built-in color scheme by choosing a named *pgfPTColorScheme* in the corresponding combo box and then clicking on **Set selected Color Scheme**:

pgf-PeriodicTable ColorScheme Designer

Load a Color Scheme:

Choose File No file chosen

Update Periodic Table

Choose pgfPTColorScheme: Soft Set selected Color Scheme

Name for the Color Scheme: myCname Write CS to file...

Part of pgf-PeriodicTable v1.0 package

All the operations described are always available.

Libraries

In this part the library packages are documented. They provide additional commands to extend the capabilities provided by this package out of the box. The libraries are not loaded by default since many users will not need them.

► Color Schemes Library

pgf-PeriodicTable Library `colorschemes`

USAGE: `\usepgfPTlibrary{colorschemes}`

This library extends the features provided by the command `\pgfPTnewColorScheme`. It defines a set of commands that automatically generate a new color scheme.

- `\pgfPTGroupColors{name of the new color scheme}{list of colors,options}`
- `\pgfPTPeriodColors{name of the new color scheme}{list of colors,options}`
- `\pgfPTCScombine[proportion,mode]{name of the first color scheme,name of the second color scheme,name of the new color scheme}`
- `\pgfPTCSwrite[filename]{list of color schemes names}`

Color arguments for this library's commands can use both the base package syntax – `namedColor` or `namedColorA##!namedColorB<##><named..>` – or any color model supported by the `xcolor` package^a using the *special syntax* `*[model:values]`, e.g., `*[rgb:.5;.2;.3]` or `*[cmyk:.5;.2;.3;.3]` or `*[HTML:5FA287]`. **The values for the individual color components of a color specified this way must be separated by semicolons instead of commas**, except for the HTML, Gray and wave color models as explained in the `xcolor` package.

^aSee Table 3: Supported color models on page 10 of the documentation of `xcolor` v2.14 2022/06/12

► `\pgfPTGroupColors[default group color]{name of the new color scheme}{list of colors,options}`

This command **creates a Color Scheme** with the name `name of the new color scheme`. **Group colors** can be configured in three different ways:

- ✓ **setting the colors one by one**, using the `key=value` mechanism in the [list of colors](#). For example:

```
\pgfPTGroupColors{name of the new color scheme}%
{G1=red,G2=red!50,G3=orange,<...>,G18=blue,options}
```

This will set the specified color for each group. If no color is specified for a group, default group color will be used.

NOTE: default group color is initially set to white.

- ✓ **defining a gradient** using the keys `left color=<color>`, `middle color=<color>` and `right color=<color>` as the [list of colors](#). Note that all the keys are optional, but at least one of them is required. This produces a gradient starting from group 1, with *left color*, to group 18, with *right color*. If the *middle color* key is used then the gradient starts at group 1 with *left color*, goes to the middle position of the groups (between groups 9 and 10) with *middle color* and ends at group 18 with *right color*. For example:

```
\pgfPTGroupColors{name of the new color scheme}%
{left color=red,right color=blue,options}
```

defines a gradient from red (group 1) to blue (group 18).

- ✓ **defining a custom gradient** as the [list of colors](#) by using the `key=value` mechanism inside the `gradient` key. For example:

```
\pgfPTGroupColors{name of the new color scheme}%
{gradient={G1=red,G4=red!50,G18=blue},options}
```

defines a gradient from red (group 1) to red!50 (group 4) and to blue (group 18).

The `options` available to this command are:

- ✓ `H=<color>`, sets the color of the *hydrogen* cell. If not set, group 1's color will be used. If set, the color of the *hydrogen* cell won't be affected by period blending.
- ✓ `La=<color>`, sets the color of the *lanthanum* cell. If not set, group 3's color will be used.
- ✓ `Lanta=<color>`, sets the color of the *lanthanoids* cells. If not set, *lanthanum*'s color will be used.
- ✓ `Ac=<color>`, sets the color of the *actinium* cell. If not set, group 3's color will be used.
- ✓ `Actin=<color>`, sets the color of the *actinoids* cells. If not set, *actinium*'s color will be used.
- ✓ `period blending={color=<color>, percentage=<positive or negative integer>, mode=<add|sub|linear>}`, performs a *mode* blend over the periods up to the specified percentage with the provided color.

NOTES:

- ✓ `percentage` refers to how much of the color, in total, was mixed over the 7 periods. For example 60% adds 10% to each period: P1►0% ~ P2►10% ~ P3►20% ~ ... ~ P7►60%. If the percentage is positive, the mixing is done in descending order (from P1 to P7); if the percentage is negative, the mixing is done in ascending order (from P7 to P1).
- ✓ The `mode`'s values are `add` for *additive* blending, `sub` for *subtractive* blending and `linear` for *linear* blending (as in the `xcolor` package).
- ✓ **If period blending is used without further options** all the default values are used, so `period blending` is equivalent to `period blending={color=white,percentage=60,mode=linear}`.
- ✓ None of the keys `color`, `percentage` and `mode` are mandatory. If omitted the default value is used.

```
\pgfPTGroupColors{example}{G1=purple!10,G3=red!10}
\pgfPT[back color scheme=example,show title=false]
```

A standard periodic table where groups 13 through 18 are highlighted in purple, groups 1 and 2 in red, and the remaining groups in black.

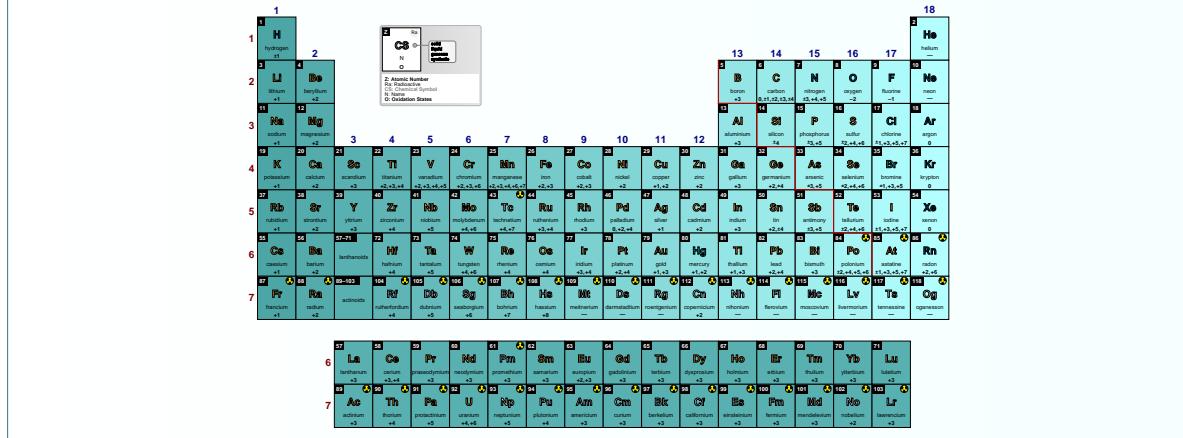
```
\pgfPTGroupColors[black!10]{example}{G1=purple!10,G3=red!10}
\pgfPT[back color scheme=example,show title=false]
```

A standard periodic table where groups 13 through 18 are highlighted in purple, groups 1 and 2 in red, and the remaining groups in black.

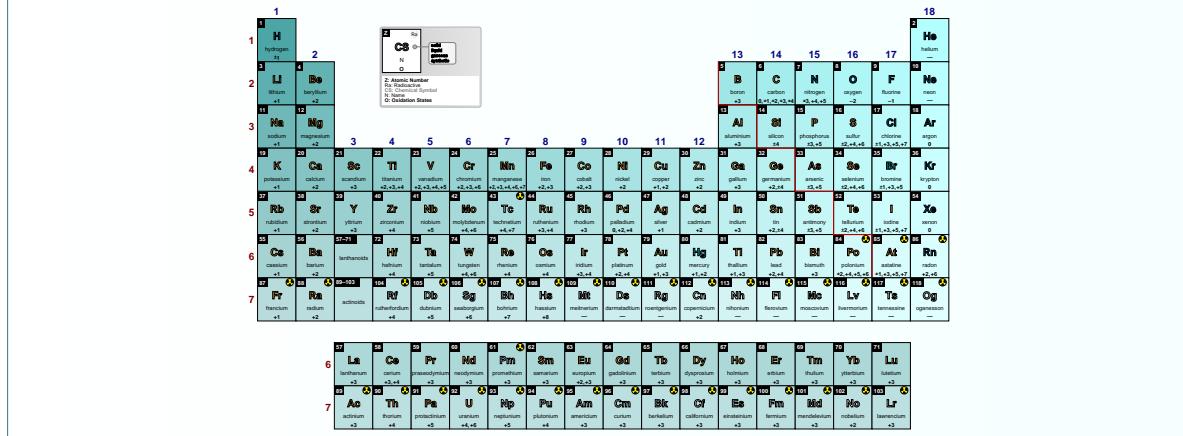
```
\pgfPTGroupColors{example}{G1=*[HTML:FFAAAA],G2=*[HTML:AA3939],
G3=*[HTML:FFD1AA],G4=*[HTML:D49A6A],G5=*[HTML:AA6C39],
G6=*[HTML:804515],G7=*[HTML:552700],G8=*[HTML:003333],
G9=*[HTML:0D4D4D],G10=*[HTML:226666],G11=*[HTML:407F7F],
G12=*[HTML:669999],G13=*[HTML:88CC88],G14=*[HTML:55AA55],
G15=*[HTML:2D882D],G16=*[HTML:116611],G17=*[HTML:004400],
G18=*[HTML:801515] }
\pgfPT[back color scheme=example,show title=false]
```

A standard periodic table where groups 13 through 18 are highlighted in purple, groups 1 and 2 in red, and the remaining groups in black.

