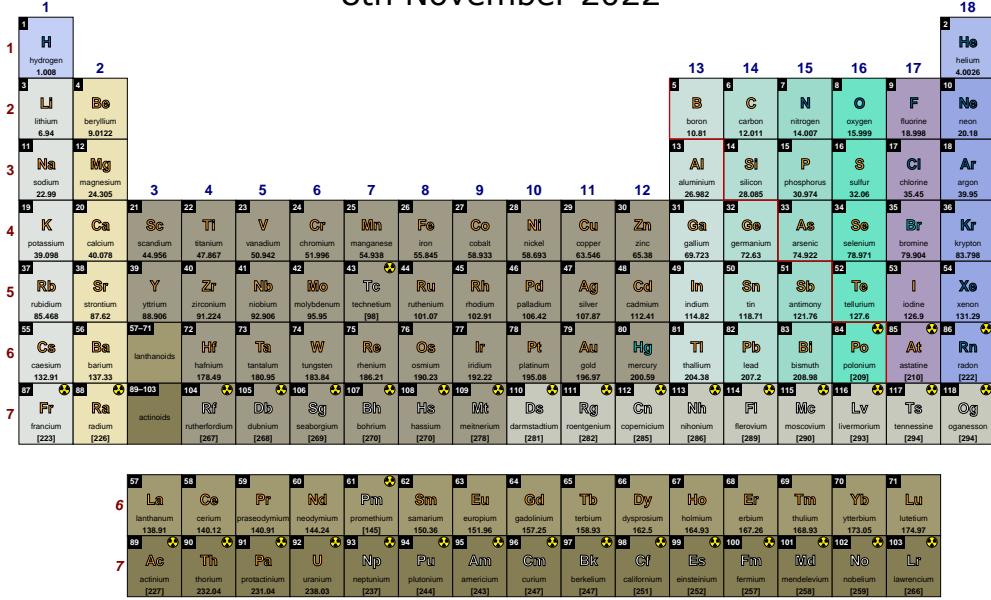


Manual for pgf-PeriodicTable 1.0.1

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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 six languages: English, French, German, Portuguese (from Portugal and from Brazil), Spanish and Italian.

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Installation and usage

`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 only requires the `TikZ` package.

You need to put the package files (`pgf-PeriodicTable.sty` & *friends*) in a location where PDFL^AT_EX, LuaL^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).

If you are using PDFL^AT_EX, LuaL^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 *one option* to select the desired language:
`\usepackage[language flag]{pgf-PeriodicTable}`

The *language flags* available are:

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

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 Iso-topic 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>	Covalente 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>eConfign</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

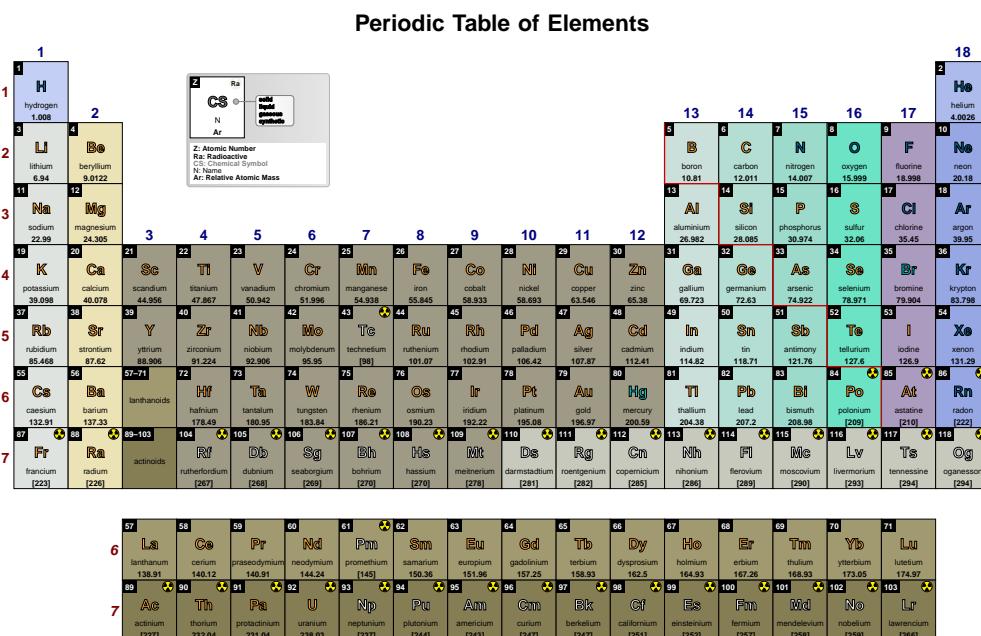
The commands to achieve the Periodic Table of Elements are:

- `\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=MNM]
```

Periodic Table of Elements

1	H	2	He
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	Sc
5	Rb	21	Ti
5	rubidium 85.468	strontium 87.62	V
37	Fr	22	Cr
7	francium [223]	strontium [226]	Mn
38	Ra	23	Fe
7	radium [226]	yttrium [267]	Co
39	Ac	24	Mo
7	actinoids [227]	zirconium [268]	Tc
40	Rf	25	Nb
7	rutherfordium [267]	niobium [269]	technetium [98]
41	Db	26	Fe
7	dubnium [268]	tungsten [270]	Co
42	Sg	27	Co
7	seaborgium [269]	rhodium [270]	nickel 58.933
43	Bh	28	Ni
7	bогорий [270]	osmium 190.23	cobalt 58.933
44	Hs	29	Cu
7	meitnerium [270]	iridium 192.22	copper 63.546
45	Mt	30	Zn
7	meitnerium [270]	rhodium 192.91	zinc 65.38
46	Ds	31	Ga
7	darmstadtium [281]	palladium 196.42	gallium 69.723
47	Rg	32	Ge
7	roentgenium [282]	silver 197.87	germanium 72.63
48	Pt	33	As
7	roentgenium [283]	platinum 195.08	arsenic 74.923
49	Am	34	Se
7	einsteinium [284]	gold 196.97	selenium 78.971
50	Hg	35	Br
7	copernicium [285]	mercury 200.59	bromine 79.904
51	Tl	36	Kr
7	thallium [286]	thallium 204.38	krypton 83.798
52	Pb	37	I
7	lead [287]	thallium 207.2	iodine 126.9
53	Bi	38	Xe
7	bismuth [289]	thallium 208.98	xenon 131.29
54	Po	39	Rn
7	polonium [290]	lead [210]	radon [222]
55	At	40	Og
7	astatine [291]	lead [210]	oganeson [294]
56	Rn	41	
7	radon [222]		
57	La	42	
6	lanthanum 138.91	cerium 140.12	
58	Ce	43	
6	cerium 138.91	praseodymium 140.91	
59	Pr	44	
6	praseodymium 140.91	neodymium 144.24	
60	Nd	45	
6	neodymium 144.24	promethium 145	
61	Pm	46	
6	promethium 145	samarium 150.36	
62	Sm	47	
6	samarium 150.36	europium 151.96	
63	Eu	48	
6	europium 151.96	gadolinium 157.25	
64	Gd	49	
6	gadolinium 157.25	terbium 158.93	
65	Tb	50	
6	terbium 158.93	dysprosium 162.5	
66	Dy	51	
6	dysprosium 162.5	holmium 164.93	
67	Ho	52	
6	holmium 164.93	erbium 167.26	
68	Er	53	
6	erbium 167.26	thulium 168.93	
69	Tm	54	
6	thulium 168.93	ytterbium 173.05	
70	Yb	55	
6	ytterbium 173.05	lutetium 174.97	
71	Lu	56	
6	lutetium 174.97	lanthanum 138.91	

► Utilization of \pgfPTstyle[options list]

This command globally sets a style for the Periodic Table:

```
\pgfPTstyle[font=ptm,IUPAC=false,show title=false]
```

```
\pgfPT
```

1	H	2	He
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	Sc
5	Rb	21	Ti
5	rubidium 85.468	strontium 87.62	V
37	Fr	22	Cr
7	francium [223]	yttrium [267]	Mn
38	Ra	23	Fe
7	radium [226]	zirconium [268]	Co
39	Ac	24	Mo
7	actinoids [227]	niobium [269]	Tc
40	Rf	25	Nb
7	rutherfordium [267]	tungsten [270]	technetium [98]
41	Db	26	Fe
7	dubnium [268]	rhodium [270]	Co
42	Sg	27	Co
7	seaborgium [269]	osmium 190.23	nickel 58.933
43	Bh	28	Ni
7	bогорий [270]	iridium 192.22	copper 63.546
44	Hs	29	Cu
7	meitnerium [270]	rhodium 192.91	zinc 65.38
45	Mt	30	Ga
7	meitnerium [270]	palladium 196.42	gallium 69.723
46	Ds	31	Ge
7	darmstadtium [281]	silver 197.87	germanium 72.63
47	Rg	32	As
7	roentgenium [282]	platinum 195.08	arsenic 74.923
48	Pt	33	Se
7	roentgenium [283]	gold 196.97	selenium 78.971
49	Am	34	Br
7	einsteinium [284]	mercury 200.59	bromine 79.904
50	Hg	35	Kr
7	copernicium [285]	thallium 204.38	krypton 83.798
51	Tl	36	I
7	thallium [286]	lead [210]	iodine 126.9
52	Pb	37	Xe
7	lead [287]	lead [210]	xenon 131.29
53	Bi	38	Rn
7	bismuth [289]	lead [210]	radon [222]
54	At	39	Og
7	astatine [291]	lead [210]	oganeson [294]
55	Rn	40	
7	radon [222]		
56	La	41	
6	lanthanum 138.91	cerium 140.12	
57	Ce	42	
6	cerium 138.91	praseodymium 140.91	
58	Pr	43	
6	praseodymium 140.91	neodymium 144.24	
59	Nd	44	
6	neodymium 144.24	promethium 145	
60	Pm	45	
6	promethium 145	samarium 150.36	
61	Sm	46	
6	samarium 150.36	europium 151.96	
62	Eu	47	
6	europium 151.96	gadolinium 157.25	
63	Gd	48	
6	gadolinium 157.25	terbium 158.93	
64	Tb	49	
6	terbium 158.93	dysprosium 162.5	
65	Dy	50	
6	dysprosium 162.5	holmium 164.93	
66	Ho	51	
6	holmium 164.93	erbium 167.26	
67	Er	52	
6	erbium 167.26	thulium 168.93	
68	Tm	53	
6	thulium 168.93	ytterbium 173.05	
69	Yb	54	
6	ytterbium 173.05	lutetium 174.97	
70	Lu	55	
6	lutetium 174.97	lanthanum 138.91	
71		56	

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

`\pgfPT[show title]`

Periodic Table of Elements



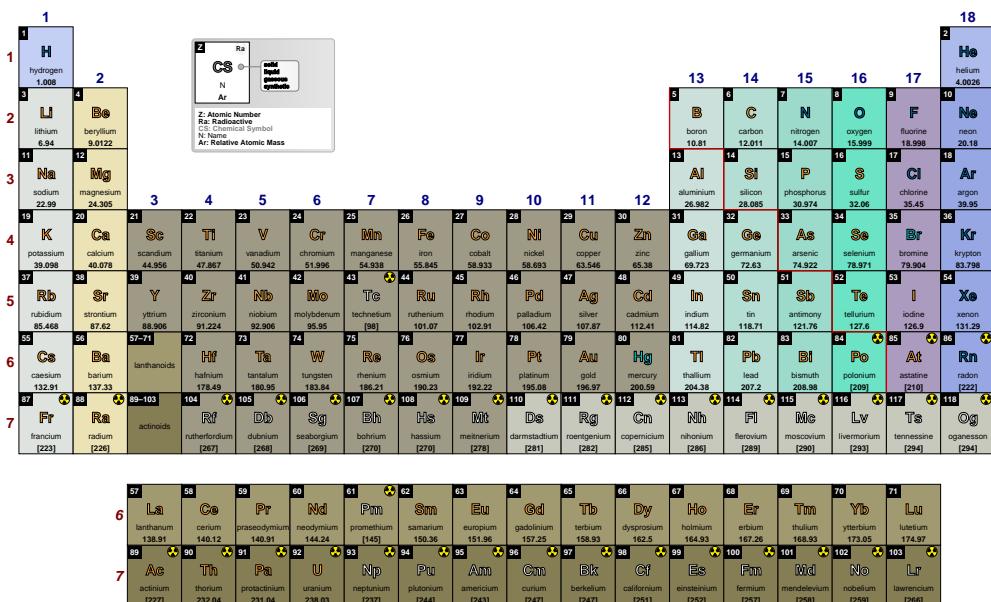
► Utilization of \pgfPTresetstyle

This command resets the style used in the Periodic Table to default values:

`\pgfPTresetstyle`

`\pgfPT`

Periodic Table of Elements



► 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`

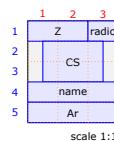
The main purpose of this command is to show the built cell for *debugging*. With `\pgfPTpreviewcell` you can preview the last unnamed built cell with an optional *scale factor*. If no cells have yet been built, the default cell is shown.

```
\pgfPTpreviewcell
```

Using the last cell built

The build command:

```
\pgfPTbuildcell(5,3)%
[(1;1-2;Z),(1;3;radio),(2-3;1.5-2.5;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!

```
\pgfPTbuilcellstyle{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	

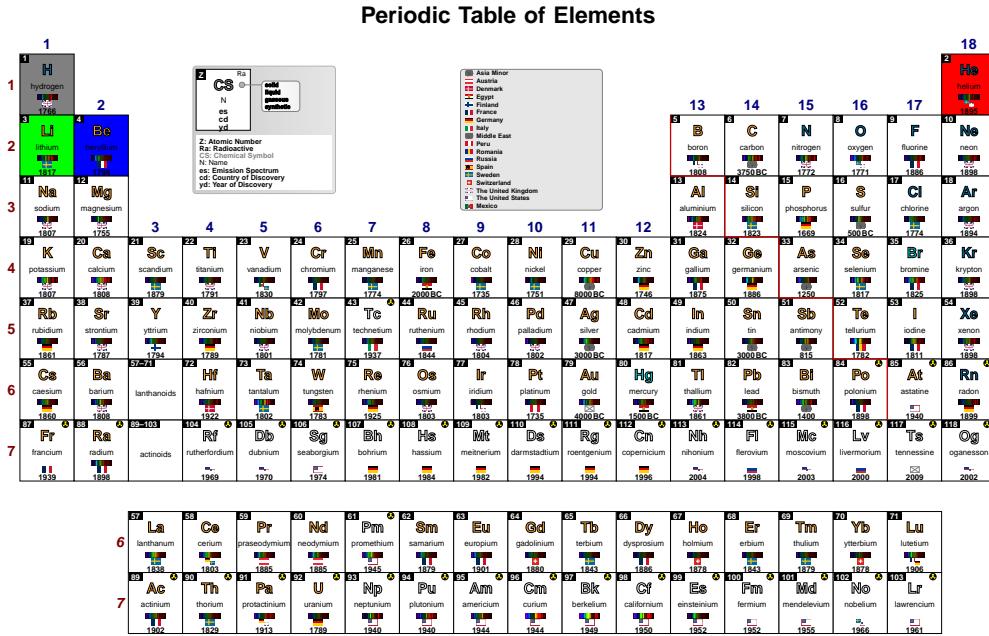
scale 2:1

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

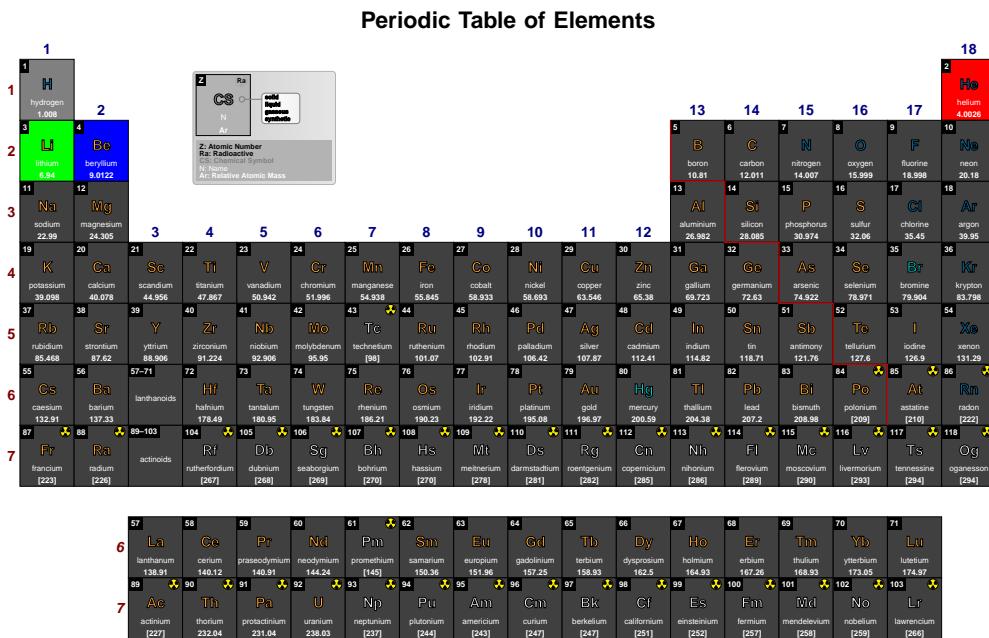
Use this command to create a *color scheme* for cells in the Periodic Table. It has two mandatory arguments – `name` and `color list` – and an optional argument – `trailing color`.

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]



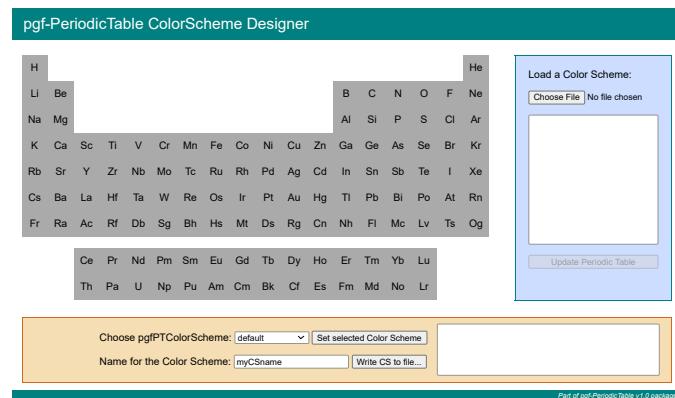
\pgfPTnewColorScheme[.25/.25/.25]{myname}{.5/.5/.5,1/0/0,0/1/0,0/0/1}
\pgfPTresetcell
\pgfPT[back color scheme=myname,name color=white, Ar color=white,legend back color=black!30]



There are a few *color schemes* predefined:

- ✓ **default**, the default built-in color scheme, which is loaded if no value is passed to the `back` color scheme key.
- ✓ **Soft**, a soft color pattern for cells, differentiating metals, non metals, semimetals, lanthanides and actinides.
- ✓ **Jmol**, a color scheme based upon [Jmol: an open-source Java viewer for chemical structures in 3D](#).
- ✓ **CPK**, 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.
- ✓ **Rasmol** and **RasmolNew**, two color schemes based upon the computer program [RasMol](#).
- ✓ **Wikipedia**, a color scheme built on the Periodic Table of Elements available at [Wikipedia](#).
- ✓ **MNM**, a color pattern which distinguishes between **Metals**, **semimetals** and **Non Metals**.
- ✓ **PS**, a color scheme depicting the **Physical State** at room temperature.
- ✓ **Radio**, a two color color scheme showing the radioactivity of the elements.
- ✓ **Blocks**, 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:

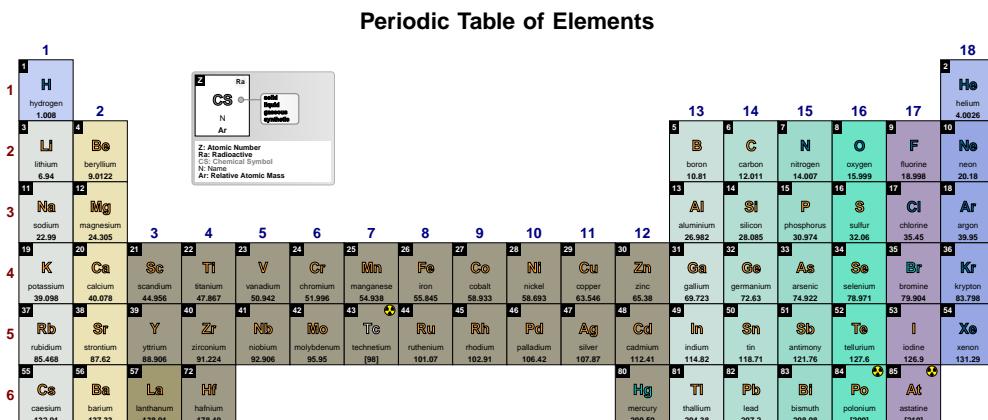


[pgfPTcolorSchemes.html](#)

► 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.

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

Tabela Periódica dos Elementos

1	H hidrógeno 1.008	2
2	Li litio 6.94	Be berílio 9.0122
3	Na sodio 22.99	Mg magnésio 24.305
4	K potássio 39.098	Ca cálcio 40.078
5	Rb rubidio 85.468	Sr estrônio 87.62
6	Cs caesium 132.91	Ba bário 137.33
7	Fr frâncio [223]	Ra rádio [226]
8	Sc escândio 44.956	Tl estânio 47.867
9	Y zirônio 88.906	Zr zircônio 91.224
10	La lanthanóides 138.91	Cr vanádico 50.942
11	Ac actínio 227	V cromo 51.996
12	Th tório 232.04	Nb nióbio 92.906
13	Pa protactínio 231.04	Mo molibdeno 95.95
14	Fm actinício 230.03	Tc tecnécio [98]
15	Pu neptúnio [237]	Ru rutenium 101.07
16	Np neptúnio [244]	Rh rhodium 102.91
17	Am americium [243]	Pd palladium 106.42
18	Gd gadolinio 150.36	Ag prata 107.87
19	Dy disprósio 162.5	Cd cadmio 112.41
20	Tb terbílio 158.93	Zn zinco 65.38
21	Ho holímero 164.93	Ga galio 69.723
22	Er erbio 167.26	Ge germanium 72.63
23	Tm thulíum 168.93	As arsénio 74.922
24	Yb iérbio 173.05	Sb selénio 78.971
25	Lu lutecio 174.97	Te telúrio 79.904
26	He hélio 4.0026	Xe xénon 131.29
27	Ne néon 20.18	Rn radônio [222]
28	Ar argônio 39.95	Oxigénio 15.999
29	F flúor 18.998	Sulfur 32.06
30	Cl cloro 35.45	At astato [210]
31	Br bromo 79.904	Rn radônio [222]
32	Kr cripton 83.798	Oxigénio 15.999
33	I iodio 126.9	Selénio 78.971
34	Se selénio 79.904	Br bromo 79.904
35	Br bromo 79.904	Kr cripton 83.798
36	Xe xénon 131.29	I iodio 126.9
37	Rn radônio [222]	Oxigénio 15.999
38	Fr frâncio [223]	Selénio 78.971
39	Ac actínio 227	Br bromo 79.904
40	Th tório 232.04	Kr cripton 83.798
41	Pa protactínio 231.04	I iodio 126.9
42	Fm actinício 230.03	Oxigénio 15.999
43	Pu neptúnio [237]	Selénio 78.971
44	Np neptúnio [244]	Br bromo 79.904
45	Am americium [243]	Kr cripton 83.798
46	Gd gadolinio 150.36	I iodio 126.9
47	Tb terbílio 158.93	Oxigénio 15.999
48	Dy disprósio 162.5	Selénio 78.971
49	Ho holímero 164.93	Br bromo 79.904
50	Er erbio 167.26	Kr cripton 83.798
51	Tm thulíum 168.93	I iodio 126.9
52	Yb iérbio 173.05	Oxigénio 15.999
53	Lu lutecio 174.97	Selénio 78.971
54	He hélio 4.0026	Br bromo 79.904
55	Ne néon 20.18	Kr cripton 83.798
56	Ar argônio 39.95	I iodio 126.9
57	La lanthanóides 138.91	Oxigénio 15.999
58	Ce cerio 140.12	Selénio 78.971
59	Pr praseodímio 140.91	Br bromo 79.904
60	Nd neodímio 144.24	Kr cripton 83.798
61	Pm prometônio [145]	I iodio 126.9
62	Sm samarium 150.36	Oxigénio 15.999
63	Eu europium 151.96	Selénio 78.971
64	Gd gadolinio 157.25	Br bromo 79.904
65	Tb terbílio 158.93	Kr cripton 83.798
66	Dy disprósio 162.5	I iodio 126.9
67	Ho holímero 164.93	Oxigénio 15.999
68	Er erbio 167.26	Selénio 78.971
69	Tm thulíum 168.93	Br bromo 79.904
70	Yb iérbio 173.05	Kr cripton 83.798
71	Lu lutecio 174.97	I iodio 126.9
72	He hélio 4.0026	Oxigénio 15.999
73	Ne néon 20.18	Selénio 78.971
74	Ar argônio 39.95	Br bromo 79.904
75	Fr frâncio [223]	Kr cripton 83.798
76	Ac actínio 227	I iodio 126.9
77	Th tório 232.04	Oxigénio 15.999
78	Pa protactínio 231.04	Selénio 78.971
79	U urâno 238.03	Br bromo 79.904
80	Np neptúnio [237]	Kr cripton 83.798
81	Pu neptúnio [244]	I iodio 126.9
82	Am americium [243]	Oxigénio 15.999
83	Mt meímerio [278]	Selénio 78.971
84	Ds darmstátio [281]	Br bromo 79.904
85	Rg roentgenio [282]	Kr cripton 83.798
86	Cn copernício [285]	I iodio 126.9
87	Nh níponio [286]	Oxigénio 15.999
88	Fl ferrovio [289]	Selénio 78.971
89	Mc moscovio [290]	Br bromo 79.904
90	Lv livermório [293]	Kr cripton 83.798
91	Ts tenesceia [294]	I iodio 126.9
92	Og oganesson [294]	Oxigénio 15.999

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

Periodic Table of Elements

1	H hydrogen 1.008	2
2	Li lithium 6.94	Be beryllium 9.0122
3	Na sodium 22.99	Mg magnesium 24.305
4	K potassium 39.098	Ca calcium 40.078
5	Rb rubidium 85.468	Sr strontium 87.62
6	Cs caesium 132.91	Ba barium 137.33
7	Fr francium [223]	Ra radium [226]
8	Sc scandium 44.956	Tl tantalum 47.867
9	Y yttrium 88.906	Zr zirconium 91.224
10	La lanthanum 138.91	Cr chromium 50.942
11	Ac actinium 227	V vanadium 51.996
12	Th thorium 232.04	Nb niobium 92.906
13	Pa protactinium 231.04	Mo molybdenum 95.95
14	Fm actinium 230.03	Tc technetium [98]
15	Pu neptunium [237]	Ru ruthenium 101.07
16	Np neptunium [244]	Rh rhodium 102.91
17	Am americium [243]	Pd palladium 106.42
18	Gd gadolinium 150.36	Ag silver 107.87
19	Dy dysprosium 162.5	Cd cadmium 112.41
20	Tb terbium 158.93	Zn zinc 65.38
21	Ho holmium 164.93	Ga gallium 69.723
22	Er erbium 167.26	Ge germanium 72.63
23	Tm thulium 168.93	As arsenic 74.922
24	Yb ytterbium 173.05	Sb tellurium 118.71
25	Lu lutecium 174.97	In indium 114.82
26	He helium 4.0026	Tl thallium 204.38
27	Ne neon 20.18	Pt platinum 195.08
28	Ar argon 39.95	Au gold 196.97
29	Fr francium [223]	Hg mercury 200.59
30	Ra radium [226]	Ag silver 207.2
31	Oxigénio 15.999	Hg mercury 204.38
32	Selénio 78.971	Pt platinum 207.2
33	Br bromo 79.904	Bi bismuth 208.98
34	Kr cripton 83.798	Pb lead 207.2
35	I iodio 126.9	Fm fermium [257]
36	Oxigénio 15.999	Md mendelevio [258]
37	Ac actinium 227	No nobelio [259]
38	Th thorium 232.04	Lr lawrencio [266]
39	Pa protactinium 231.04	Oxigénio 15.999
40	U urâno 238.03	Selénio 78.971
41	Np neptúnio [237]	Br bromo 79.904
42	Pu neptúnio [244]	Kr cripton 83.798
43	Am americium [243]	I iodio 126.9
44	Gd gadolinio 157.25	Oxigénio 15.999
45	Tb terbílio 158.93	Selénio 78.971
46	Dy dysprósio 162.5	Br bromo 79.904
47	Ho holímero 164.93	Kr cripton 83.798
48	Er erbio 167.26	I iodio 126.9
49	Tm thulíum 168.93	Oxigénio 15.999
50	Yb iérbio 173.05	Selénio 78.971
51	Lu lutecio 174.97	Br bromo 79.904
52	He hélio 4.0026	Kr cripton 83.798
53	Ne néon 20.18	I iodio 126.9
54	Ar argônio 39.95	Oxigénio 15.999
55	Fr frâncio [223]	Selénio 78.971
56	Ac actínio 227	Br bromo 79.904
57	Th tório 232.04	Kr cripton 83.798
58	Pa protactínio 231.04	I iodio 126.9
59	U urâno 238.03	Oxigénio 15.999
60	Np neptúnio [237]	Selénio 78.971
61	Pu neptúnio [244]	Br bromo 79.904
62	Am americium [243]	Kr cripton 83.798
63	Gd gadolinio 157.25	I iodio 126.9
64	Tb terbílio 158.93	Oxigénio 15.999
65	Dy dysprósio 162.5	Selénio 78.971
66	Ho holímero 164.93	Br bromo 79.904
67	Er erbio 167.26	Kr cripton 83.798
68	Tm thulíum 168.93	I iodio 126.9
69	Yb iérbio 173.05	Oxigénio 15.999
70	Lu lutecio 174.97	Selénio 78.971
71	He hélio 4.0026	Br bromo 79.904
72	Ne néon 20.18	Kr cripton 83.798
73	Ar argônio 39.95	I iodio 126.9
74	Fr frâncio [223]	Oxigénio 15.999
75	Ac actínio 227	Selénio 78.971
76	Th thorium 232.04	Br bromo 79.904
77	Pa protactinium 231.04	Kr cripton 83.798
78	U urâno 238.03	I iodio 126.9
79	Np neptúnio [237]	Oxigénio 15.999
80	Pu neptúnio [244]	Selénio 78.971
81	Am americium [243]	Br bromo 79.904
82	Mt meímerio [278]	Kr cripton 83.798
83	Ds darmstátio [281]	I iodio 126.9
84	Rg roentgenio [282]	Oxigénio 15.999
85	Cn copernício [285]	Selénio 78.971
86	Nh níponio [286]	Br bromo 79.904
87	Fl ferrovio [289]	Kr cripton 83.798
88	Mc moscovio [290]	I iodio 126.9
89	Lv livermório [293]	Oxigénio 15.999
90	Ts tenesceia [294]	Selénio 78.971
91	Og oganesson [294]	Br bromo 79.904

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
1.008		9.0122	0.0026
3	Li	4	B
6.94	beryllium	9.0122	
2	Mg	12	Ca
24.305	magnesium	20.18	calcium
3	Na	11	Al
22.99	sodium	10.81	aluminum
4	Mg	12	Si
24.305	magnesium	12.011	silicon
19	K	13	B
39.098	potassium	10.81	boron
20	Ca	14	C
40.078	calcium	12.011	carbon
21	Sc	15	N
44.958	scandium	14.007	nitrogen
22	Ti	16	O
47.867	titanium	15.999	oxygen
23	V	17	F
50.942	vanadium	18.998	fluorine
24	Cr	18	Ne
51.996	chromium	20.18	neon
25	Mn	19	Ar
54.938	manganese	39.95	argon
26	Fe	20	Kr
55.845	iron	36.95	krypton
27	Co	21	
58.933	cobalt	39.95	
28	Ni	22	
58.693	nickel	39.95	
29	Cu	23	
63.546	copper	39.95	
30	Zn	24	
65.38	zinc	39.95	
31	Ga	25	
69.723	gallium	39.95	
32	Ge	26	
72.63	germanium	39.95	
33	As	27	
74.922	arsenic	39.95	
34	Se	28	
78.911	selenium	39.95	
35		29	
		30	
36		31	
		32	
		33	
		34	
		35	
		36	

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

Periodic Table of Elements																																						
1	H	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17																					
1	hydrogen 1.008												B	C	N	O	F																					
2	lithium 6.94	Be	beryllium 9.0122										boron 10.81	carbon 12.011	nitrogen 14.007	oxygen 15.999	fluorine 18.998																					
3	Na	Mg	magnesium 24.305	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Al	Si	P	S	Cl																					
4	K	Ca	calcium 40.078	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	Aluminum 26.982	Silicon 28.085	Phosphorus 30.974	Sulfur 32.06	Chlorine 35.45	Neon 20.18																				
19	potassium 39.098	20	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr																			
21	Scandium 44.956	22	Titanium 47.867	23	Vanadium 50.942	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							
18	He	2	He	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	He	2	He	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	helium 4.0026																			helium 4.0026																		

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

Periodic Table of Elements																																																		
1	H	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17																																	
1	hydrogen 1.008												B	C	N	O	F																																	
2	lithium 6.94	Be	beryllium 9.0122										boron 10.81	carbon 12.011	nitrogen 14.007	oxygen 15.999	fluorine 18.998																																	
3	Na	Mg	magnesium 24.305	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Al	Si	P	S	Cl																																	
4	K	Ca	calcium 40.078	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	Aluminum 26.982	Silicon 28.085	Phosphorus 30.974	Sulfur 32.06	Chlorine 35.45	Neon 20.18																																
19	potassium 39.098	20	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr																															
21	Scandium 44.956	22	Titanium 47.867	23	Vanadium 50.942	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	18	He	2	He	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	helium 4.0026																			helium 4.0026																														