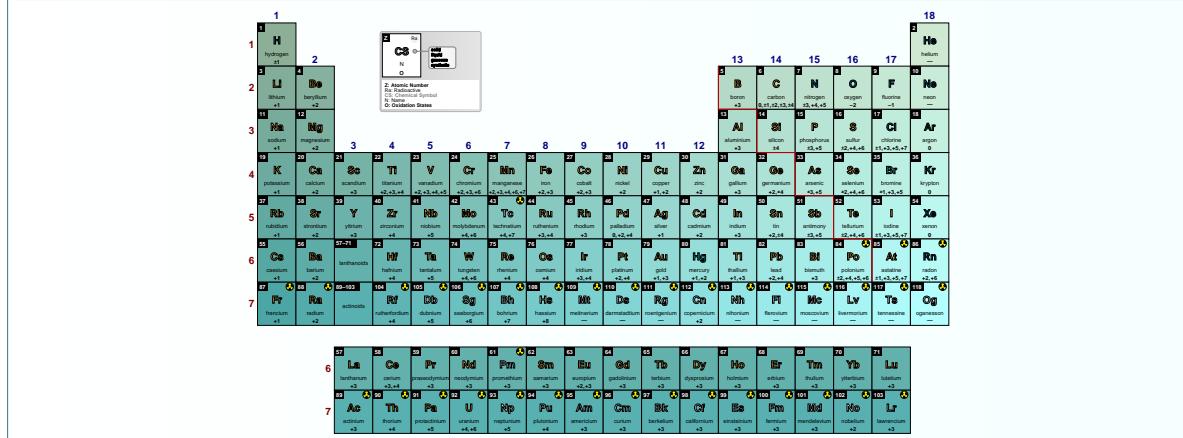
```
\pgfPTGroupColors{example}{left color=teal!70,right color=cyan!30}
\pgfPT[back color scheme=example,show title=false]
```



```
\pgfPTGroupColors{example}{left color=teal!70,right color=cyan!30,period blending}
\pgfPT[back color scheme=example,show title=false]
```



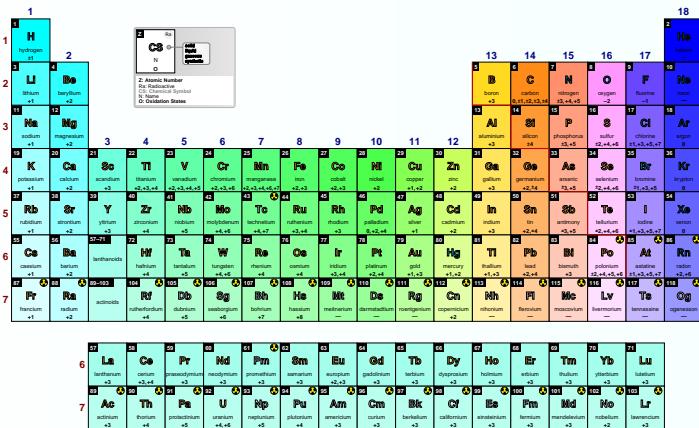
```
\pgfPTGroupColors{example}{left color=teal!70,right color=cyan!30,
period blending={color=orange!50,percentage=-40}}
\pgfPT[back color scheme=example,show title=false]
```



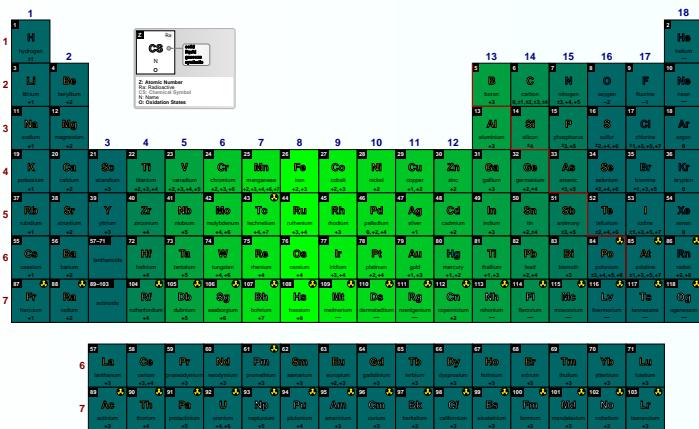
```
\pgfPTGroupColors{example}{left color=teal!70,right color=cyan!30,
period blending={color=orange!50,percentage=-40,mode=add},
H={*[cmyk:.071,0,.055,.035]}}
\pgfPT[back color scheme=example,show title=false]
```

1	H	hydrogen	e ⁻	1	Li	lithium	e ⁻	2	Be	beryllium	e ⁻	18	He	helium	—
2	Li	lithium	e ⁻	3	Be	beryllium	e ⁻	13	B	boron	e ⁻	14	C	carbon	e ⁻
3	Mg	magnesium	e ⁻	4	Si	silicon	e ⁻	15	N	nitrogen	e ⁻	16	O	oxygen	e ⁻
4	K	potassium	e ⁻	5	Ti	titanium	e ⁻	17	F	fluorine	e ⁻	18	Ne	neon	—
5	Rb	rubidium	e ⁻	6	V	chromium	e ⁻	13	Al	aluminum	e ⁻	14	Si	silicon	e ⁻
6	Ca	calcium	e ⁻	7	Cr	chromium	e ⁻	15	P	phosphorus	e ⁻	16	S	sulfur	e ⁻
7	Ge	germanium	e ⁻	8	Mn	manganese	e ⁻	17	Cl	chlorine	e ⁻	18	Ar	argon	—
8	Fr	francium	e ⁻	9	Fe	iron	e ⁻	13	Ge	germanium	e ⁻	14	Se	selenium	e ⁻
9	Ra	radium	e ⁻	10	Co	cobalt	e ⁻	15	As	arsenic	e ⁻	16	Br	bromine	e ⁻
10	Pr	praseodymium	e ⁻	11	Ni	nickel	e ⁻	17	Kr	krypton	—	18	Xe	xenon	—
11	Rb	ruthenium	e ⁻	12	Cu	copper	e ⁻	13	Zn	zinc	e ⁻	14	Ge	germanium	e ⁻
12	La	lanthanum	e ⁻	13	Re	rhenium	e ⁻	15	Ge	germanium	e ⁻	16	S	sulfur	e ⁻
13	Ac	actinium	e ⁻	14	Ta	tauton	e ⁻	17	Cl	chlorine	e ⁻	18	Ar	argon	—
14	Th	thorium	e ⁻	15	W	tin	e ⁻	13	Al	aluminum	e ⁻	14	Si	silicon	e ⁻
15	Pa	protactinium	e ⁻	16	Ru	rhodium	e ⁻	15	P	phosphorus	e ⁻	16	S	sulfur	e ⁻
16	U	uranium	e ⁻	17	Rh	rhodium	e ⁻	17	Cl	chlorine	e ⁻	18	Ar	argon	—
17	Pm	promethium	e ⁻	18	Pd	palladium	e ⁻	13	Ge	germanium	e ⁻	14	Se	selenium	e ⁻
18	Sm	samarium	e ⁻	19	Ag	silver	e ⁻	15	As	arsenic	e ⁻	16	Br	bromine	e ⁻
19	Eu	europium	e ⁻	20	Cd	cadmium	e ⁻	17	Kr	krypton	—	18	Xe	xenon	—
20	Gd	gadolinium	e ⁻	21	In	indium	e ⁻	13	Tl	thallium	e ⁻	14	Ge	germanium	e ⁻
21	Tb	thulium	e ⁻	22	Pt	platinum	e ⁻	15	Pb	lead	e ⁻	16	S	sulfur	e ⁻
22	Dy	dysprosium	e ⁻	23	Au	gold	e ⁻	17	Bi	bismuth	e ⁻	18	Ar	argon	—
23	Ho	holmium	e ⁻	24	Hg	mercury	e ⁻	13	Po	polonium	e ⁻	14	Ge	germanium	e ⁻
24	Er	erbium	e ⁻	25	Cn	copernicium	e ⁻	15	Tm	thulium	e ⁻	16	Yb	ytterbium	e ⁻
25	Lu	lutetium	e ⁻	26	Rg	roentgenium	e ⁻	17	Lu	lutetium	e ⁻	18	Og	oganesson	e ⁻
26	Ac	actinium	e ⁻	27	Th	thorium	e ⁻	13	La	lanthanum	e ⁻	14	Ce	cerium	e ⁻
27	Pa	protactinium	e ⁻	28	Pr	praseodymium	e ⁻	15	Pr	praseodymium	e ⁻	16	Nd	neodymium	e ⁻
28	U	uranium	e ⁻	29	Nd	neodymium	e ⁻	17	Pm	promethium	e ⁻	18	Eu	europium	e ⁻
29	Pm	promethium	e ⁻	30	Sm	samarium	e ⁻	13	Gd	gadolinium	e ⁻	14	Tb	thulium	e ⁻
30	Eu	europium	e ⁻	31	Tb	thulium	e ⁻	15	Dy	dysprosium	e ⁻	16	Ho	holmium	e ⁻
31	Gd	gadolinium	e ⁻	32	Ho	holmium	e ⁻	17	Er	erbium	e ⁻	18	Tm	thulium	e ⁻
32	Tb	thulium	e ⁻	33	Lu	lutetium	e ⁻	13	Yb	ytterbium	e ⁻	14	Lu	lutetium	e ⁻
33	Lu	lutetium	e ⁻	34	Ac	actinium	e ⁻	15	Og	oganesson	e ⁻	16	Ac	actinium	e ⁻
34	Th	thorium	e ⁻	35	Th	thorium	e ⁻	17	Ac	actinium	e ⁻	18	Lu	lutetium	e ⁻
35	Pa	protactinium	e ⁻	36	Pa	protactinium	e ⁻	13	La	lanthanum	e ⁻	14	Ce	cerium	e ⁻
36	U	uranium	e ⁻	37	U	uranium	e ⁻	15	Pr	praseodymium	e ⁻	16	Nd	neodymium	e ⁻
37	Pm	promethium	e ⁻	38	Sm	samarium	e ⁻	17	Gd	gadolinium	e ⁻	18	Eu	europium	e ⁻
38	Eu	europium	e ⁻	39	Tb	thulium	e ⁻	13	Tb	thulium	e ⁻	14	Dy	dysprosium	e ⁻
39	Gd	gadolinium	e ⁻	40	Ho	holmium	e ⁻	15	Ho	holmium	e ⁻	16	Er	erbium	e ⁻
40	Tb	thulium	e ⁻	41	Lu	lutetium	e ⁻	17	Tm	thulium	e ⁻	18	Yb	ytterbium	e ⁻
41	Lu	lutetium	e ⁻	42	Ac	actinium	e ⁻	13	La	lanthanum	e ⁻	14	Ce	cerium	e ⁻
42	Ac	actinium	e ⁻	43	Pr	praseodymium	e ⁻	15	Pr	praseodymium	e ⁻	16	Nd	neodymium	e ⁻
43	Pr	praseodymium	e ⁻	44	Sm	samarium	e ⁻	17	Gd	gadolinium	e ⁻	18	Eu	europium	e ⁻
44	Sm	samarium	e ⁻	45	Tb	thulium	e ⁻	13	Tb	thulium	e ⁻	14	Dy	dysprosium	e ⁻
45	Tb	thulium	e ⁻	46	Ho	holmium	e ⁻	15	Ho	holmium	e ⁻	16	Er	erbium	e ⁻
46	Ho	holmium	e ⁻	47	Lu	lutetium	e ⁻	17	Tm	thulium	e ⁻	18	Yb	ytterbium	e ⁻
47	Lu	lutetium	e ⁻	48	Ac	actinium	e ⁻	13	La	lanthanum	e ⁻	14	Ce	cerium	e ⁻
48	Ac	actinium	e ⁻	49	Pr	praseodymium	e ⁻	15	Pr	praseodymium	e ⁻	16	Nd	neodymium	e ⁻
49	Pr	praseodymium	e ⁻	50	Sm	samarium	e ⁻	17	Gd	gadolinium	e ⁻	18	Eu	europium	e ⁻
50	Sm	samarium	e ⁻	51	Tb	thulium	e ⁻	13	Tb	thulium	e ⁻	14	Dy	dysprosium	e ⁻
51	Tb	thulium	e ⁻	52	Ho	holmium	e ⁻	15	Ho	holmium	e ⁻	16	Er	erbium	e ⁻
52	Ho	holmium	e ⁻	53	Lu	lutetium	e ⁻	17	Tm	thulium	e ⁻	18	Yb	ytterbium	e ⁻
53	Lu	lutetium	e ⁻	54	Ac	actinium	e ⁻	13	La	lanthanum	e ⁻	14	Ce	cerium	e ⁻
54	Ac	actinium	e ⁻	55	Pr	praseodymium	e ⁻	15	Pr	praseodymium	e ⁻	16	Nd	neodymium	e ⁻
55	Pr	praseodymium	e ⁻	56	Sm	samarium	e ⁻	17	Gd	gadolinium	e ⁻	18	Eu	europium	e ⁻
56	Sm	samarium	e ⁻	57	Tb	thulium	e ⁻	13	Tb	thulium	e ⁻	14	Dy	dysprosium	e ⁻
57	Tb	thulium	e ⁻	58	Ho	holmium	e ⁻	15	Ho	holmium	e ⁻	16	Er	erbium	e ⁻
58	Ho	holmium	e ⁻	59	Lu	lutetium	e ⁻	17	Tm	thulium	e ⁻	18	Yb	ytterbium	e ⁻
59	Lu	lutetium	e ⁻	60	Ac	actinium	e ⁻	13	La	lanthanum	e ⁻	14	Ce	cerium	e ⁻
60	Ac	actinium	e ⁻	61	Pr	praseodymium	e ⁻	15	Pr	praseodymium	e ⁻	16	Nd	neodymium	e ⁻
61	Pr	praseodymium	e ⁻	62	Sm	samarium	e ⁻	17	Gd	gadolinium	e ⁻	18	Eu	europium	e ⁻
62	Sm	samarium	e ⁻	63	Tb	thulium	e ⁻	13	Tb	thulium	e ⁻	14	Dy	dysprosium	e ⁻
63	Tb	thulium	e ⁻	64	Ho	holmium	e ⁻	15	Ho	holmium	e ⁻	16	Er	erbium	e ⁻
64	Ho	holmium	e ⁻	65	Lu	lutetium	e ⁻	17	Tm	thulium	e ⁻	18	Yb	ytterbium	e ⁻
65	Lu	lutetium	e ⁻	66	Ac	actinium	e ⁻	13	La	lanthanum	e ⁻	14	Ce	cerium	e ⁻
66	Ac	actinium	e ⁻	67	Pr	praseodymium	e ⁻	15	Pr	praseodymium	e ⁻	16	Nd	neodymium	e ⁻
67	Pr	praseodymium	e ⁻	68	Sm	samarium	e ⁻	17	Gd	gadolinium	e ⁻	18	Eu	europium	e ⁻
68	Sm	samarium	e ⁻	69	Tb	thulium	e ⁻	13	Tb	thulium	e ⁻	14	Dy	dysprosium	e ⁻
69	Tb	thulium	e ⁻	70	Ho	holmium	e ⁻	15	Ho	holmium	e ⁻	16	Er	erbium	e ⁻
70	Ho	holmium	e ⁻	71	Lu	lutetium	e ⁻	17	Tm	thulium	e ⁻	18	Yb	ytterbium	e ⁻
71	Lu	lutetium	e ⁻	72	Ac	actinium	e ⁻	13	La	lanthanum	e ⁻	14	Ce	cerium	e ⁻
72	Ac	actinium	e ⁻	73	Pr	praseodymium	e ⁻	15	Pr	praseodymium	e ⁻	16	Nd	neodymium	e ⁻
73	Pr	praseodymium	e ⁻	74	Sm	samarium	e ⁻	17	Gd	gadolinium	e ⁻	18	Eu	europium	e ⁻
74	Sm	samarium	e ⁻	75	Tb	thulium	e ⁻	13	Tb	thulium	e ⁻	14	Dy	dysprosium	e ⁻
75	Tb	thulium	e ⁻	76	Ho	holmium	e ⁻	15	Ho	holmium	e ⁻	16	Er	erbium	e ⁻
76	Ho	holmium	e ⁻	77	Lu	lutetium	e ⁻	17	Tm	thulium	e ⁻	18	Yb	ytterbium	e ⁻
77	Lu	lutetium	e ⁻	78	Ac	actinium	e ⁻	13	La	lanthanum	e ⁻	14	Ce	cerium	e ⁻
78	Ac	actinium	e ⁻	79	Pr	praseodymium	e ⁻	15	Pr	praseodymium	e ⁻	16	Nd	neodymium	e ⁻
79	Pr	praseodymium	e ⁻	80	Sm	samarium	e ⁻	17	Gd	gadolinium	e ⁻	18	Eu	europium	e ⁻
80	Sm	samarium	e ⁻	81	Tb	thulium	e ⁻	13	Tb	thulium	e ⁻	14	Dy	dysprosium	e ⁻
81	Tb	thulium	e ⁻	82	Ho	holmium	e ⁻	15	Ho	holmium	e ⁻	16	Er	erbium	e ⁻
82	Ho	holmium	e ⁻	83	Lu	lutetium	e ⁻	17	Tm	thulium	e ⁻	18	Yb	ytterbium	e ⁻
83	Lu	lutetium	e ⁻	84	Ac	actinium	e ⁻	13	La	lanthanum	e ⁻	14	Ce	cerium	e ⁻
84	Ac	actinium	e ⁻	85	Pr	praseodymium	e ⁻	15	Pr	praseodymium	e ⁻	16	Nd	neodymium	e ⁻
85	Pr	praseodymium	e ⁻	86	Sm	samarium	e ⁻	17</td							

```
\pgfPTGroupColors{example}{gradient={G1=teal!50!black,G2=teal,G10=green,
G14=orange,G18=blue},period blending={mode=add}}
\pgfPT[back color scheme=example,show title=false]
```



```
\pgfPTGroupColors{example}{gradient={G3=teal!80!black,G16=teal!80!black,
G8=green}}
\pgfPT[back color scheme=example,show title=false]
```



Note: the group numbers can be specified in any order and the gradient can start or end in any group. In this example, the smallest group number is 3 and the greatest is 16, so the gradient is built from group 3 to group 16 and the colors from group 1 to 3 are equal to group 3's color, just like the colors from group 16 to 18 are equal to group 16's color.