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

Periodic Table of Elements																																																		
1	H	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17																																	
1	hydrogen 1.008												B	C	N	O	F																																	
2	lithium 6.94	Be	beryllium 9.0122										boron 10.81	carbon 12.011	nitrogen 14.007	oxygen 15.999	fluorine 18.998																																	
3	Na	Mg	magnesium 24.305	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Al	Si	P	S	Cl																																	
4	K	Ca	calcium 40.078	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	Aluminum 26.982	Silicon 28.085	Phosphorus 30.974	Sulfur 32.06	Chlorine 35.45	Neon 20.18																																
19	potassium 39.098	20	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr																															
21	Scandium 44.956	22	Titanium 47.867	23	Vanadium 50.942	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	18	He	2	He	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	helium 4.0026																			helium 4.0026																														

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.

\pgfPTbuilcellstyle{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

fontdefault: `phv`

Sets the font family, via the proper L^AT_EX *font name*, to use in the Periodic Table. The *default* font is *phv*, i.e., the Helvetica font. The value of the **font** key can be any L^AT_EX *font name* known to the local L^AT_EX installation.

See L^AT_EX *font names* below for further details.

`\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

`\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
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

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 *frr* – Miamia Nuera font.

▷ ...

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

back color scheme

default: *default*

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

\pgfPT[back color scheme=Soft]

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	Sc	scandium	44.956
55	Cs	cesium	132.91	39	Ti	titanium	47.867
87	Fr	francium	[223]	40	V	vanadium	50.942
56	Ba	barium	137.33	21	Cr	chromium	51.996
89	Ra	radium	[226]	22	Mn	manganese	54.938
57	La	lanthanum	138.91	23	Fe	iron	55.845
89	Ac	actinium	[227]	24	Co	cobalt	58.933
58	Ce	cerium	140.12	25	Ni	nickel	58.693
90	Pr	praseodymium	140.91	26	Cu	copper	63.546
59	Th	rutherfordium	[267]	27	Zn	zinc	65.38
91	Pa	dubnium	[268]	28	Ga	gallium	69.723
60	U	seaborgium	[269]	29	Ge	germanium	72.63
92	Np	bohrium	[270]	30	As	arsenic	74.322
61	Pu	hassium	[270]	31	Si	silicon	78.974
93	Am	meitnerium	[270]	32	P	phosphorus	78.085
62	Cm	darmstadtium	[281]	33	S	sulfur	32.06
94	Es	roentgenium	[282]	34	Cl	chlorine	35.45
63	Eu	copernicium	[285]	35	F	fluorine	30.974
95	Tb	nihonium	[286]	36	Ar	argon	39.95
64	Gd	moscovium	[289]	37	Ne	neon	20.18
96	Dy	livemorium	[290]	38	He	helium	4.0026
65	Tb	tennessine	[294]	39			
66	Ho	oganesson	[294]	40			
67	Er			41			
68	Tm			42			
69	Yb			43			
70	Lu			44			
71				45			
72				46			
73				47			
74				48			
75				49			
76				50			
77				51			
78				52			
79				53			
80				54			
81				55			
82				56			
83				57			
84				58			
85				59			
86				60			

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

✓ **built-in**:

- ▷ 'Soft', a soft color scheme that distinguishes metal, non metals, silicon and germanium, lanthanoids and actinoids.
- ▷ 'Jmol', is the color scheme used in the computer software **Jmol**: an open-source Java viewer for chemical structures in 3D.
- ▷ 'CPK', 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.
- ▷ 'Rasmol', is the color scheme used in the computer software **RasMol**, a program for molecular graphics visualization originally developed by Roger Sayle.
- ▷ 'RasmolNew', is a color scheme used in RasMol with revision of CPK colors made by C. Chigbo (RasMol 2.7.3).
- ▷ 'Wikipedia', is the color scheme based on the [Wikipedia Periodic Table of Elements](#).
- ▷ 'MNM', is designed to show **Metals** and **Non Metals** in two different colors, showing also the semi-metals in a third color.
- ▷ 'PS', is designed to show the **Physical State** of the elements at normal temperature and pressure (NTP) in different colors.
- ▷ 'Radio', is designed to show the **Radioactive** elements in one color and the non radioactive elements in another color.
- ▷ 'Blocks', 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	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},back color scheme=solid,back color=black!15]`

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

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	Ra	CS	N	Ar	Z: Atomic Number Ra: Radioactive Cs: Chemical Symbol N: Name Ar: Relative Atomic Mass
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	Sc	scandium	44.956		
55	Cs	caesium	132.88	39	Ti	titanium	47.867		
7	Fr	francium	[223]	40	V	vanadium	50.942		
49	Ra	radium	[226]	21	Cr	chromium	51.996		
57	La	lanthanum	138.91	22	Mn	manganese	54.938		
58	Ce	cerium	140.12	23	Fe	iron	55.845		
59	Pr	praseodymium	140.91	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	158.93	30	As	arsenic	74.922		
66	Dy	dysprosium	162.5	31	Se	selenium	78.971		
67	Ho	holmium	164.93	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	172.05	35	Rn	radon	222		
71	Lu	lutetium	174.97	36	Og	oganeson	[294]		
6	La	lanthanum	138.91	58	Ce	cerium	140.12		
59	Pr	praseodymium	140.91	59	Pr	neodymium	144.24		
60	Nd	neodymium	144.24	61	Pm	promethium	[145]		
61	Sm	samarium	150.36	62	Sm	samarium	150.36		
62	Eu	europeum	151.96	63	Eu	europeum	151.96		
63	Gd	gadolinium	157.25	64	Tb	terbium	158.93		
64	Tb	terbium	158.93	65	Dy	dysprosium	162.5		
65	Dy	dysprosium	162.5	66	Ho	holmium	164.93		
66	Ho	holmium	164.93	67	Er	erbium	167.26		
67	Er	erbium	167.26	68	Tm	thulium	168.93		
68	Tm	thulium	168.93	69	Yb	yterbium	172.05		
69	Yb	yterbium	172.05	70	Lu	lutetium	174.97		
70	Lu	lutetium	174.97	71	Og	oganeson	[294]		
71	Og	oganeson	[294]	57	La	lanthanum	138.91		
72	Ce	cerium	140.12	58	Pr	praseodymium	140.91		
73	Pr	praseodymium	140.91	59	Nd	neodymium	144.24		
74	U	uranium	238.03	60	Np	neptunium	[237]		
75	Np	neptunium	[237]	61	Pu	plutonium	[244]		
76	Pu	plutonium	[244]	62	Am	americium	[243]		
77	Am	americium	[243]	63	Cm	curium	[247]		
78	Cm	curium	[247]	64	Bk	berkelium	[247]		
79	Bk	berkelium	[247]	65	Cf	californium	[251]		
80	Cf	californium	[251]	66	Es	einsteinium	[252]		
81	Es	einsteinium	[252]	67	Fm	fermium	[257]		
82	Fm	fermium	[257]	68	Md	mendelevium	[258]		
83	Md	mendelevium	[258]	69	No	nobelium	[259]		
84	No	nobelium	[259]	70	Lr	lawrencium	[266]		
85	Lr	lawrencium	[266]	71	Og	oganeson	[294]		
7	Ac	actinium	[227]	57	Th	thorium	232.04		
86	Ac	actinium	[227]	58	Pa	protactinium	231.04		
87	Th	thorium	232.04	59	U	uranium	238.03		
88	Pa	protactinium	231.04	60	Np	neptunium	[237]		
89	U	uranium	238.03	61	Pu	plutonium	[244]		
90	Np	neptunium	[237]	62	Am	americium	[243]		
91	Pu	plutonium	[244]	63	Cm	curium	[247]		
92	Am	americium	[243]	64	Bk	berkelium	[247]		
93	Cm	curium	[247]	65	Cf	californium	[251]		
94	Bk	berkelium	[247]	66	Es	einsteinium	[252]		
95	Cf	californium	[251]	67	Fm	fermium	[257]		
96	Es	einsteinium	[252]	68	Md	mendelevium	[258]		
97	Fm	fermium	[257]	69	No	nobelium	[259]		
98	Md	mendelevium	[258]	70	Lr	lawrencium	[266]		
99	No	nobelium	[259]	71	Og	oganeson	[294]		
100	Lr	lawrencium	[266]	72	Og	oganeson	[294]		

\pgfPT[csSolid=black!15]

Periodic Table of Elements

1	H	hydrogen	1.008	2	Ra	CS	N	Ar	Z: Atomic Number Ra: Radioactive Cs: Chemical Symbol N: Name Ar: Relative Atomic Mass
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	Sc	scandium	44.956		
55	Cs	caesium	132.88	39	Ti	titanium	47.867		
7	Fr	francium	[223]	40	V	vanadium	50.942		
49	Ra	radium	[226]	21	Cr	chromium	51.996		
57	La	lanthanum	138.91	58	Mn	manganese	54.938		
58	Ce	cerium	140.12	59	Fe	iron	55.845		
59	Pr	praseodymium	140.91	60	Co	cobalt	58.933		
60	Nd	neodymium	144.24	61	Ni	nickel	58.693		
61	Pm	promethium	[145]	62	Cu	copper	63.546		
62	Sm	samarium	150.36	63	Zn	zinc	65.38		
63	Eu	europeum	151.96	64	Ga	gallium	69.723		
64	Gd	gadolinium	157.25	65	Ge	germanium	72.63		
65	Tb	terbium	158.93	66	As	arsenic	74.922		
66	Dy	dysprosium	162.5	67	Se	selenium	78.971		
67	Ho	holmium	164.93	68	Br	bromine	79.904		
68	Er	erbium	167.26	69	I	iodine	126.9		
69	Tm	thulium	168.93	70	Xe	xenon	131.29		
70	Yb	yterbium	172.05	71	Rn	radon	222		
71	Lu	lutetium	174.97	72	Og	oganeson	[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	europeum	151.96	64	Eu	europeum	151.96		
65	Gd	gadolinium	157.25	66	Tb	terbium	158.93		
67	Dy	dysprosium	162.5	68	Ho	holmium	164.93		
69	Er	erbium	167.26	70	Er	erbium	167.26		
71	Tm	thulium	168.93	72	Tm	thulium	168.93		
72	Yb	yterbium	172.05	73	Yb	yterbium	172.05		
74	Lu	lutetium	174.97	75	Og	oganeson	[294]		
76	Og	oganeson	[294]	77	Og	oganeson	[294]		
78	Og	oganeson	[294]	79	Og	oganeson	[294]		
80	Og	oganeson	[294]	81	Og	oganeson	[294]		
82	Og	oganeson	[294]	83	Og	oganeson	[294]		
84	Og	oganeson	[294]	85	Og	oganeson	[294]		
86	Og	oganeson	[294]	87	Og	oganeson	[294]		
88	Og	oganeson	[294]	89	Og	oganeson	[294]		
90	Og	oganeson	[294]	91	Og	oganeson	[294]		
92	Og	oganeson	[294]	93	Og	oganeson	[294]		
94	Og	oganeson	[294]	95	Og	oganeson	[294]		
96	Og	oganeson	[294]	97	Og	oganeson	[294]		
98	Og	oganeson	[294]	99	Og	oganeson	[294]		
100	Og	oganeson	[294]	101	Og	oganeson	[294]		

csSoft*no value*

A style equivalent to back color scheme=Soft

\pgfPT[csSoft]

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	vandium	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	Se	selenium	78.971
23	Br	bromine	79.904
24	Kr	krypton	83.798
25	Ba	barium	87.62
26	Rb	rubidium	85.468
27	Sr	strontium	88.906
28	Y	yttrium	91.224
29	Zr	zirconium	92.906
30	Nb	niobium	95.95
31	Mo	molybdenum	95.95
32	Tc	technetium	[98]
33	Ru	ruthenium	101.07
34	Rh	rhodium	102.91
35	Pd	palladium	106.42
36	Ag	silver	107.87
37	Cd	cadmium	112.41
38	In	indium	114.82
39	Sn	tin	118.71
40	Sb	antimony	121.76
41	Te	tellurium	127.6
42	I	iodine	126.9
43	Xe	xenon	131.29
44	Cs	caesium	132.91
45	Ba	barium	137.33
46	Rb	radium	[226]
47	Sr	actinoids	[227]
48	Y	rutherfordium	[267]
49	Zr	dubnium	[268]
50	Nb	seaborgium	[269]
51	Mo	bohrium	[270]
52	Tc	hassium	[270]
53	Ru	meitnerium	[278]
54	Rh	darmstadtium	[281]
55	Pd	roentgenium	[282]
56	Ag	copernicium	[285]
57	Cd	nihonium	[286]
58	In	florium	[289]
59	Sn	moscovium	[290]
60	Sb	livemorium	[293]
61	Te	tennessine	[294]
62	I	oganesson	[294]
63	La	lanthanum	138.9
64	Ce	cerium	140.12
65	Pr	praseodymium	140.91
66	Nd	neodymium	144.24
67	Pm	promethium	[145]
68	Sm	samarium	150.36
69	Eu	european	151.96
70	Gd	gadolinium	157.25
71	Tb	terbium	158.93
72	Dy	dysprosium	162.5
73	Ho	holmium	164.95
74	Tm	thulium	168.93
75	Yb	yterbium	173.05
76	Lu	lutetium	174.97
77	La	lanthanum	138.9
78	Ce	cerium	140.12
79	Pr	praseodymium	140.91
80	Nd	neodymium	144.24
81	Pm	promethium	[145]
82	Sm	samarium	150.36
83	Eu	european	151.96
84	Gd	gadolinium	157.25
85	Tb	terbium	158.93
86	Dy	dysprosium	162.5
87	Ho	holmium	164.95
88	Tm	thulium	168.93
89	Yb	yterbium	172.05
90	Lu	lutetium	174.97
91	La	lanthanum	138.9
92	Ce	cerium	140.12
93	Pr	praseodymium	140.91
94	Nd	neodymium	144.24
95	Pm	promethium	[145]
96	Sm	samarium	150.36
97	Eu	european	151.96
98	Gd	gadolinium	157.25
99	Tb	terbium	158.93
100	Dy	dysprosium	162.5
101	Ho	holmium	164.95
102	Tm	thulium	168.93
103	Yb	yterbium	172.05
104	Lu	lutetium	174.97

csJmol*no value*

A style equivalent to back color scheme=Jmol

\pgfPT[csJmol]

Periodic Table of Elements

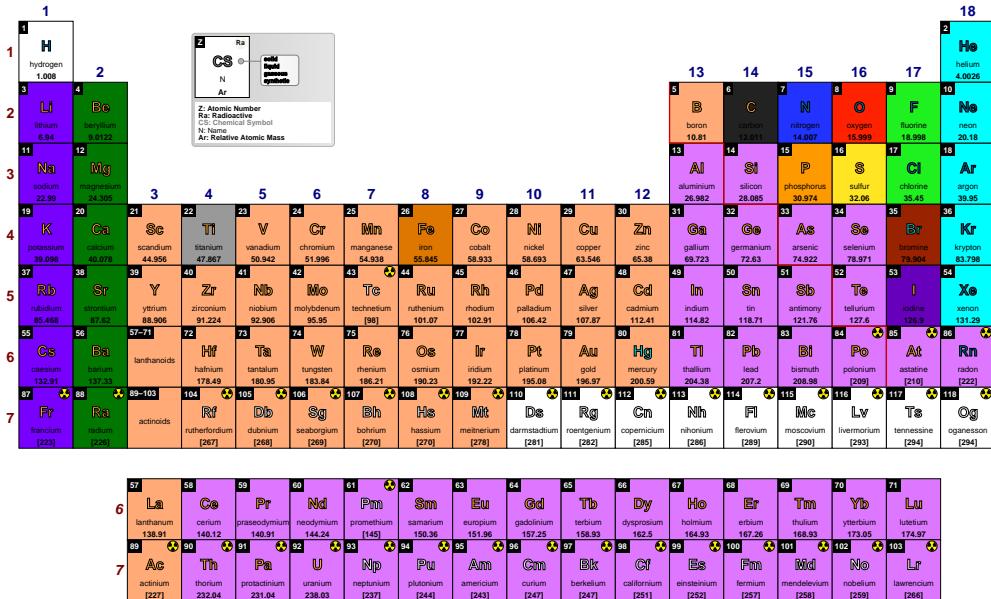
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2	He	helium	4.0026
3	Li	lithium	6.94
4	Be	beryllium	9.0122
5	Na	sodium	22.99
6	Mg	magnesium	24.305
7	K	potassium	39.098
8	Ca	calcium	40.078
9	Sc	scandium	44.956
10	Ti	titanium	47.867
11	V	vandium	50.942
12	Cr	chromium	51.996
13	Mn	manganese	54.938
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	Se	selenium	78.971
23	Br	bromine	79.904
24	Kr	krypton	83.798
25	Ba	barium	87.62