▶ \pgfPTPeriodColors[default period color]{name of the new color scheme}{list of colors,options}

This command **creates a Color Scheme** with the name **name of the new color scheme**. **Period colors** can be configured in three different ways:

- ✓ **setting the colors one by one**, using the `key=value` mechanism in the **list of colors**. For example:

```
\pgfPTPeriodColors{name of the new color scheme}%
{P1=red,P2=red!50,<...>,P7=blue,options}
```

This will set the specified color for each period. If no color is specified for a period,

default period color will be used.

NOTE: default period color is initially set to white.

- ✓ **defining a gradient** using the keys `top color=<color>`, `middle color=<color>` and `bottom color=<color>` as the *list of colors*. Note that all the keys are optional, but at least one of them is required. This produces a gradient starting from period 1, with *top color*, to period 7, with *bottom color*. If the *middle color* key is used then the gradient starts at period 1 with *top color*, goes to the middle position of the periods (period 4) with *middle color* and ends at period 7 with *bottom color*. For example:

```
\pgfPTPeriodColors{name of the new color scheme}%
{top color=red,middle color=yellow,bottom color=blue,options}
```

defines a gradient from red (period 1) to yellow (period 4) and from yellow (period 4) to blue (period 7).

- ✓ **defining a custom gradient** as the *list of colors* by using the *key=value* mechanism inside the `gradient` key. For example:

```
\pgfPTPeriodColors{name of the new color scheme}%
{gradient={P1=red,P3=red!50,P7=blue},options}
```

defines a gradient from red (period 1) to red!50 (period 3) and to blue (period 7).

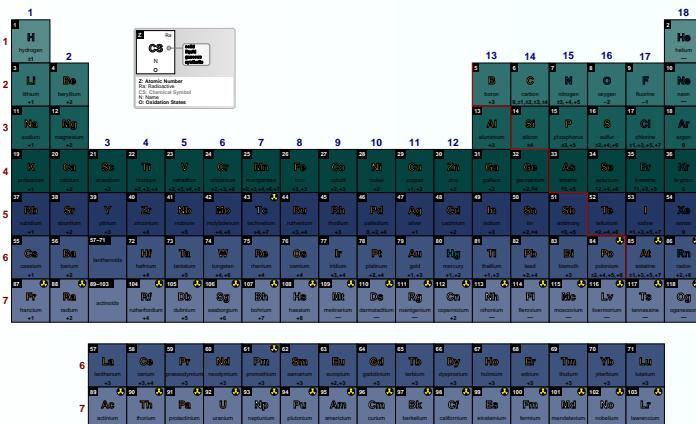
The `options` available to this command are:

- ✓ `H=<color>`, sets the color of the *hydrogen* cell. If not set, period 1's color will be used. If set, the color of the *hydrogen* cell won't be affected by group blending.
- ✓ `La=<color>`, sets the color of the *lanthanum* cell. If not set, period 6's color will be used.
- ✓ `Lanta=<color>`, sets the color of the *lanthanoids* cells. If not set, *lanthanum*'s color will be used.
- ✓ `Ac=<color>`, sets the color of the *actinium* cell. If not set, period 7's color will be used.
- ✓ `Actin=<color>`, sets the color of the *actinoids* cells. If not set, *actinium*'s color will be used.
- ✓ `group blending={color=<color>, percentage=<positive or negative integer>, mode=<add|sub|linear>}`, performs a *mode* blend over the groups up to the specified percentage with the provided color.

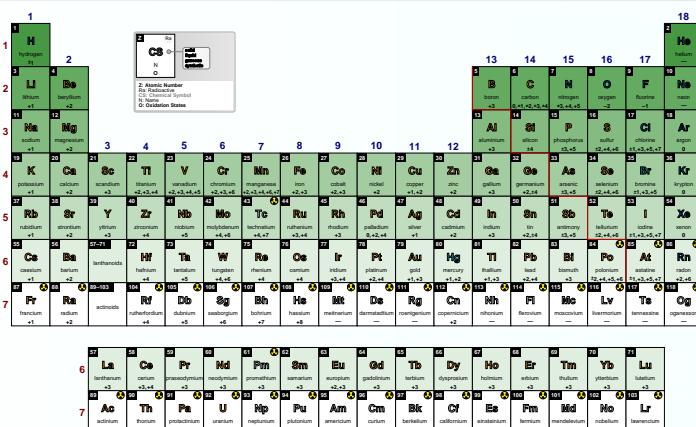
NOTES:

- ✓ `percentage` refers to how much of the color, in total, was mixed over the 18 groups. For example 68% adds 4% to each period: G1►0% ~ G2►4% ~ G3►8% ~ ... ~ G18►68%. If the percentage is positive, the mixing is done from left to right (from G1 to G18); if the percentage is negative, the mixing is done from right to left (from G18 to G1).
- ✓ The `mode`'s values are `add` for *additive* blending, `sub` for *subtractive* blending and `linear` for *linear* blending (as in the `xcolor` package).
- ✓ **If `group blending` is used without further options** all the default values are used, so `group blending` is equivalent to `group blending={color=white,percentage=68,mode=linear}`.
- ✓ None of the keys `color`, `percentage` and `mode` are mandatory. If omitted the default value is used.

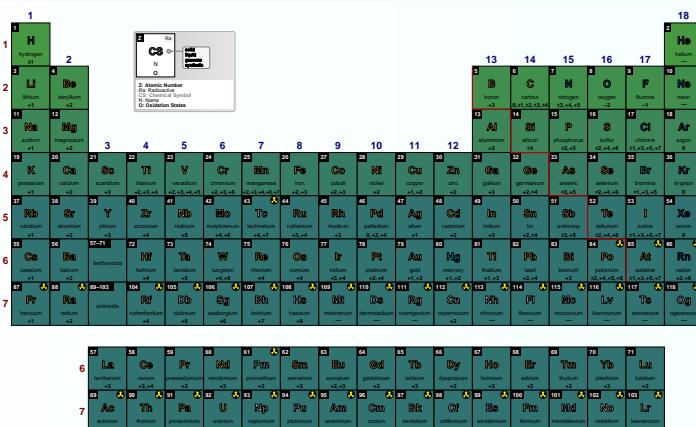
```
\pgfPTPeriodColors{example}{P1=[RGB:86;139;137],P2=[RGB:49;114;112],
P3=[RGB:23;91;88],P4=[RGB:5;67;64],P5=[RGB:35;54;100],
P6=[RGB:62;82;126],P7=[RGB:101;117;153]}
\pgfPT[back color scheme=example,show title=false]
```



```
\pgfPTPeriodColors{example}{top color=[Hsb:117;.57;.6]}
\pgfPT[back color scheme=example,show title=false]
```



```
\pgfPTPeriodColors{example}{gradient={P1=[Hsb:117;.57;.6],
P5=[Hsb:178;.57;.45]}}
\pgfPT[back color scheme=example,show title=false]
```



▶ `\pgfPTCScombine[prop1:prop2,mode]{name of color scheme one,name of color scheme two,name of the new color scheme}`

This command **combines two named Color Schemes** and merges the result into a new Color Scheme with **name of the new color scheme**.

For example `\pgfPTCScombine{myCSA,myCSB,myCSC}` adds the color scheme `myCSA` to the color scheme `myCSB` and their sum will be available as the color scheme `myCSC`.

NOTE: if the Color Schemes have different sizes (*i.e.*, different number of colors), the last color from the color scheme that ends first will be used until the other color scheme also ends.

The optional parameters `[prop1:prop2,mode]` are for controlling how the two Color Schemes are combined:

- ✓ The first parameter – `prop1:prop2` – controls the proportions used to mix the color schemes: `prop1` parts of **name of color scheme one** and `prop2` parts of **name of color scheme two**. Both `prop1` and `prop2` must be integer values between 1 and 999.

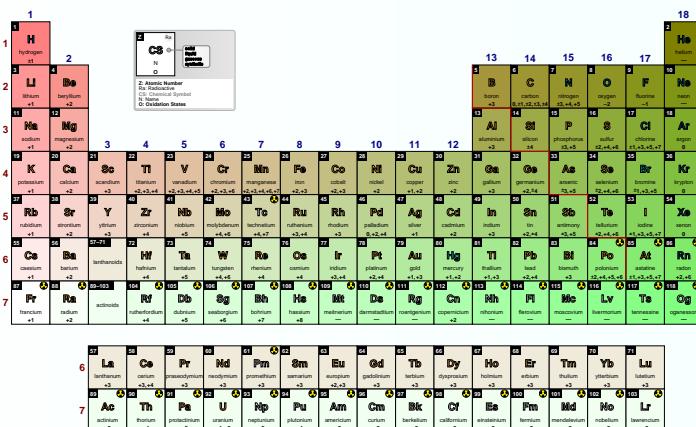
NOTE: default proportion is **1:1**.

For example, **1:4** will mix each color in the ratio of 1 to 4, *i.e.*, the *n*th-color from the first color scheme is used as 1/5 of the mixed color and the *n*th-color from the second color scheme is used as 4/5 of the mixed color.

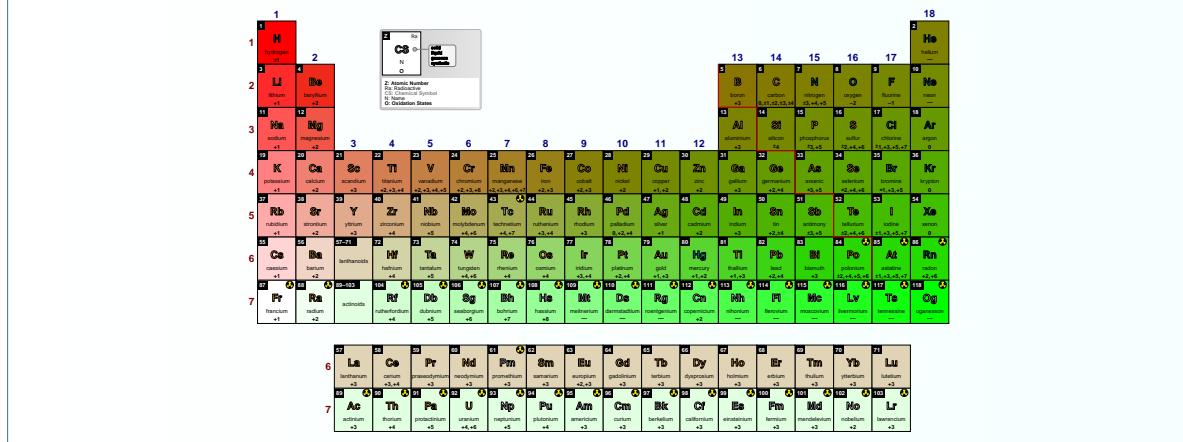
- ✓ The **mode** refers to how the colors are mixed: use `add` for *additive* mixing, `sub` for *subtractive* mixing and `linear` for *linear* mixing (as in the `xcolor` package).

NOTE: default mode is `linear`.

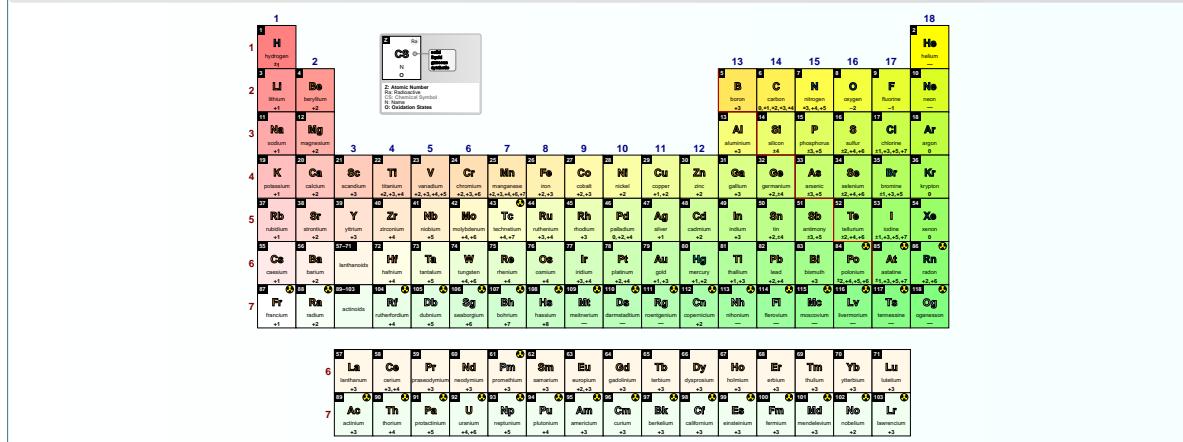
```
\pgfPTPeriodColors{period}{top color=red}
\pgfPTGroupColors{group}{right color=green}
\pgfPTCScombine{period,group,mix}
\pgfPT[back color scheme=mix,show title=false]
```



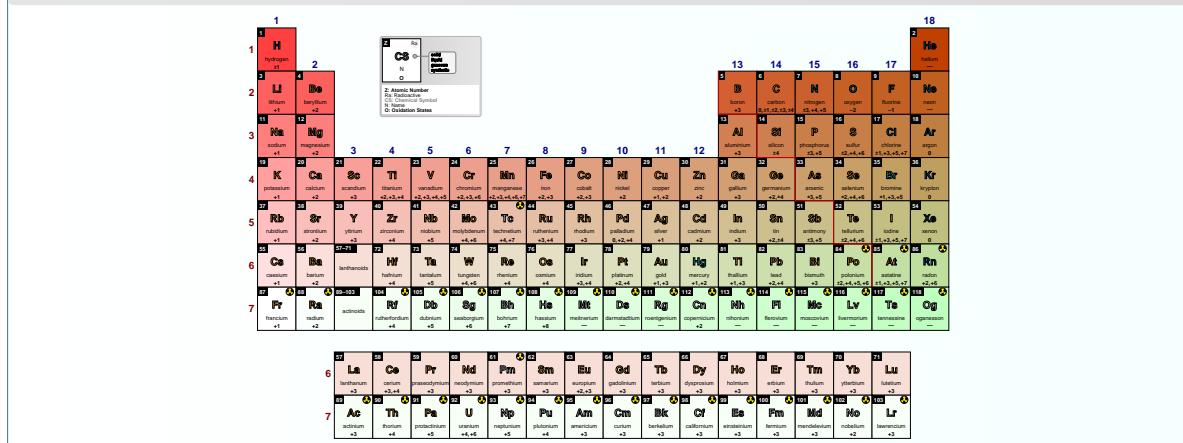
\pgfPTCScombine[sub]{period,group,mix}
\pgfPT[back color scheme=mix,show title=false]



\pgfPTCScombine[add]{period,group,mix}
\pgfPT[back color scheme=mix,show title=false]



\pgfPTCScombine[3:1]{period,group,mix}
\pgfPT[back color scheme=mix,show title=false]



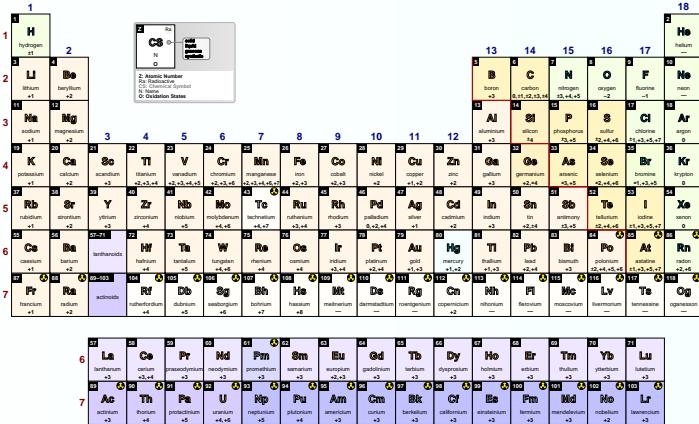
\pgfPTCScombine[3:1,add]{period,group,mix}
\pgfPT[back color scheme=mix,show title=false]

\pgfPTCScombine[add,2:3]{period,group,mix}
\pgfPT[back color scheme=mix,show title=false]

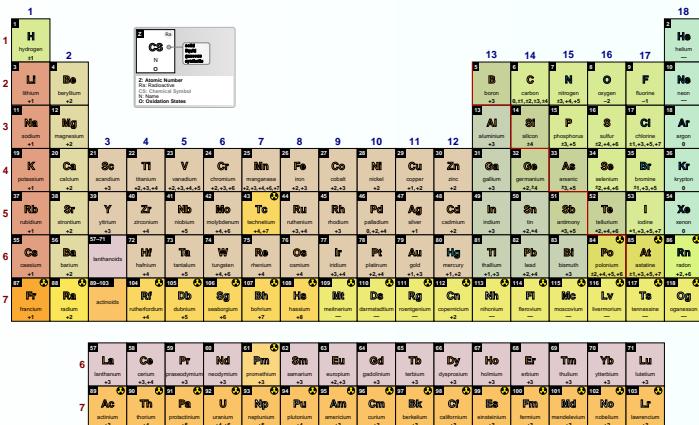
Built-in color schemes can also be mixed:

\pgfPTCScombine[add]{pgfPTSoft,group,mix}
\pgfPT[back color scheme=mix,show title=false]

```
\pgfPTCScombine[add,3:1]{pgfPTSoft,pgfPTPS,mix}
\pgfPT[back color scheme=mix,show title=false]
```



```
\pgfPTCScombine[add]{pgfPTRadio,pgfPTWikipedia,mix}
\pgfPT[back color scheme=mix,show title=false]
```



► \pgfPTCSwrite[filename]{list of color schemes names}

This command **writes the provided Color Schemes to a file** for later use without loading this library. It has a mandatory argument, the **list of the color schemes names** to be written and an optional argument, the **filename**. If no filename is provided the first name on the **list of the color schemes names** is used.