26	Rb	rubidium	85.468
27	Sr	strontium	88.906
28	Y	yttrium	91.224
29	Zr	zirconium	92.906
30	Nb	niobium	95.95
31	Mo	molybdenum	[98]
32	Tc	technetium	101.07
33	Ru	ruthenium	102.91
34	Rh	rhodium	106.42
35	Pd	palladium	107.87
36	Ag	silver	112.41
37	Cd	cadmium	114.82
38	In	indium	118.71
39	Sn	tin	121.76
40	Sb	antimony	127.6
41	Te	tellurium	131.29
42	I	iodine	131.29
43	Xe	xenon	[227]
44	Cs	caesium	132.91
45	Ba	barium	137.33
46	Rb	radium	[226]
47	Sr	actinoids	[227]
48	Y	rutherfordium	[267]
49	Zr	dubnium	[268]
50	Nb	seaborgium	[269]
51	Mo	bohrium	[270]
52	Tc	hassium	[270]
53	Ru	meitnerium	[278]
54	Rh	darmstadtium	[281]
55	Pd	roentgenium	[282]
56	Ag	copernicium	[285]
57	Cd	nihonium	[286]
58	In	florium	[289]
59	Sn	moscovium	[290]
60	Sb	livemorium	[293]
61	Te	tennessine	[294]
62	I	oganesson	[294]
63	La	lanthanum	138.9
64	Ce	cerium	140.12
65	Pr	praseodymium	140.91
66	Nd	neodymium	144.24
67	Pm	promethium	[145]
68	Sm	samarium	150.36
69	Eu	european	151.96
70	Gd	gadolinium	157.25
71	Tb	terbium	158.93
72	Dy	dysprosium	162.5
73	Ho	holmium	164.93
74	Tm	thulium	167.26
75	Yb	yterbium	172.05
76	Lu	lutetium	174.97
77	La	lanthanum	138.9
78	Ce	cerium	140.12
79	Pr	praseodymium	140.91
80	Nd	neodymium	144.24
81	Pm	promethium	[145]
82	Sm	samarium	150.36
83	Eu	european	151.96
84	Gd	gadolinium	157.25
85	Tb	terbium	158.93
86	Dy	dysprosium	162.5
87	Ho	holmium	164.93
88	Tm	thulium	167.26
89	Yb	yterbium	172.05
90	Lu	lutetium	174.97

csCPK*no value*

A style equivalent to back color scheme=CPK

\pgfPT[csCPK]

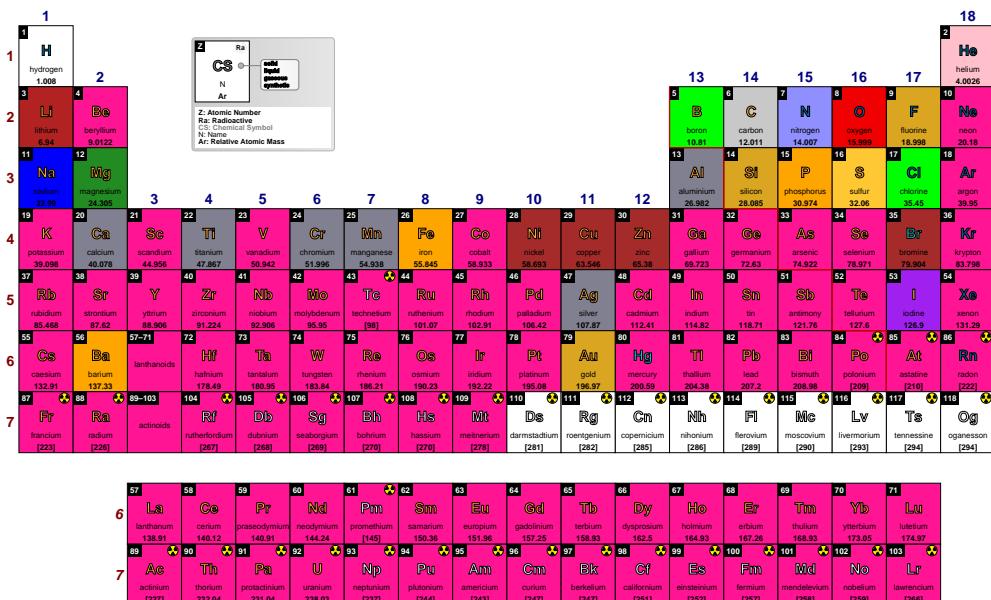
Periodic Table of Elements

**csRasmol***no value*

A style equivalent to back color scheme=Rasmol

\pgfPT[csRasmol]

Periodic Table of Elements



csRasmolNew

no value

A style equivalent to back color scheme=RasmolNew

\pgfPT[csRasmolNew]

Periodic Table of Elements

1	H	2	He	18
1	hydrogen 1.008	2	helium 4.0026	
2	Li	Be		
3	lithium 6.94	beryllium 9.0122		
4	Na	Mg		
3	sodium 22.99	magnesium 24.305		
5	K	Ca		
4	potassium 39.098	calcium 40.078		
6	Rb	Sc		
5	rubidium 85.468	scandium 44.956		
7	Cs	Tl		
6	caesium 132.91	tantalum 137.33		
8	Fr	V		
7	francium [223]	vanadium 50.942		
9	89-103	Cr		
8	Rf	Mn		
7	radium [226]	manganese 51.996		
10	104	Fe		
9	Db	Co		
8	netherfordium [267]	cobalt 58.933		
11	105	Ni		
10	Sg	Ni		
9	dubium [268]	nickel 58.693		
12	106	Cu		
11	Bh	Cu		
10	seaborgium [269]	copper 63.546		
13	107	Zn		
12	Hs	Zn		
11	bohrium [270]	zinc 65.38		
14	108	Ga		
13	Mt	Ga		
12	meitnerium [270]	gallium 69.723		
15	109	Ge		
14	Ds	Ge		
13	roentgenium [281]	germanium 72.63		
16	110	Pd		
15	Rg	Pd		
14	copernicium [282]	palladium 107.87		
17	111	Ag		
16	Hg	Ag		
15	mercury [285]	silver 107.97		
18	112	Cd		
17	Tl	Cd		
16	thallium [286]	cadmium 112.41		
19	113	In		
18	Pb	In		
17	lead [209]	indium 114.82		
20	114	Bi		
19	Po	Bi		
18	[210]	bismuth 208.98		
21	115	At		
20	At	At		
22	116	Rn		
21	radon [222]	astatine [210]		
23	117	Og		
22	Og	oganeson [294]		
24	118	Lu		
23	Rn	lutetium [266]		
25	6	Pr		
24	Ce	Pr		
23	7	Nd		
22	La	Nd		
26	8	Pm		
25	Ce	Pm		
24	9	Sm		
23	Pr	Sm		
27	10	Eu		
26	Tb	Eu		
25	11	Gd		
24	Dy	Gd		
28	12	Tb		
27	Ho	Tb		
29	13	Ho		
28	Er	Ho		
30	14	Tm		
29	Fm	Tm		
31	15	Yb		
30	Md	Yb		
32	16	Lu		
31	No	Lu		
33	17			
32	Lr			
34	18			
33	He			
35				

csWikipedia

no value

A style equivalent to back color scheme=Wikipedia

\pgfPT[csWikipedia]

Periodic Table of Elements

1	H	2	He	18
1	hydrogen 1.008	2	helium 4.0026	
2	Li	Be		
3	lithium 6.94	beryllium 9.0122		
4	Na	Mg		
3	sodium 22.99	magnesium 24.305		
5	K	Ca		
4	potassium 39.098	calcium 40.078		
6	Rb	Sc		
5	rubidium 85.468	scandium 44.956		
7	Cs	Tl		
6	caesium 132.91	tantalum 137.33		
8	Fr	V		
7	francium [223]	vanadium 50.942		
9	89-103	Cr		
8	Rf	Mn		
7	radium [226]	manganese 51.996		
10	104	Fe		
9	Db	Co		
8	netherfordium [267]	cobalt 58.933		
11	105	Ni		
10	Sg	Ni		
9	dubium [268]	nickel 58.693		
12	106	Cu		
11	Bh	Cu		
10	bohrium [270]	copper 63.546		
13	107	Zn		
12	Hs	Zn		
11	meitnerium [270]	zinc 65.38		
14	108	Ga		
13	Mt	Ga		
12	roentgenium [281]	germanium 72.63		
15	109	Pd		
14	Rg	Pd		
13	copernicium [282]	palladium 107.87		
16	110	Ag		
15	Hg	Ag		
14	mercury [285]	silver 107.97		
18	111	Cd		
17	Tl	Cd		
16	thallium [286]	cadmium 112.41		
19	112	In		
18	Pb	In		
17	lead [209]	indium 114.82		
20	113	Bi		
19	At	Bi		
18	[210]	bismuth 208.98		
21	114	At		
20	Rn	At		
22	Og	oganeson [294]		
23	115	Lu		
22	Rn	lutetium [266]		
25	6	Pr		
24	Ce	Pr		
23	7	Nd		
22	La	Nd		
26	8	Pm		
25	Tb	Pm		
24	9	Sm		
23	Eu	Sm		
27	10	Gd		
26	Dy	Gd		
28	11	Tb		
27	Ho	Tb		
29	12	Ho		
28	Fm	Ho		
30	13	Tm		
29	Md	Tm		
31	14	Yb		
30	No	Yb		
32	15	Lu		
31	Lr	Lu		
33	16			
32	He			
34				

csMNM

no value

A style equivalent to back color scheme=MNM

\pgfPT[csMNM]

Periodic Table of Elements

1	H	2	He	18
1	hydrogen 1.008		boron 10.81	helium 4.0026
2	Li	Be	carbon 12.011	neon 20.18
3	lithium 6.94	beryllium 9.0122	manganese 54.938	
4	Na	Mg	iron 55.845	
5	sodium 22.99	magnesium 24.305	cobalt 58.933	
6	K	Ca	nickel 58.693	
7	potassium 39.098	calcium 40.078	copper 63.546	
8	Rb	Sc	zinc 65.38	
9	rubidium 85.468	scandium 44.956	zinc 65.38	
10	Y	Ti	germanium 69.723	
11	strontium 88.906	vandium 50.942	germanium 69.723	
12	Zr	V	arsenic 74.322	
13	niobium 91.224	chromium 51.996	arsenic 74.322	
14	Nb	Cr	selenium 78.971	
15	Mo	Mn	bromine 79.904	
16	molybdenum 95.95	Fe	fluorine 18.998	
17	[98]	Co	oxygen 15.999	
18	technetium 101.07	Ni	nitrogen 14.007	
19	Ru	Cu	nitrogen 14.007	
20	Rh	Zn	oxygen 15.999	
21	Pd	Ga	oxygen 15.999	
22	Ag	Ge	fluorine 18.998	
23	Ir	In	chlorine 35.45	
24	Pt	Sn	chlorine 35.45	
25	Au	Sb	chlorine 35.45	
26	Hg	Te	chlorine 35.45	
27	TI	I	chlorine 35.45	
28	Pb	Xe	chlorine 35.45	
29	Bi	Rn	chlorine 35.45	
30	Po	At	chlorine 35.45	
31	At	Rn	chlorine 35.45	
32	Rn	At	chlorine 35.45	
33	Fr	Rn	chlorine 35.45	
34	Ra	At	chlorine 35.45	
35	[226]	Rn	chlorine 35.45	
36	Fr	Rn	chlorine 35.45	
37	Ra	At	chlorine 35.45	
38	[226]	Rn	chlorine 35.45	
39	Fr	Ra	chlorine 35.45	
40	Ra	Rn	chlorine 35.45	
41	[226]	At	chlorine 35.45	
42	Fr	Rn	chlorine 35.45	
43	Ra	At	chlorine 35.45	
44	[226]	Rn	chlorine 35.45	
45	Fr	Ra	chlorine 35.45	
46	Ra	Rn	chlorine 35.45	
47	[226]	At	chlorine 35.45	
48	Fr	Rn	chlorine 35.45	
49	Ra	At	chlorine 35.45	
50	[226]	Rn	chlorine 35.45	
51	Fr	Ra	chlorine 35.45	
52	Ra	Rn	chlorine 35.45	
53	[226]	At	chlorine 35.45	
54	Fr	Rn	chlorine 35.45	
55	Ra	At	chlorine 35.45	
56	[226]	Rn	chlorine 35.45	
57	La	Ce	Lu	
58	cerium 138.91	praseodymium 140.912	lutetium 174.97	
59	Pr	Nd		
60	neodymium 140.91	promethium 144.24		
61	Pm	Sm		
62	Sm	Eu		
63	Eu	Gd		
64	Gd	Tb		
65	Tb	Dy		
66	Dy	Ho		
67	Ho	Er		
68	Er	Tm		
69	Tm	Yb		
70	Yb	Lu		
71	Lu			
72	La	Ce	Lu	
73	cerium 138.91	praseodymium 140.912	lutetium 174.97	
74	Pr	Nd		
75	neodymium 140.91	promethium 144.24		
76	Pm	Sm		
77	Sm	Eu		
78	Eu	Gd		
79	Gd	Tb		
80	Tb	Dy		
81	Dy	Ho		
82	Ho	Er		
83	Er	Tm		
84	Tm	Yb		
85	Yb	Lu		
86	Lu			
87	La	Ce	Lu	
88	cerium 138.91	praseodymium 140.912	lutetium 174.97	
89	Pr	Nd		
90	neodymium 140.91	promethium 144.24		
91	Pm	Sm		
92	Sm	Eu		
93	Eu	Gd		
94	Gd	Tb		
95	Tb	Dy		
96	Dy	Ho		
97	Ho	Er		
98	Er	Tm		
99	Tm	Yb		
100	Yb	Lu		
101	Lu			
102	Lu			
103				

csPS

no value

A style equivalent to back color scheme=PS

\pgfPT[csPS]

Periodic Table of Elements

1	H	2	He	18
1	hydrogen 1.008		boron 10.81	helium 4.0026
2	Li	Be	carbon 12.011	neon 20.18
3	lithium 6.94	beryllium 9.0122	manganese 54.938	
4	Na	Mg	iron 55.845	
5	sodium 22.99	magnesium 24.305	cobalt 58.933	
6	K	Ca	nickel 58.693	
7	potassium 39.098	calcium 40.078	copper 63.546	
8	Rb	Sc	zinc 65.38	
9	rubidium 85.468	scandium 44.956	zinc 65.38	
10	Y	Ti	germanium 69.723	
11	strontium 88.906	vandium 50.942	germanium 69.723	
12	Zr	V	arsenic 74.322	
13	niobium 91.224	chromium 51.996	arsenic 74.322	
14	Nb	Cr	selenium 78.971	
15	Mo	Mn	bromine 79.904	
16	molybdenum 95.95	Fe	fluorine 18.998	
17	[98]	Co	chlorine 35.45	
18	technetium 101.07	Ni	chlorine 35.45	
19	Ru	Cu	chlorine 35.45	
20	Rh	Zn	chlorine 35.45	
21	Pd	Ga	chlorine 35.45	
22	Ag	Ge	chlorine 35.45	
23	Ir	In	chlorine 35.45	
24	Pt	Sn	chlorine 35.45	
25	Au	Sb	chlorine 35.45	
26	Hg	Te	chlorine 35.45	
27	TI	I	chlorine 35.45	
28	Pb	Xe	chlorine 35.45	
29	Bi	Rn	chlorine 35.45	
30	Po	At	chlorine 35.45	
31	At	Rn	chlorine 35.45	
32	Rn	At	chlorine 35.45	
33	Fr	Rn	chlorine 35.45	
34	Ra	Rn	chlorine 35.45	
35	[226]	At	chlorine 35.45	
36	Fr	Rn	chlorine 35.45	
37	Ra	At	chlorine 35.45	
38	[226]	Rn	chlorine 35.45	
39	Fr	Ra	chlorine 35.45	
40	Ra	Rn	chlorine 35.45	
41	[226]	At	chlorine 35.45	
42	Fr	Rn	chlorine 35.45	
43	Ra	At	chlorine 35.45	
44	[226]	Rn	chlorine 35.45	
45	Fr	Ra	chlorine 35.45	
46	Ra	Rn	chlorine 35.45	
47	[226]	At	chlorine 35.45	
48	Fr	Rn	chlorine 35.45	
49	Ra	At	chlorine 35.45	
50	[226]	Rn	chlorine 35.45	
51	Fr	Ra	chlorine 35.45	
52	Ra	Rn	chlorine 35.45	
53	[226]	At	chlorine 35.45	
54	Fr	Rn	chlorine 35.45	
55	Ra	At	chlorine 35.45	
56	[226]	Rn	chlorine 35.45	
57	La	Ce	Lu	
58	cerium 138.91	praseodymium 140.912	lutetium 174.97	
59	Pr	Nd		
60	neodymium 140.91	promethium 144.24		
61	Pm	Sm		
62	Sm	Eu		
63	Eu	Gd		
64	Gd	Tb		
65	Tb	Dy		
66	Dy	Ho		
67	Ho	Er		
68	Er	Tm		
69	Tm	Yb		
70	Yb	Lu		
71	Lu			
72	La	Ce	Lu	
73	cerium 138.91	praseodymium 140.912	lutetium 174.97	
74	Pr	Nd		
75	neodymium 140.91	promethium 144.24		
76	Pm	Sm		
77	Sm	Eu		
78	Eu	Gd		
79	Gd	Tb		
80	Tb	Dy		
81	Dy	Ho		
82	Ho	Er		
83	Er	Tm		
84	Tm	Yb		
85	Yb	Lu		
86	Lu			
87	Lu			
88				
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90				
91				
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93				
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csRadio

no value

A style equivalent to back color scheme=Radio

\pgfPT[csRadio]

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	12	magnesium 24.305	
19	K	20	Ca	
4	potassium 39.098	20	calcium 40.078	
37	Rb	38	Sc	
5	rubidium 85.468	39	tin 44.956	
6	Cs	21	Tl	
7	Fr	21	V	
55	Ra	21	Cr	
67	Ra	21	Mn	
87	Ra	21	Fe	
89-103	Ra	21	Co	
104	Ra	21	Ni	
105	Ra	21	Cu	
106	Ra	21	Zn	
107	Ra	21	Ga	
108	Ra	21	Ge	
109	Ra	21	As	
110	Ra	21	Se	
111	Ra	21	Br	
112	Ra	21	Kr	
113	Ra	21		
114	Ra	21		
115	Ra	21		
116	Ra	21		
117	Ra	21		
118	Ra	21		
6	La	58	Ce	18
7	Ac	59	Pr	2
55	Ce	59	Nd	He
67	Pr	60	Pm	helium 4.0026
89	Nd	61	Sm	
90	Pr	62	Eu	
91	Nd	63	Gd	
92	Pr	64	Tb	
93	Nd	65	Dy	
94	Pr	66	Ho	
95	Nd	67	Er	
96	Pr	68	Tm	
97	Nd	69	Yb	
98	Pr	70	Lu	
99	Pr	71		
100	Pr	71		
101	Pr	71		
102	Pr	71		
103	Pr	71		
104	Pr	71		
105	Pr	71		
106	Pr	71		
107	Pr	71		
108	Pr	71		
109	Pr	71		
110	Pr	71		
111	Pr	71		
112	Pr	71		
113	Pr	71		
114	Pr	71		
115	Pr	71		
116	Pr	71		
117	Pr	71		
118	Pr	71		
6	La	58	Ce	18
7	Ac	59	Pr	2
55	La	58	Pr	He
67	Ac	59	Pr	helium 4.0026
89	La	58	Pr	
90	Ac	59	Pr	
91	La	58	Pr	
92	Ac	59	Pr	
93	La	58	Pr	
94	Ac	59	Pr	
95	La	58	Pr	
96	Ac	59	Pr	
97	La	58	Pr	
98	Ac	59	Pr	
99	La	58	Pr	
100	Ac	59	Pr	
101	La	58	Pr	
102	Ac	59	Pr	
103	La	58	Pr	
104	Ac	59	Pr	
105	La	58	Pr	
106	Ac	59	Pr	
107	La	58	Pr	
108	Ac	59	Pr	
109	La	58	Pr	
110	Ac	59	Pr	
111	La	58	Pr	
112	Ac	59	Pr	
113	La	58	Pr	
114	Ac	59	Pr	
115	La	58	Pr	
116	Ac	59	Pr	
117	La	58	Pr	
118	Ac	59	Pr	

csBlocks

no value

A style equivalent to back color scheme=Blocks

\pgfPT[csBlocks]

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	12	magnesium 24.305	
19	K	20	Ca	
4	potassium 39.098	20	calcium 40.078	
37	Rb	38	Sc	
5	rubidium 85.468	39	Ti	
6	Cs	21	V	
7	Fr	21	Cr	
55	Ra	21	Mn	
67	Ra	21	Fe	
87	Ra	21	Co	
89-103	Ra	21	Ni	
104	Ra	21	Cu	
105	Ra	21	Zn	
106	Ra	21	Ga	
107	Ra	21	Ge	
108	Ra	21	As	
109	Ra	21	Se	
110	Ra	21	Br	
111	Ra	21	Kr	
112	Ra	21		
113	Ra	21		
114	Ra	21		
115	Ra	21		
116	Ra	21		
117	Ra	21		
118	Ra	21		
6	La	58	Ce	18
7	Ac	59	Pr	2
55	La	58	Pr	He
67	Ac	59	Pr	helium 4.0026
89	La	58	Pr	
90	Ac	59	Pr	
91	La	58	Pr	
92	Ac	59	Pr	
93	La	58	Pr	
94	Ac	59	Pr	
95	La	58	Pr	
96	Ac	59	Pr	
97	La	58	Pr	
98	Ac	59	Pr	
99	La	58	Pr	
100	Ac	59	Pr	
101	La	58	Pr	
102	Ac	59	Pr	
103	La	58	Pr	
104	Ac	59	Pr	
105	La	58	Pr	
106	Ac	59	Pr	
107	La	58	Pr	
108	Ac	59	Pr	
109	La	58	Pr	
110	Ac	59	Pr	
111	La	58	Pr	
112	Ac	59	Pr	
113	La	58	Pr	
114	Ac	59	Pr	
115	La	58	Pr	
116	Ac	59	Pr	
117	La	58	Pr	
118	Ac	59	Pr	

background

default: {}

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.