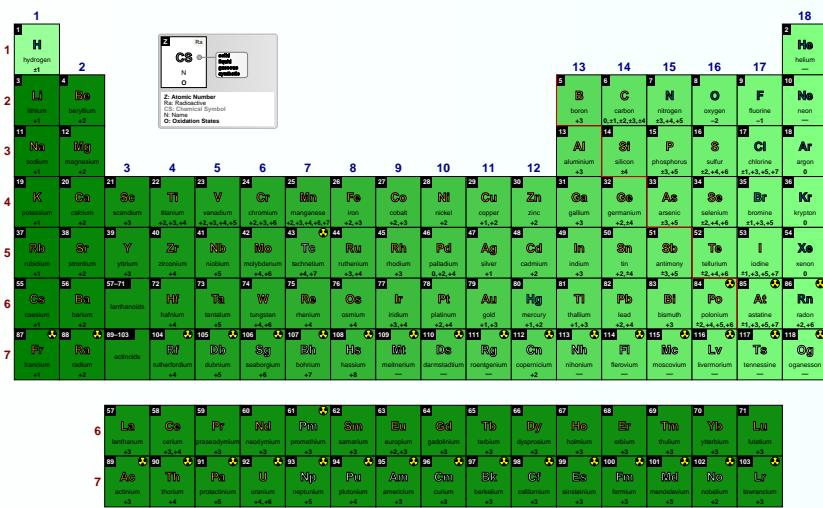
For example, \pgfPTCSwrite[myGroupColors]{myGroupGradGreenToRed,myGroupGreens, myGroupGradYellowToRed}, will create (or overwrite), in the current working directory, a file with name myGroupColors.tex with the following contents:

```
\pgfPTnewColorScheme{myGroupGradGreenToRed}{0/1/0,...}
\pgfPTnewColorScheme{myGroupGreens}{0/1/.1,...}
\pgfPTnewColorScheme{myGroupGradYellowToRed}{1/1/0,...}
```

After that, it's possible to use \input{myGroupColors.tex}, anywhere in any document (in the same working directory). The named color schemes defined in the loaded file are now available for use as usual:

```
\pgfPTPeriodColors{myGroupGradGreenToRed}{gradient={G1=green!50!black,
G18=red!30!black},H=green!40!white}
\pgfPTPeriodColors{myGroupGreens}{gradient={G1=green!50!black,
G18=green!50!white},H=green!40!white}
\pgfPTPeriodColors{myGroupGradYellowToRed}{gradient={G1=yellow!50!white,
G18=red!30!black},H=yellow!40!white}
\pgfPTCSwrite[myGroupColors]{myGroupGradGreenToRed,myGroupGreens, myGroup-
GradYellowToRed}
```

```
%\usepgfPTlibrary{colorschemes}
\input{myGroupColors.tex}
\pgfPT[back color scheme=myGroupGreens,show title=false]
```



A few more examples

The following examples could be used for students or for any other purposes.

```
\pgfPTbuildcell(8,3)% 8 rows by 3 columns
[(1;1.4-2.8;Z),(1;3;radio),(2-3;1.5-3.5;CS),(4.2;1-3;name),
(5.4;1-3;Ar),(6.5;1-3;eDist),(7.55-8.95;1-2.25;DiscC),(7.55-8.95;2.25-3.8;DiscY)]
\pgfPT
```

Periodic Table of Elements																			
1	H	hydrogen	1.001	1	1766	1	1755	2	B	beryllium	9.0122	2	1798	3	Li	lithium	6.94	1	1817
2	Be	beryllium	9.0122	2	1798	3	Na	sodium	22.99	2	1807	4	Mg	magnesium	24.305	2	1808		
3	K	potassium	39.09	2	1808	4	Ca	calcium	40.07	2	1808	5	Sc	scandium	44.96	2	1808		
4	Rb	rubidium	85.468	2	1808	5	Ti	titanium	47.87	2	1808	6	V	vanadium	50.942	2	1808		
5	Cs	caesium	132.91	2	1808	6	Cr	chromium	51.996	2	1808	7	Mn	manganese	54.95	2	1808		
6	Fr	francium	[223]	2	1808	7	Nb	niobium	92.906	2	1808	8	Fe	iron	55.845	2	1808		
7	Ra	radium	[226]	2	1808	8	Mo	molybdenum	95.95	2	1808	9	Co	cobalt	58.93	2	1808		
8	Fr	francium	[223]	2	1808	9	Tc	technetium	[96]	2	1808	10	Ni	nickel	58.69	2	1808		
9	Fr	francium	[223]	2	1808	10	Ru	ruthenium	101.07	2	1808	11	Cu	copper	63.546	2	1808		
10	Fr	francium	[223]	2	1808	11	Rh	rhodium	102.91	2	1808	12	Zn	zinc	65.38	2	1808		
11	Fr	francium	[223]	2	1808	12	Pt	platinum	103.90	2	1808	13	Ga	gallium	69.723	2	1808		
12	Fr	francium	[223]	2	1808	13	Ir	iridium	104.95	2	1808	14	Ge	germanium	74.922	2	1808		
13	Fr	francium	[223]	2	1808	14	Os	osmium	109.23	2	1808	15	As	arsenic	78.971	2	1808		
14	Fr	francium	[223]	2	1808	15	Re	rhodium	110.21	2	1808	16	S	sulfur	79.904	2	1808		
15	Fr	francium	[223]	2	1808	16	Tc	technetium	[98]	2	1808	17	O	oxygen	15.999	2	1808		
16	Fr	francium	[223]	2	1808	17	Os	osmium	111.24	2	1808	18	F	fluorine	18.998	2	1808		
17	Fr	francium	[223]	2	1808	18	Re	rhodium	112.41	2	1808	19	Ne	neon	20.18	2	1808		
18	Fr	francium	[223]	2	1808	19	Ir	iridium	113.48	2	1808	20	He	helium	40.026	2	1808		
1	La	lanthanum	139.91	2	1808	21	Lu	lutetium	174.967	2	1808	22	Li	lithium	6.94	2	1808		
2	Ce	cerium	140.12	2	1808	22	Sc	praseodymium	140.91	2	1808	23	Al	aluminum	26.982	2	1808		
3	Pr	praseodymium	141.02	2	1808	23	Ti	europium	144.24	2	1808	24	Si	silicon	28.085	2	1808		
4	Nd	neodymium	142.913	2	1808	24	V	neptunium	[145]	2	1808	25	Cl	chlorine	35.45	2	1808		
5	Pm	promethium	144.913	2	1808	25	Cr	chromium	52.00	2	1808	26	Ar	argon	39.95	2	1808		
6	Sm	samarium	150.36	2	1808	26	Mn	manganese	54.94	2	1808	27	Ne	neon	20.18	2	1808		
7	Eu	europium	151.96	2	1808	27	Fe	iron	55.845	2	1808	28	He	helium	40.026	2	1808		
8	Gd	gadolinium	157.25	2	1808	28	Co	cobalt	58.69	2	1808	29	Li	lithium	6.94	2	1808		
9	Tb	terbium	158.93	2	1808	29	Ni	nickel	59.83	2	1808	30	Br	bromine	79.904	2	1808		
10	Dy	dysprosium	162.5	2	1808	30	Cu	copper	63.55	2	1808	31	I	iodine	126.9	2	1808		
11	Tb	terbium	162.5	2	1808	31	Zn	zinc	65.38	2	1808	32	Xe	xenon	131.29	2	1808		
12	Tb	terbium	162.5	2	1808	32	Ag	silver	69.723	2	1808	33	Br	bromine	79.904	2	1808		
13	Tb	terbium	162.5	2	1808	33	Pt	platinum	104.95	2	1808	34	Cl	chlorine	35.45	2	1808		
14	Tb	terbium	162.5	2	1808	34	Ir	iridium	105.98	2	1808	35	Ar	argon	39.95	2	1808		
15	Tb	terbium	162.5	2	1808	35	Os	osmium	106.42	2	1808	36	Se	selenium	78.971	2	1808		
16	Tb	terbium	162.5	2	1808	36	Ru	ruthenium	107.97	2	1808	37	S	sulfur	32.06	2	1808		
17	Tb	terbium	162.5	2	1808	37	Pd	palladium	108.67	2	1808	38	O	oxygen	15.999	2	1808		
18	Tb	terbium	162.5	2	1808	38	Ag	silver	109.23	2	1808	39	F	fluorine	18.998	2	1808		
1	La	lanthanum	139.91	2	1808	39	Re	rhodium	110.21	2	1808	40	Ne	neon	20.18	2	1808		
2	Ce	cerium	140.12	2	1808	40	Os	osmium	111.24	2	1808	41	He	helium	40.026	2	1808		
3	Pr	praseodymium	140.91	2	1808	41	Ir	iridium	112.41	2	1808	42	Li	lithium	6.94	2	1808		
4	Nd	neodymium	144.24	2	1808	42	Tc	technetium	[98]	2	1808	43	Br	bromine	79.904	2	1808		
5	Pm	promethium	144.913	2	1808	43	V	vanadium	51.996	2	1808	44	Cl	chlorine	35.45	2	1808		
6	Sm	samarium	150.36	2	1808	44	Cr	chromium	52.00	2	1808	45	Ar	argon	39.95	2	1808		
7	Eu	europium	151.96	2	1808	45	Mn	manganese	54.94	2	1808	46	Se	selenium	78.971	2	1808		
8	Gd	gadolinium	157.25	2	1808	46	Fe	iron	55.845	2	1808	47	S	sulfur	32.06	2	1808		
9	Tb	terbium	158.93	2	1808	47	Co	cobalt	58.69	2	1808	48	O	oxygen	15.999	2	1808		
10	Dy	dysprosium	162.5	2	1808	48	Ni	nickel	59.83	2	1808	49	F	fluorine	18.998	2	1808		
11	Tb	terbium	162.5	2	1808	49	Cu	copper	63.55	2	1808	50	Ne	neon	20.18	2	1808		
12	Tb	terbium	162.5	2	1808	50	Zn	zinc	65.38	2	1808	51	He	helium	40.026	2	1808		
13	Tb	terbium	162.5	2	1808	51	Ag	silver	69.723	2	1808	52	Li	lithium	6.94	2	1808		
14	Tb	terbium	162.5	2	1808	52	Pt	platinum	104.95	2	1808	53	Br	bromine	79.904	2	1808		
15	Tb	terbium	162.5	2	1808	53	Ir	iridium	105.98	2	1808	54	Cl	chlorine	35.45	2	1808		
16	Tb	terbium	162.5	2	1808	54	Os	osmium	106.42	2	1808	55	Ar	argon	39.95	2	1808		
17	Tb	terbium	162.5	2	1808	55	Ru	ruthenium	107.97	2	1808	56	Se	selenium	78.971	2	1808		
18	Tb	terbium	162.5	2	1808	56	Pd	palladium	108.67	2	1808	57	S	sulfur	32.06	2	1808		
1	La	lanthanum	139.91	2	1808	57	Ag	silver	109.23	2	1808	58	O	oxygen	15.999	2	1808		
2	Ce	cerium	140.12	2	1808	58	Re	rhodium	110.21	2	1808	59	F	fluorine	18.998	2	1808		
3	Pr	praseodymium	140.91	2	1808	59	Os	osmium	111.24	2	1808	60	Ne	neon	20.18	2	1808		
4	Nd	neodymium	144.24	2	1808	60	Ir	iridium	112.41	2	1808	61	He	helium	40.026	2	1808		
5	Pm	promethium	144.913	2	1808	61	Tc	technetium	[98]	2	1808	62	Li	lithium	6.94	2	1808		
6	Sm	samarium	150.36	2	1808	62	V	vanadium	51.996	2	1808	63	Br	bromine	79.904	2	1808		
7	Eu	europium	151.96	2	1808	63	Cr	chromium	52.00	2	1808	64	Cl	chlorine	35.45	2	1808		
8	Gd	gadolinium	157.25	2	1808	64	Mn	manganese	54.94	2	1808	65	Ar	argon	39.95	2	1808		
9	Tb	terbium	158.93	2	1808	65	Fe	iron	55.845	2	1808	66	Se	selenium	78.971	2	1808		
10	Dy	dysprosium	162.5	2	1808	66	Co	cobalt	58.69	2	1808	67	S	sulfur	32.06	2	1808		
11	Tb	terbium	162.5	2	1808	67	Ni	nickel	59.83	2	1808	68	O	oxygen	15.999	2	1808		
12	Tb	terbium	162.5	2	1808	68	Cu	copper	63.55	2	1808	69	F	fluorine	18.998	2	1808		
13	Tb	terbium	162.5	2	1808	69	Zn	zinc	65.38	2	1808	70	Ne	neon	20.18	2	1808		
14	Tb	terbium	162.5	2	1808	70	Ag	silver	69.723	2	1808	71	He	helium	40.026	2	1808		
15	Tb	terbium	162.5	2	1808	71	Pt	platinum	104.95	2	1808	72	Li	lithium	6.94	2	1808		
16	Tb	terbium	162.5	2	1808	72	Ir	iridium	105.98	2	1808	73	Br	bromine	79.904	2	1808		
17	Tb	terbium	162.5	2	1808	73	Os	osmium	106.42	2	1808	74	Cl	chlorine	35.45	2	1808		
18	Tb	terbium	162.5	2	1808	74	Ru	ruthenium	107.97	2	1808	75	Ar	argon	39.95	2	1808		
1	La	lanthanum	139.91	2	1808	75	Pd	palladium	108.67	2	1808	76	Se	selenium	78.971	2	1808		
2	Ce	cerium	140.12	2	1808	76	Ag	silver	109.23	2	1808	77	S	sulfur	32.06	2	1808		
3	Pr	praseodymium	140.91	2	1808	77	Re	rhodium											

```
\pgfPTbuildcell(8,3)% 8 rows by 3 columns
[(1;1-2;Z),(1;3;radio),(2-3;1-3;CS),(4;1-3;name),(5;1-2.5;Ar),(5;2.5-3;spectra),
(7;1-2.5;DiscY),(7;2.5-3;DiscC),(8;1-3;eDist)]
\pgfPT[csPS,Ar label=w,background={left color=black!20}]
```