```
\pgfPT[background={draw=red,line width=2pt,fill=red!10}]
```

Periodic Table of Elements																				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
H hydrogen 1.008	Be beryllium 9.0122	Li lithium 6.94	Na sodium 22.99	Mg magnesium 24.305	Ca calcium 40.078	Sc scandium 44.956	Ti titanium 47.867	V vanadium 50.942	Cr chromium 51.996	Mn manganese 54.938	Fe iron 55.845	Co cobalt 58.933	Ni nickel 58.693	Cu copper 63.546	Zn zinc 65.38	B boron 10.81	C carbon 12.011	N nitrogen 14.007	O oxygen 15.999	He helium 4.0026
K potassium 39.098	Ca calcium 40.078	Sc scandium 44.956	Ti titanium 47.867	V vanadium 50.942	Cr chromium 51.996	Mn manganese 54.938	Fe iron 55.845	Co cobalt 58.933	Ni nickel 58.693	Cu copper 63.546	Zn zinc 65.38	Al aluminum 26.982	Si silicon 28.085	P phosphorus 30.974	S sulfur 32.06	F fluorine 35.45	Ne neon 20.18			
Rb rubidium 85.468	Sr strontium 87.62	Y yttrium 88.905	Zr zirconium 91.224	Nb niobium 92.906	Mo molybdenum 95.95	Tc technetium [98]	Ru ruthenium 101.07	Rh rhodium 102.91	Pd palladium 106.42	Ag silver 107.87	Cd cadmium 114.21	Ga gallium 69.723	Ge germanium 72.63	As arsenic 74.922	Se selenium 78.971	Br bromine 79.904	Kr krypton 83.798			
Cs caesium 132.91	Ba barium 137.33	Hf hafnium 178.49	Ta tantalum 180.95	W tungsten 183.84	Re rhenium 186.21	Os osmium 190.23	Ir iridium 192.22	Pt platinum 195.08	Au gold 196.97	Hg mercury 200.59	Tl thallium 204.38	Pb lead 207.2	Bi bismuth 208.98	Po polonium [209]	At astatine [210]	Rn radon [222]	Xe xenon 131.29			
Fr francium [223]	Ra radium [226]	actinoids		Rf rutherfordium [267]	Db dubnium [268]	Sg seaborgium [270]	Bh bohrium [270]	Hs hassium [270]	Mt meitnerium [270]	Ds darmstadtium [281]	Rg roentgenium [282]	Cn copernicium [285]	Nh nihonium [286]	Fl flerovium [289]	Mc moscovium [290]	Lv livemorium [293]	Ts tennessine [294]	Og oganesian [294]		
La lanthanum 138.91	Ce cerium 140.12	Pr praseodymium 140.91	Nd neodymium 144.24	Pm promethium [145]	Sm samarium 150.36	Eu europium 151.96	Gd gadolinium 157.25	Tb terbium 158.93	Dy dysprosium 162.5	Ho holmium 164.93	Er erbium 167.26	Tm thulium 168.93	Yb ytterbium 173.05	Lu lutetium 174.97						
Ac actinium [227]	Th thorium 232.04	Pa protactinium 231.04	U uranium 238.03	Np neptunium [237]	Pu plutonium [244]	Am americium [243]	Cm curium [247]	Bk berkelium [247]	Cf californium [251]	Esn einsteiniump [252]	Fm fermium [257]	Md mendelevium [258]	No nobelium [259]	Lr lawrencium [266]						