Periodic Table of Elements																		
1	H	hydrogen	1.008	1766	Austria	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
2	He	helium	4.0026	1895	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
3	Li	lithium	6.94	1755	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
4	Be	boron	9.0121	1790	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
5	Na	sodium	22.99	1807	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
6	Mg	magnesium	24.31	1807	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
7	Al	aluminum	26.982	1824	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
8	Si	silicon	28.085	1823	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
9	P	phosphorus	30.974	1824	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
10	S	sulfur	32.06	1869	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
11	Cl	chlorine	35.45	1874	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
12	Ar	argon	39.95	1894	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
13	B	boron	10.81	1808	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
14	C	carbon	12.01	1750BC	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
15	N	nitrogen	14.007	1772	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
16	O	oxygen	15.996	1771	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
17	F	fluorine	18.998	1886	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
18	Ne	neon	20.18	1898	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
19	He	helium	4.0026	1895	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
20	K	potassium	39.098	1807	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
21	Ca	calcium	40.078	1807	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
22	Sc	scandium	44.956	1911	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
23	Ti	titanium	47.867	1825	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
24	Cr	chromium	50.200	1830	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
25	Mn	manganese	54.938	1774	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
26	Fe	iron	55.845	1800BC	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
27	Co	cobalt	58.933	1821	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
28	Ni	nickel	58.693	1800BC	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
29	Cu	copper	63.546	1750BC	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
30	Zn	zinc	65.38	1824	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
31	Ga	gallium	69.723	1875	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
32	Ge	germanium	74.922	1880BC	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
33	As	arsenic	78.971	1821	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
34	Se	selenium	79.904	1857	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
35	Kr	krypton	83.80	1898	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
36	I	iodine	131.29	1861	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
37	La	lutetium	174.97	1907	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
38	Ce	cerium	140.91	1866	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
39	Pr	praseodymium	144.24	1879	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
40	Nd	neodymium	144.91	1885	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
41	Pm	promethium	146.91	1945	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
42	Sm	samarium	150.36	1949	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
43	Eu	europeum	151.96	1950	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
44	Gd	gadolinium	157.25	1951	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
45	Tb	terbium	158.93	1952	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
46	Dy	dysprosium	162.5	1958	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
47	Ho	holmium	164.93	1961	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
48	Er	erbium	167.26	1962	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
49	Tm	thulium	168.93	1963	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
50	Yb	ytterbium	173.05	1964	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
51	Lu	lutetium	174.97	1965	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
52	Ac	actinium	188.95	1902	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
53	Th	thorium	232.04	1829	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
54	Ra	radium	226	1890	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
55	Ac	actinium	227	1890	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
56	Ce	cerium	140.912	1863	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
57	La	lanthanum	138.91	1838	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
58	Pr	praseodymium	144.24	1863	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
59	Nd	neodymium	144.91	1863	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
60	Pm	promethium	146.91	1945	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
61	Sm	samarium	150.36	1949	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
62	Eu	europeum	151.96	1950	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
63	Gd	gadolinium	157.25	1951	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
64	Tb	terbium	158.93	1952	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
65	Dy	dysprosium	162.5	1958	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
66	Ho	holmium	164.93	1961	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
67	Er	erbium	167.26	1962	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
68	Tm	thulium	168.93	1963	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
69	Yb	ytterbium	173.05	1964	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
70	Lu	lutetium	174.97	1965	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
71	Ac	actinium	227	1890	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
72	Th	thorium	232.04	1829	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
73	Ra	radium	226	1890	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
74	Pa	protactinium	231.04	1913	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
75	U	uranium	238.03	1789	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
76	Np	neptunium	237	1940	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
77	Pu	plutonium	244	1940	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
78	Am	americium	243	1944	Belgium	Denmark	Egypt	France	Germany	Italy	Middle East	Peru	Russia	Spain	Sweden	Switzerland	United Kingdom	United States
79	Cm	curium</td																

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The periodic table shows elements from Hydrogen (H) to Oganesson (Og). Rows are labeled 1 through 7, and columns are labeled 1 through 18. Elements are highlighted with yellow circles containing numbers. A legend in the top-left corner defines the colors: red for Period 5, green for Group 14, and mix for the rest.

1	H	hydrogen 1.008	2	Be	beryllium 9.0122														18																																					
2	Li	lithium 6.94	3	Mg	magnesium 24.305	4	Ca	calcium 40.078	5	V	vandium 50.942	6	Cr	chromium 51.996	7	Mn	manganese 54.938	8	Fe	iron 55.845	9	Co	cobalt 58.933	10	Ni	nickel 58.933	11	Cu	copper 63.546	12	Zn	zinc 65.38	13	B	boron 10.81	14	C	carbon 12.011	15	N	nitrogen 14.007	16	O	oxygen 15.999	17	F	fluorine 18.998	18	He	helium 4.0026						
3	Na	sodium 22.99	4	Sc	scandium 44.956	5	Tl	thallium 47.987	6	V	vandium 50.942	7	Cr	chromium 51.996	8	Mn	manganese 54.938	9	Fe	iron 55.845	10	Co	cobalt 58.933	11	Ni	nickel 58.933	12	Cu	copper 63.546	13	Zn	zinc 65.38	14	Al	aluminum 26.982	15	Si	silicon 28.085	16	P	phosphorus 30.974	17	S	sulfur 32.06	18	Cl	chlorine 35.45	19	Ar	argon 39.95						
4	K	potassium 39.098	5	Ca	calcium 40.078	6	Sc	scandium 44.956	7	Tl	thallium 47.987	8	V	vandium 50.942	9	Cr	chromium 51.996	10	Mn	manganese 54.938	11	Fe	iron 55.845	12	Co	cobalt 58.933	13	Ni	nickel 58.933	14	Cu	copper 63.546	15	Zn	zinc 65.38	16	Al	aluminum 26.982	17	Si	silicon 28.085	18	P	phosphorus 30.974	19	S	sulfur 32.06	20	Cl	chlorine 35.45	21	Ar	argon 39.95			
5	Rb	rubidium 85.468	6	Sr	strontium 87.62	7	Y	yttrium 91.224	8	Zr	zirconium 92.906	9	Nb	niobium 95.95	10	Mo	molybdenum [98]	11	Tc	technetium 101.07	12	Ru	ruthenium 102.91	13	Rh	rhodium 106.42	14	Pd	palladium 107.87	15	Ag	silver 112.41	16	Cd	cadmium 114.82	17	In	indium 114.82	18	Ga	gallium 115.723	19	Ge	germanium 72.63	20	As	arsenic 74.922	21	Se	seleium 78.971	22	Br	bromine 79.904	23	Kr	krypton 83.798
6	Cs	caesium 132.91	7	Ba	barium 137.33	8	Hf	hafnium 178.49	9	Ta	tantalum 180.95	10	W	tungsten 183.84	11	Re	rhenium 186.21	12	Os	osmium 190.23	13	Ir	iridium 192.22	14	Pt	platinum 195.08	15	Au	gold 196.97	16	Hg	mercury 200.59	17	Tl	thallium 204.38	18	Pb	lead 207.2	19	Bi	bismuth 208.98	20	Po	polonium [209]	21	At	astatine [210]	22	Rn	radon [222]						
7	Fr	francium [223]	8	Ra	radium [226]	9	Ac	actinoids [227]	10	Rf	rutherfordium [267]	11	Db	dubnium [268]	12	Sy	seaborgium [269]	13	Bh	bohrium [270]	14	Hs	hassium [270]	15	Mt	meitnerium [278]	16	Ds	darmstadtium [281]	17	Rj	roentgenium [282]	18	Ts	nihonium [286]	19	Fl	florium [289]	20	Mg	moscovium [290]	21	Lv	livemorium [293]	22	Ts	tennessine [294]	23	Og	oganesson [294]						
6	La	lanthanum 138.91	7	Ce	cerium 140.12	8	Pr	praseodymium 140.91	9	Nd	neodymium 144.24	10	Pm	promethium [145]	11	Sm	samarium 150.36	12	Eu	europerium 151.96	13	Gd	gadolinium 157.25	14	Tb	terbium 158.93	15	Dy	dysprosium 162.5	16	Ho	holmium 164.93	17	Er	erbium 167.26	18	Tm	thulium 168.93	19	Yb	yterbium 173.05	20	Lu	lutetium 174.97												
7	Ac	actinium [227]	8	Th	thorium 232.04	9	Pa	protactinium 231.04	10	U	uranium 238.03	11	Np	neptunium [237]	12	Pu	plutonium [244]	13	Am	americium [243]	14	Cm	curium [247]	15	Bk	berkelium [247]	16	Cf	californium [251]	17	Ee	einsteiniun [252]	18	Fm	fermium [257]	19	Md	mendelevium [258]	20	No	nobelium [259]	21	Lr	lawrencium [266]												

In the Periodic Table, a row is called a **period** and a column is called a **group**.

Representative elements: element families



For the **representative elements** (groups **1, 2** and **13 to 18**) it is common to speak of families that reflect their common characteristics. So we have **the families**:

1	Li
2	Na
3	K
4	Rb
5	Cs
6	
7	Fr

GROUP 1: Alkali metals

► *lithium, sodium, potassium, rubidium, cesium and francium.*

The atoms of these elements **have** only **one valence electron**.

- ✓ They react violently with water to form hydroxides.
- ✓ They have a silver-gray color, with the exception of cesium, which has a golden hue.

2	Be
3	Mg
4	Ca
5	Sr
6	Ba
7	Ra

GROUP 2: Alkaline earth metals

► *beryllium, magnesium, calcium, strontium, barium and radium.*

The atoms of these elements **have two valence electrons**.

- ✓ Their oxides remain solid at high temperatures and form alkaline solutions.
- ✓ They react violently with water to form hydroxides.
- ✓ When they burn, they have reddish flames, excluding barium, which presents a greenish flame.

13	B
2	Al
3	Ga
4	In
5	Tl
6	Nb
7	

GROUP 13: Boron group

► *boron, aluminium, gallium, indium, thallium and nihonium.*

The atoms of these elements **have three valence electrons**.

- ✓ Boron is a metalloid and the other are metals.
- ✓ Boron, aluminium, gallium, indium and thallium are often used as p-type silicon dopants.
- ✓ Aluminium is the third most abundant element in the Earth's crust (7.4%).

14	C
2	Si
3	Ge
4	Sn
5	Pb
6	
7	

GROUP 14: Carbon group

► *carbon, silicon, germanium, tin, lead and flerovium.*

The atoms of these elements **have four valence electrons**.

- ✓ Carbon is a non-metal, silicon and germanium are metalloids, and tin and lead are metals.
- ✓ Silicon and germanium are used in semiconductors.

15
2
3
4
5
6
7

GROUP 15: Pnictogens

► *nitrogen, phosphorus, arsenic, antimony, bismuth and mosevium.*

The atoms of these elements **have five valence electrons**.

- ✓ Nitrogen and phosphorus are non-metals, arsenic and antimony are metalloids and bismuth is a metal.
- ✓ Phosphorus, arsenic, antimony and bismuth are often used as n-type silicon dopants.
- ✓ Diatomic nitrogen is the main constituent of the Earth's atmosphere (78%).

16
2
3
4
5
6
7

GROUP 16: Chalcogens

► *oxygen, sulfur, selenium, tellurium, polonium and livermorium.*

The atoms of these elements **have six valence electrons**.

- ✓ Oxygen, sulfur and selenium are non-metals, tellurium is a metalloid and polonium is a metal.
- ✓ Diatomic oxygen is the second constituent of the Earth's atmosphere (21%).

17
2
3
4
5
6
7

GROUP 17: Halogens

► *fluorine, chlorine, bromine, iodine, astatine and tennessine.*

The atoms of these elements **have seven valence electrons**.

- ✓ They are extremely reactive elements, as they are very electronegative.
- ✓ Fluorine is able to *attack* inert substances, including the heavier noble gas atoms.

18
1
2
3
4
5
6
7

GROUP 18: Noble gases

► *helium, neon, argon, krypton, xenon, radon and oganesson.*

The atoms of these elements have the valence shell fully filled, which corresponds to **eight valence electrons**, with the exception Helium, which has only one shell and, consequently, has **two valence electrons**.

- ✓ They are extremely inert elements, that is, they do not react with other elements, as they are the most stable elements in Nature.

For the source of this example please see the file pgf-PeriodicTableManual_Examples.tex

EXERCISE:

In the following scheme of the Periodic Table, the positions of some chemical elements are represented by letters:

THE LETTERS DO NOT CORRESPOND TO THE CHEMICAL SYMBOLS OF THE ELEMENTS.

A									B
C	D							E	
	F							G	H
I	J			K	L		M	N	O
				R			P		Q
								S	
T									

Using the letters shown:

1. identify group 2 elements of the Periodic Table.
2. identify the elements of the 2nd period of the Periodic Table.
3. identify group 17 elements of the Periodic Table.
4. identify the elements of s-block.
5. identify the elements of p-block.
6. identify the elements of d-block.
7. identify the metallic elements.
8. identify the non-metallic elements.
9. identify the transition metals.
10. identify the alkaline earth metals.
11. identify the noble gases.
12. tell which element belongs, simultaneously, to the 4th period and to group 14.
13. identify the representative elements that tend to generate positive ions.
14. indicate an element that forms binegative ions.
15. indicate the halogen whose mononegative ion has the largest radius.
16. write the chemical formula of the compound formed by the elements F and O.
17. identify, justifying, the element with the largest atomic radius.
18. identify, justifying, the element with the lowest 1st ionization energy.

For the source of this example please see the file pgf-PeriodicTableManual_Examples.tex

EXERCISE:

Using the following notation,

- for the elements in the gaseous state (NTP),
 - for the elements in the liquid state (NTP) and
 - for the synthetic elements,

fill in the following Periodic Table:

A large grid of empty squares, likely for drawing or writing practice. The grid consists of 10 columns and 10 rows of squares.

For the source of this example please see the file pgf-PeriodicTableManual_Examples.tex

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