```
\usetikzlibrary{shadows}
```

```
\pgfPT[background={left color=red!10,right color=green!10,postaction={drop shadow={left color=red!10,right color=green!10}}}]
```

Periodic Table of Elements																				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
H hydrogen 1.008	Be beryllium 9.0122	Li lithium 6.94	Na sodium 22.99	Mg magnesium 24.305	Ca calcium 40.078	Sc scandium 44.956	Ti titanium 47.867	V vanadium 50.942	Cr chromium 51.996	Mn manganese 54.938	Fe iron 55.845	Co cobalt 58.933	Ni nickel 58.693	Cu copper 63.546	Zn zinc 65.38	B boron 10.81	C carbon 12.011	N nitrogen 14.007	O oxygen 15.999	He helium 4.0026
K potassium 39.098	Ca calcium 40.078	Sc scandium 44.956	Ti titanium 47.867	V vanadium 50.942	Cr chromium 51.996	Mn manganese 54.938	Fe iron 55.845	Co cobalt 58.933	Ni nickel 58.693	Cu copper 63.546	Zn zinc 65.38	Al aluminum 26.982	Si silicon 28.085	P phosphorus 30.974	S sulfur 32.06	F fluorine 35.45	Ne neon 20.18			
Rb rubidium 85.468	Sr strontium 87.62	Y yttrium 88.905	Zr zirconium 91.224	Nb niobium 92.906	Mo molybdenum 95.95	Tc technetium [98]	Ru ruthenium 101.07	Rh rhodium 102.91	Pd palladium 106.42	Ag silver 107.87	Cd cadmium 114.21	Ga gallium 69.723	Ge germanium 72.63	As arsenic 74.922	Se selenium 78.971	Br bromine 79.904	Kr krypton 83.798			
Cs caesium 132.91	Ba barium 137.33	Hf hafnium 178.49	Ta tantalum 180.95	W tungsten 183.84	Re rhenium 186.21	Os osmium 190.23	Ir iridium 192.22	Pt platinum 195.08	Au gold 196.97	Hg mercury 200.59	Tl thallium 204.38	Pb lead 207.2	Bi bismuth 208.98	Po polonium [209]	At astatine [210]	Rn radon [222]	Xe xenon 131.29			
Fr francium [223]	Ra radium [226]	actinoids		Rf rutherfordium [267]	Db dubnium [268]	Sg seaborgium [270]	Bh bohrium [270]	Hs hassium [270]	Mt meitnerium [270]	Ds darmstadtium [281]	Rg roentgenium [282]	Cn copernicium [285]	Nh nihonium [286]	Fl flerovium [289]	Mc moscovium [290]	Lv livemorium [293]	Ts tennessine [294]	Og oganesian [294]		
La lanthanum 138.91	Ce cerium 140.12	Pr praseodymium 140.91	Nd neodymium 144.24	Pm promethium [145]	Sm samarium 150.36	Eu europium 151.96	Gd gadolinium 157.25	Tb terbium 158.93	Dy dysprosium 162.5	Ho holmium 164.93	Er erbium 167.26	Tm thulium 168.93	Yb ytterbium 173.05	Lu lutetium 174.97						
Ac actinium [227]	Th thorium 232.04	Pa protactinium 231.04	U uranium 238.03	Np neptunium [237]	Pu plutonium [244]	Am americium [243]	Cm curium [247]	Bk berkelium [247]	Cf californium [251]	Esn einsteiniump [252]	Fm fermium [257]	Md mendelevium [258]	No nobelium [259]	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	He
1	hydrogen 1.008	helium 4.0026
2	Be	
3	boronium 6.94	
4	Li	No
5	Na	neon 20.18
6	Mg	Ar
7	sodium 22.99	argon 39.95
8	K	Ar
9	Ca	krypton 83.798
10	Sc	Kr
11	Ti	
12	V	
13	Cr	
14	Mn	
15	Fe	
16	Co	
17	Ni	
18	Cu	
19	Zn	
20	Ga	
21	Tl	
22	Al	
23	Si	
24	Ge	
25	As	
26	P	
27	S	
28	O	
29	F	
30	Cl	
31	Br	
32	I	
33	Xe	
34	Rn	
35	At	
36	Y	
37	Zr	
38	Nb	
39	Mo	
40	Tc	
41	Ru	
42	Rh	
43	Pd	
44	Ag	
45	Cd	
46	In	
47	Sn	
48	Sb	
49	Te	
50	Ge	
51	Sn	
52	Sb	
53	Te	
54	Ge	
55	Cs	
56	Ba	
57	La	
58	Ce	
59	Pr	
60	Nd	
61	Pm	
62	Sm	
63	Eu	
64	Gd	
65	Tb	
66	Dy	
67	Ho	
68	Er	
69	Tm	
70	Yb	
71	Lu	
72	Hf	
73	Ta	
74	W	
75	Re	
76	Os	
77	Ir	
78	Pt	
79	Au	
80	Hg	
81	Tl	
82	Pb	
83	Bi	
84	Po	
85	At	
86	Rn	
87	Fr	
88	Ra	
89	actinoids	
90	Rf	
91	Ds	
92	Bh	
93	Hs	
94	Mt	
95	Ds	
96	Rg	
97	Cn	
98	Nh	
99	Fl	
100	Po	
101	Mc	
102	Lv	
103	Ts	
104	Rutherfordium [267]	
105	Dubnium [268]	
106	Seaborgium [269]	
107	Bethuneum [270]	
108	Hassium [270]	
109	Mendelevium [278]	
110	Darmstadtium [281]	
111	Roentgenium [282]	
112	Copernicium [285]	
113	Nihonium [286]	
114	Flerovium [289]	
115	Moscovium [290]	
116	Livermorium [293]	
117	Tennesseeanum [294]	
118	Oganesson [294]	

\pgfPT[IUPAC=false]

Periodic Table of Elements

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	56	Ba	57-71	lanthanoids	72	Hf	73	Ta	74	W	75	Re	76	Os	77	Ir	78	Pt	79	Au	80	Hg	81	Tl	82	Pb	83	Bi	84	Po	85	At	86	Rn		
6	55	caesium	56	barium	57-71	lanthanoids	72	hafnium	73	tantalum	74	tungsten	75	rhenium	76	osmium	77	iridium	78	platinum	79	gold	80	mercury	81	thallium	82	lead	83	bismuth	84	polonium	85	astatine	86	radon		
6	55	[132.91]	56	[137.33]	57-71		72	[178.49]	73	[180.95]	74	[185.84]	75	[186.21]	76	[190.23]	77	[192.22]	78	[195.09]	79	[195.09]	80	[200.59]	81	[204.38]	82	[207.2]	83	[208.98]	84	[209]	85	[210]	86	[222]		
7	57	Fr	58	Ra	59	actinoids	60	Rf	61	Db	62	Sg	63	Bh	64	Hs	65	Mt	66	Ds	67	Rg	68	Cn	69	Nh	70	Fl	71	Mc	72	Lv	73	Ts	74	Og		
7	57	francium	58	radium	59	actinoids	60	rutherfordium	61	dubnium	62	seaborgium	63	bohrium	64	hassium	65	meitnerium	66	darmstadtium	67	roentgenium	68	copernicium	69	nihonium	70	florium	71	moscovium	72	livemorium	73	ternesine	74	oganeson		
7	57	[223]	58	[226]	59		60	[267]	61	[268]	62	[269]	63	[270]	64	[270]	65	[270]	66	[270]	67	[281]	68	[282]	69	[285]	70	[286]	71	[289]	72	[290]	73	[293]	74	[294]	75	[294]

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

6	55	Ce	56	Ba	57-71	lanthanoids	72	Hf	73	Ta	74	W	75	Re	76	Os	77	Ir	78	Pt	79	Au	80	Hg	81	Tl	82	Pb	83	Bi	84	Po	85	At	86	Rn		
6	55	caesium	56	barium	57-71	lanthanoids	72	hafnium	73	tantalum	74	tungsten	75	rhenium	76	osmium	77	iridium	78	platinum	79	gold	80	mercury	81	thallium	82	lead	83	bismuth	84	polonium	85	astatine	86	radon		
6	55	[132.91]	56	[137.33]	57-71		72	[178.49]	73	[180.95]	74	[185.84]	75	[186.21]	76	[190.23]	77	[192.22]	78	[195.09]	79	[195.09]	80	[200.59]	81	[204.38]	82	[207.2]	83	[208.98]	84	[209]	85	[210]	86	[222]		
7	57	Fr	58	Ra	59	actinoids	60	Rf	61	Db	62	Sg	63	Bh	64	Hs	65	Mt	66	Ds	67	Rg	68	Cn	69	Nh	70	Fl	71	Mc	72	Lv	73	Ts	74	Og		
7	57	francium	58	radium	59	actinoids	60	rutherfordium	61	dubnium	62	seaborgium	63	bohrium	64	hassium	65	meitnerium	66	darmstadtium	67	roentgenium	68	copernicium	69	nihonium	70	florium	71	moscovium	72	livemorium	73	ternesine	74	oganeson		
7	57	[223]	58	[226]	59		60	[267]	61	[268]	62	[269]	63	[270]	64	[270]	65	[270]	66	[270]	67	[281]	68	[282]	69	[285]	70	[286]	71	[289]	72	[290]	73	[293]	74	[294]	75	[294]

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

6	55	Ce	56	Ba	57-71	lanthanoids	72	Hf	73	Ta	74	W	75	Re	76	Os	77	Ir	78	Pt	79	Au	80	Hg	81	Tl	82	Pb	83	Bi	84	Po	85	At	86	Rn		
6	55	caesium	56	barium	57-71	lanthanoids	72	hafnium	73	tantalum	74	tungsten	75	rhenium	76	osmium	77	iridium	78	platinum	79	gold	80	mercury	81	thallium	82	lead	83	bismuth	84	polonium	85	astatine	86	radon		
6	55	[132.91]	56	[137.33]	57-71		72	[178.49]	73	[180.95]	74	[185.84]	75	[186.21]	76	[190.23]	77	[192.22]	78	[195.09]	79	[195.09]	80	[200.59]	81	[204.38]	82	[207.2]	83	[208.98]	84	[209]	85	[210]	86	[222]		
7	57	Fr	58	Ra	59	actinoids	60	Rf	61	Db	62	Sg	63	Bh	64	Hs	65	Mt	66	Ds	67	Rg	68	Cn	69	Nh	70	Fl	71	Mc	72	Lv	73	Ts	74	Og		
7	57	francium	58	radium	59	actinoids	60	rutherfordium	61	dubnium	62	seaborgium	63	bohrium	64	hassium	65	meitnerium	66	darmstadtium	67	roentgenium	68	copernicium	69	nihonium	70	florium	71	moscovium	72	livemorium	73	ternesine	74	oganeson		
7	57	[223]	58	[226]	59		60	[267]	61	[268]	62	[269]	63	[270]	64	[270]	65	[270]	66	[270]	67	[281]	68	[282]	69	[285]	70	[286]	71	[289]	72	[290]	73	[293]	74	[294]	75	[294]

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

6	55	Ce	56	Ba	57	La	58	Hf	59	Ta	60	W	61	Re	62	Os	63	Ir	64	Pt	65	Au	66	Hg	67	Tl	68	Pb	69	Bi	70	Po	71	At	72	Rn		
6	55	caesium	56	barium	57	lanthanum	58	hafnium	59	tantalum	60	tungsten	61	rhenium	62	osmium	63	iridium	64	platinum	65	gold	66	mercury	67	thallium	68	lead	69	bismuth	70	polonium	71	astatine	72	radon		
6	55	[132.91]	56	[137.33]	57	[138.91]	58	[140.12]	59	[140.91]	60	[144.24]	61	[144.24]	62	[145]	63	[145]	64	[145]	65	[145]	66	[145]	67	[145]	68	[145]	69	[145]	70	[145]	71	[145]	72	[145]		
7	57	Fr	58	Ra	59	Ac	60	Rf	61	Db	62	Sg	63	Bh	64	Hs	65	Mt	66	Ds	67	Rg	68	Cn	69	Nh	70	Fl	71	Mc	72	Lv	73	Ts	74	Og		
7	57	francium	58	radium	59	actinium	60	rutherfordium	61	dubnium	62	seaborgium	63	bohrium	64	hassium	65	meitnerium	66	darmstadtium	67	roentgenium	68	copernicium	69	nihonium	70	florium	71	moscovium	72	livemorium	73	ternesine	74	oganeson		
7	57	[223]	58	[226]	59		60	[267]	61	[268]	62	[269]	63	[270]	64	[270]	65	[270]	66	[270]	67	[281]	68	[282]	69	[285]	70	[286]	71	[289]	72	[290]	73	[293]	74	[294]	75	[294]

label LaAc fontdefault: `\footnotesize\itshape`

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

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

The first table (left) includes elements 55 to 86. The second table (right) is a detailed view of the lanthanoid and actinoid series from Z=57 to Z=71, showing their names, atomic numbers, and symbols.

`\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'. This key overrides the default language, that is, the language loaded at package inclusion.

`\pgfPT[Z list={1,...,54},languages=pt]`

Tabela Periódica dos Elementos

`\pgfPT[Z list={1,...,54},cell style=pgfPT2lang,languages={en,fr}]`
Periodic Table of Elements
Tableau Périodique des Éléments

```
\pgfPT[Z list={1,...,54},cell style=pgfPT3lang,languages={pt,fr,it}]
```

Tabela Periódica dos Elementos																													
Tableau Périodique des Éléments												Tavola Periodica degli Elementi																	
1	H hidrogênio hydrogen hydrogène 1.008	2	Be berílio beryllium berillio 9.0122	3	SQ Ra	4	N	5	Ar	6	B boro boron borio 10.81	7	C carbono carbone carbonio 12.011	8	O oxigênio oxygène ossigeno 15.999	9	F flúor fluor fluoro 18.0028												
2	Li boro lítio lithium 7.0161	3	Mg magnésio magnesium magnezio 24.305	4	Ca cálcio calcium calcio 40.078	5	Sc escândio scandium scandio 44.956	6	V vanádio vanadium vanadio 50.942	7	Cr cromo chromium chromio 51.996	8	Mn manganeses manganese manganese 54.938	9	Fe ferro iron ferro 55.845	10	Ni níquel nickel nickelio 58.933	11	Co cobalto cobalt cobalto 58.953	12	Zn zinco zinc zincio 65.38								
3	K potássio potassium potassio 39.098	4	Ca cálcio calcium calcio 40.078	5	Ti titânio titanium titânio 47.867	6	Cr cromo chromium chromio 51.996	7	Mn manganeses manganese manganese 54.938	8	Fe ferro iron ferro 55.845	9	Ni níquel nickel nickelio 58.933	10	Co cobalto cobalt cobalto 58.953	11	Zn zinco zinc zincio 65.38	12	Ru ruímpio ruthenium ruímpio 101.07										
4	Rb rubidio rubidium rubido 85.468	5	Sr estrônio strontium strônio 87.62	6	Zr zirconio zirconium zirconio 91.224	7	Nb níobio niobium níobio 92.906	8	Mo molibdeno molybdenum molibdeno 95.95	9	Tc tecnécio technetium técnico [91]	10	Ru ruímpio ruthenium ruímpio 101.07	11	Pd paládio palladium paládio 106.42	12	Ag prata silver argento 107.87	13	Ga galio gallium gálio 69.723	14	Ge germanio germanium germânio 72.63	15	As arsenio arsenic arsenic 74.932	16	Se selénio selenium selénio 78.971	17	Br bromo brome bromo 79.904	18	Kr cripton krypton cripton 83.788
5	Rb rubidio rubidium rubido 85.468	6	Y trio yttrio yttrio 88.906	7	Zr zirconio zirconium zirconio 91.224	8	Nb níobio niobium níobio 92.906	9	Mo molibdeno molybdenum molibdeno 95.95	10	Tc tecnécio technetium técnico [91]	11	Ru ruímpio ruthenium ruímpio 101.07	12	Pd paládio palladium paládio 106.42	13	Ag prata silver argento 107.87	14	Cd cádmio cadmium cadmio 112.41	15	In índio indium índio 114.82	16	Sn estanho tin estanho 118.71	17	Sb telúrio tellurio telúrio 121.78	18	Ts tellúrio tellurio telúrio 127.6		
6	Rb rubidio rubidium rubido 85.468	7	Y trio yttrio yttrio 88.906	8	Zr zirconio zirconium zirconio 91.224	9	Nb níobio niobium níobio 92.906	10	Mo molibdeno molybdenum molibdeno 95.95	11	Tc tecnécio technetium técnico [91]	12	Ru ruímpio ruthenium ruímpio 101.07	13	Pd paládio palladium paládio 106.42	14	Ag prata silver argento 107.87	15	Cd cádmio cadmium cadmio 112.41	16	In índio indium índio 114.82	17	Sn estanho tin estanho 118.71	18	Sb telúrio tellurio telúrio 121.78				
7	Rb rubidio rubidium rubido 85.468	8	Y trio yttrio yttrio 88.906	9	Zr zirconio zirconium zirconio 91.224	10	Nb níobio niobium níobio 92.906	11	Mo molibdeno molybdenum molibdeno 95.95	12	Tc tecnécio technetium técnico [91]	13	Ru ruímpio ruthenium ruímpio 101.07	14	Pd paládio palladium paládio 106.42	15	Ag prata silver argento 107.87	16	Cd cádmio cadmium cadmio 112.41	17	In índio indium índio 114.82	18	Sn estanho tin estanho 118.71						
8	Rb rubidio rubidium rubido 85.468	9	Y trio yttrio yttrio 88.906	10	Zr zirconio zirconium zirconio 91.224	11	Nb níobio niobium níobio 92.906	12	Mo molibdeno molybdenum molibdeno 95.95	13	Tc tecnécio technetium técnico [91]	14	Ru ruímpio ruthenium ruímpio 101.07	15	Pd paládio palladium paládio 106.42	16	Ag prata silver argento 107.87	17	Cd cádmio cadmium cadmio 112.41	18	In índio indium índio 114.82								
9	Rb rubidio rubidium rubido 85.468	10	Y trio yttrio yttrio 88.906	11	Zr zirconio zirconium zirconio 91.224	12	Nb níobio niobium níobio 92.906	13	Mo molibdeno molybdenum molibdeno 95.95	14	Tc tecnécio technetium técnico [91]	15	Ru ruímpio ruthenium ruímpio 101.07	16	Pd paládio palladium paládio 106.42	17	Ag prata silver argento 107.87	18	Cd cádmio cadmium cadmio 112.41										
10	Rb rubidio rubidium rubido 85.468	11	Y trio yttrio yttrio 88.906	12	Zr zirconio zirconium zirconio 91.224	13	Nb níobio niobium níobio 92.906	14	Mo molibdeno molybdenum molibdeno 95.95	15	Tc tecnécio technetium técnico [91]	16	Ru ruímpio ruthenium ruímpio 101.07	17	Pd paládio palladium paládio 106.42	18	Ag prata silver argento 107.87												
11	Rb rubidio rubidium rubido 85.468	12	Y trio yttrio yttrio 88.906	13	Zr zirconio zirconium zirconio 91.224	14	Nb níobio niobium níobio 92.906	15	Mo molibdeno molybdenum molibdeno 95.95	16	Tc tecnécio technetium técnico [91]	17	Ru ruímpio ruthenium ruímpio 101.07	18	Pd paládio palladium paládio 106.42														
12	Rb rubidio rubidium rubido 85.468	13	Y trio yttrio yttrio 88.906	14	Zr zirconio zirconium zirconio 91.224	15	Nb níobio niobium níobio 92.906	16	Mo molibdeno molybdenum molibdeno 95.95	17	Tc tecnécio technetium técnico [91]	18	Ru ruímpio ruthenium ruímpio 101.07																
13	Rb rubidio rubidium rubido 85.468	14	Y trio yttrio yttrio 88.906	15	Zr zirconio zirconium zirconio 91.224	16	Nb níobio niobium níobio 92.906	17	Mo molibdeno molybdenum molibdeno 95.95	18	Tc tecnécio technetium técnico [91]																		
14	Rb rubidio rubidium rubido 85.468	15	Y trio yttrio yttrio 88.906	16	Zr zirconio zirconium zirconio 91.224	17	Nb níobio niobium níobio 92.906	18	Mo molibdeno molybdenum molibdeno 95.95																				
15	Rb rubidio rubidium rubido 85.468	16	Y trio yttrio yttrio 88.906	17	Zr zirconio zirconium zirconio 91.224	18	Nb níobio niobium níobio 92.906																						
16	Rb rubidio rubidium rubido 85.468	17	Y trio yttrio yttrio 88.906	18	Zr zirconio zirconium zirconio 91.224																								
17	Rb rubidio rubidium rubido 85.468	18	Y trio yttrio yttrio 88.906																										

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)]
```

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

scale 2:1

✓ 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		CS
3		
4		name
5		
6		Ar
7		

scale 2:1

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 provide 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	2	B	3	Li	4	Be	5	Ti	6	V	7	Cr	8	Fe	9	Co	10	Ni	11	Cu	12	Zn	13	B	14	Si	15	P	16	S	17	Cl	18	He
1	hydrogeno hidrógenio hidrogenio 1.008	2	berílico berilio berilio 9.0122	3	lítico litio litio 6.94	4	magnesio magnesio magnesio 24.305	5	scandíum escandíum escandíum 44.955	6	vanadium vanádium vanadio 50.942	7	cromo cromo cromo 51.996	8	manganés manganés manganés 54.938	9	ferro ferro ferro 55.845	10	cobalto cobalto cobalto 58.933	11	niquel niquel niquel 58.933	12	cobre cobre cobre 63.546	13	zinc zinc zinc 65.38	14	gálio gálio gálio 69.723	15	fósforo fósforo fósforo 28.085	16	sulfur azufre enxofre 32.06	17	clorina cloro cloro 35.45	18	helio helio helio 4.0026
1	potásico potássio potássio 39.098	2	calcio calcio calcio 40.078	3	scandíum escandíum escandíum 44.955	4	titânio titânia titânia 47.867	5	vanádium vanádium vanadio 50.942	6	cromo cromo cromo 51.996	7	manganés manganés manganés 54.938	8	ferro ferro ferro 55.845	9	cobalto cobalto cobalto 58.933	10	niquel niquel niquel 58.933	11	cobre cobre cobre 63.546	12	zinc zinc zinc 65.38	13	gálio gálio gálio 69.723	14	germânio germânia germânia 72.63	15	fósforo fósforo fósforo 28.085	16	enxofre enxofre enxofre 32.06	17	arséno arsenio arsenio 74.922	18	flúor fluor fluor 18.998
1	potásio potássio potássio 39.098	2	calcio calcio calcio 40.078	3	scandíum escandíum escandíum 44.955	4	titânio titânia titânia 47.867	5	vanádium vanádium vanadio 50.942	6	cromo cromo cromo 51.996	7	manganés manganés manganés 54.938	8	ferro ferro ferro 55.845	9	cobalto cobalto cobalto 58.933	10	niquel niquel niquel 58.933	11	cobre cobre cobre 63.546	12	zinc zinc zinc 65.38	13	gálio gálio gálio 69.723	14	germânio germânia germânia 72.63	15	fósforo fósforo fósforo 28.085	16	enxofre enxofre enxofre 32.06	17	arséno arsenio arsenio 74.922	18	flúor fluor fluor 18.998

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 Periódica dos Elementos																																			
1	H	2	B	3	Li	4	Be	5	Ti	6	V	7	Cr	8	Fe	9	Co	10	Ni	11	Cu	12	Zn	13	B	14	Si	15	P	16	S	17	Cl	18	He
1	hydrogeno hidrógenio hidrogenio 1.008	2	berílico berilio berilio 9.0122	3	lítico litio litio 6.94	4	magnesio magnesio magnesio 24.305	5	scandíum escandíum escandíum 44.955	6	vanádium vanádium vanadio 50.942	7	cromo cromo cromo 51.996	8	manganés manganés manganés 54.938	9	ferro ferro ferro 55.845	10	cobalto cobalto cobalto 58.933	11	niquel niquel niquel 58.933	12	cobre cobre cobre 63.546	13	zinc zinc zinc 65.38	14	gálio gálio gálio 69.723	15	fósforo fósforo fósforo 28.085	16	enxofre enxofre enxofre 32.06	17	arséno arsenio arsenio 74.922	18	flúor fluor fluor 18.998
1	potásico potássio potássio 39.098	2	calcio calcio calcio 40.078	3	scandíum escandíum escandíum 44.955	4	titânio titânia titânia 47.867	5	vanádium vanádium vanadio 50.942	6	cromo cromo cromo 51.996	7	manganés manganés manganés 54.938	8	ferro ferro ferro 55.845	9	cobalto cobalto cobalto 58.933	10	niquel niquel niquel 58.933	11	cobre cobre cobre 63.546	12	zinc zinc zinc 65.38	13	gálio gálio gálio 69.723	14	germânio germânia germânia 72.63	15	fósforo fósforo fósforo 28.085	16	enxofre enxofre enxofre 32.06	17	arséno arsenio arsenio 74.922	18	flúor fluor fluor 18.998
1	potásico potássio potássio 39.098	2	calcio calcio calcio 40.078	3	scandíum escandíum escandíum 44.955	4	titânio titânia titânia 47.867	5	vanádium vanádium vanadio 50.942	6	cromo cromo cromo 51.996	7	manganés manganés manganés 54.938	8	ferro ferro ferro 55.845	9	cobalto cobalto cobalto 58.933	10	niquel niquel niquel 58.933	11	cobre cobre cobre 63.546	12	zinc zinc zinc 65.38	13	gálio gálio gálio 69.723	14	germânio germânia germânia 72.63	15	fósforo fósforo fósforo 28.085	16	enxofre enxofre enxofre 32.06	17	arséno arsenio arsenio 74.922	18	flúor fluor fluor 18.998

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	2	B	3	Li	4	Be	5	Ti	6	V	7	Cr	8	Fe	9	Co	10	Ni	11	Cu	12	Zn	13	B	14	Si	15	P	16	S	17	Cl	18	He
1	hydrogène hidrógenio hidrogenio 1.008	2	berílico berilio berilio 9.0122	3	lítico litio litio 6.94	4	magnesio magnesio magnesio 24.305	5	scandíum escandíum escandíum 44.955	6	vanádium vanádium vanadio 50.942	7	cromo cromo cromo 51.996	8	manganés manganés manganés 54.938	9	ferro ferro ferro 55.845	10	cobalto cobalto cobalto 58.933	11	niquel niquel niquel 58.933	12	cobre cobre cobre 63.546	13	zinc zinc zinc 65.38	14	gálio gálio gálio 69.723	15	fósforo fósforo fósforo 28.085	16	enxofre enxofre enxofre 32.06	17	arséno arsenio arsenio 74.922	18	flúor fluor fluor 18.998
1	potásico potássio potássio 39.098	2	calcio calcio calcio 40.078	3	scandíum escandíum escandíum 44.955	4	titânio titânia titânia 47.867	5	vanádium vanádium vanadio 50.942	6	cromo cromo cromo 51.996	7	manganés manganés manganés 54.938	8	ferro ferro ferro 55.845	9	cobalto cobalto cobalto 58.933	10	niquel niquel niquel 58.933	11	cobre cobre cobre 63.546	12	zinc zinc zinc 65.38	13	gálio gálio gálio 69.723	14	germânio germânia germânia 72.63	15	fósforo fósforo fósforo 28.085	16	enxofre enxofre enxofre 32.06	17	arséno arsenio arsenio 74.922	18	flúor fluor fluor 18.998
1	potásico potássio potássio 39.098	2	calcio calcio calcio 40.078	3	scandíum escandíum escandíum 44.955	4	titânio titânia titânia 47.867	5	vanádium vanádium vanadio 50.942	6	cromo cromo cromo 51.996	7	manganés manganés manganés 54.938	8	ferro ferro ferro 55.845	9	cobalto cobalto cobalto 58.933	10	niquel niquel niquel 58.933	11	cobre cobre cobre 63.546	12	zinc zinc zinc 65.38	13	gálio gálio gálio 69.723	14	germânio germânia germânia 72.63	15	fósforo fósforo fósforo 28.085	16	enxofre enxofre enxofre 32.06	17	arséno arsenio arsenio 74.922	18	flúor fluor fluor 18.998

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	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 44.955	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
37 Rb rubidium 85.468	38 Sr strontium 87.62	39 Y yttrium 88.906	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 116.71	51 Sb antimony 118.76	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 Tb lanthanoids [57]	58 Sc lanthanum 44.955	59 Ti titanium 47.867	60 V vanadium 50.942	61 Cr chromium 51.996	62 Mn manganese 54.938	63 Fe iron 55.845	64 Co cobalt 58.933	65 Ni nickel 63.546	66 Zn zinc 65.38	67 Ga gallium 69.723	68 Ge germanium 72.63	69 As arsenic 74.922	70 Se selenium 78.971	71 Br bromine 79.904	72 Kr krypton 83.798
73 Cs caesium 132.91	74 Ba barium 137.33	75 Tb lanthanoids [57]	76 Hf hafnium 178.49	77 Ta tantalum 180.95	78 W tungsten 183.84	79 Re rhenium 186.21	80 Os osmium 190.23	81 Ir iridium 192.22	82 Pt platinum 195.08	83 Au gold 196.97	84 Hg mercury 200.59	85 Tl thallium 204.38	86 Pb lead 207.2	87 Bi bismuth 208.98	88 Po polonium [209]	89 At astatine [210]	90 Rn radon [222]
91 Fr francium [223]	92 Ra radium [226]	93 Ac actinoids [237]	94 Rf rutherfordium [267]	95 Db dubnium [268]	96 Sg seaborgium [269]	97 Bh bohrium [270]	98 Hs bosonium [270]	99 Mt meitnerium [270]	100 Ds darmstadtium [281]	101 Rg roentgenium [282]	102 Cn copernicium [285]	103 Nh nihonium [286]	104 Fl florium [289]	105 Mc moscovium [290]	106 Lv livornium [293]	107 Ts tennessine [294]	108 Og oganeson [294]

\pgfPT[show MNM line=false]

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 44.955	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	
37 Rb rubidium 85.468	38 Sr strontium 87.62	39 Y yttrium 88.906	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 116.71	51 Sb antimony 118.76	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 Tb lanthanoids [57]	58 Sc lanthanum 44.955	59 Ti titanium 47.867	60 V vanadium 50.942	61 Cr chromium 51.996	62 Mn manganese 54.938	63 Fe iron 55.845	64 Co cobalt 58.933	65 Ni nickel 63.546	66 Zn zinc 65.38	67 Ga gallium 69.723	68 Ge germanium 72.63	69 As arsenic 74.922	70 Se selenium 78.971	71 Br bromine 79.904	72 Kr krypton 83.798	
73 Cs caesium 132.91	74 Ba barium 137.33	75 Tb lanthanoids [57]	76 Hf hafnium 178.49	77 Ta tantalum 180.95	78 W tungsten 183.84	79 Re rhenium 186.21	80 Os osmium 190.23	81 Ir iridium 192.22	82 Pt platinum 195.08	83 Au gold 196.97	84 Hg mercury 200.59	85 Tl thallium 204.38	86 Pb lead 207.2	87 Bi bismuth 208.98	88 Po polonium [209]	89 At astatine [210]	90 Rn radon [222]	
91 Fr francium [223]	92 Ra radium [226]	93 Ac actinoids [237]	94 Rf rutherfordium [267]	95 Db dubnium [268]	96 Sg seaborgium [269]	97 Bh bohrium [270]	98 Hs bosonium [270]	99 Mt meitnerium [270]	100 Ds darmstadtium [281]	101 Rg roentgenium [282]	102 Cn copernicium [285]	103 Nh nihonium [286]	104 Fl florium [289]	105 Mc moscovium [290]	106 Lv livornium [293]	107 Ts tennessine [294]	108 Og oganeson [294]	
6 La lanthanum 138.91	59 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 167.28	69 Tm thulium 168.93	70 Yb ytterbium 173.05	71 Lu lutetium 174.97	72 Hf hafnium 178.49	73 Th thorium 232.04	74 Pa protactinium 231.04	75 U uranium 238.03
77 Ac actinium [227]	90 Th thorium [232]	91 Pa protactinium [233]	92 U uranium [234]	93 Np neptunium [237]	94 Pu plutonium [244]	95 Am americium [243]	96 Cm curium [247]	97 Bk berkelium [251]	98 Cf californium [257]	99 Es einsteinium [252]	100 Fm fermium [257]	101 Md mendelevium [258]	102 No nobelium [259]	103 Lr lawrencium [266]	104 Hs bosonium [270]	105 Mt meitnerium [270]	106 Ts tennessine [294]	107 Og oganeson [294]

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

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 44.955	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	
37 Rb rubidium 85.468	38 Sr strontium 87.62	39 Y yttrium 88.906	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 116.71	51 Sb antimony 118.76	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 Tb lanthanoids [57]	58 Sc lanthanum 44.955	59 Ti titanium 47.867	60 V vanadium 50.942	61 Cr chromium 51.996	62 Mn manganese 54.938	63 Fe iron 55.845	64 Co cobalt 58.933	65 Ni nickel 63.546	66 Zn zinc 65.38	67 Ga gallium 69.723	68 Ge germanium 72.63	69 As arsenic 74.922	70 Se selenium 78.971	71 Br bromine 79.904	72 Kr krypton 83.798	
73 Cs caesium 132.91	74 Ba barium 137.33	75 Tb lanthanoids [57]	76 Hf hafnium 178.49	77 Ta tantalum 180.95	78 W tungsten 183.84	79 Re rhenium 186.21	80 Os osmium 190.23	81 Ir iridium 192.22	82 Pt platinum 195.08	83 Au gold 196.97	84 Hg mercury 200.59	85 Tl thallium 204.38	86 Pb lead 207.2	87 Bi bismuth 208.98	88 Po polonium [209]	89 At astatine [210]	90 Rn radon [222]	
91 Fr francium [223]	92 Ra radium [226]	93 Ac actinoids [237]	94 Rf rutherfordium [267]	95 Db dubnium [268]	96 Sg seaborgium [269]	97 Bh bohrium [270]	98 Hs bosonium [270]	99 Mt meitnerium [270]	100 Ds darmstadtium [281]	101 Rg roentgenium [282]	102 Cn copernicium [285]	103 Nh nihonium [286]	104 Fl florium [289]	105 Mc moscovium [290]	106 Lv livornium [293]	107 Ts tennessine [294]	108 Og oganeson [294]	
6 La lanthanum 138.91	59 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 167.28	69 Tm thulium 168.93	70 Yb ytterbium 173.05	71 Lu lutetium 174.97	72 Hf hafnium 178.49	73 Th thorium 232.04	74 Pa protactinium 231.04	75 U uranium 238.03

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		
H hydrogen 1.008	Be beryllium 9.0122	Li lithium 6.94	Mg magnesium 24.305	Ca calcium 40.078	Sc scandium 44.956	Ti titanium 50.942	V vanadium 51.996	Cr chromium 54.938	Mn manganese 55.845	Fe iron 56.833	Co cobalt 58.933	Ni nickel 58.693	Cu copper 63.546	Zn zinc 65.38	B boron 10.81	C carbon 12.011	N nitrogen 14.007	O oxygen 15.999	He helium 4.0026
Na sodium 22.99	Al aluminum 26.982	Si silicon 28.085	P phosphorus 30.974	S sulfur 32.06	Cl chlorine 35.45	Ar argon 39.95													
K potassium 39.098	Rb rubidium 85.468	Y yttrium 88.905	La lanthanum 138.91	Sc cerium 140.12	Ti praseodymium 140.91	V neodymium 144.24	Cr promethium 145	Mn samarium 150.36	Fe europium 151.96	Co gadolinium 157.25	Ni terbium 162.5	Cu dysprosium 162.5	Zn holmium 164.93	B erbium 167.26	C thulium 168.93	O ytterbium 173.05	Yb lutetium 174.97		
Ca strontium 87.62	Db rutherfordium 267	Zr dubnium (268)	Sg seaborgium (269)	Bh bohrium (270)	Os meitnerium (270)	Ir darmstadtium (278)	Pt roentgenium (281)	Pd damarium (282)	Ru roentgenium (282)	Rh darmstadtium (282)	Pd platinum 195.08	Ag gold 196.97	Cd mercury 200.59	In thallium 204.38	Pb bismuth 208.98	Bi polonium (209)	At astatine (210)	Rn radon (222)	
Fr francium (223)	Ra radium (226)	89-103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118		
		Ac actinium (227)	Th thorium 232.04	Pa protactinium 231.04	U uranium 238.03	Np neptunium (237)	Pu plutonium (244)	Am americium (243)	Cm curium (247)	Bk berkelium (247)	Cf californium (251)	Esn einsteinium (252)	Fm fermium (257)	Md mendelevium (258)	No nobelium (259)	Lr lawrencium (266)			
		57	58	59	60	61	62	63	64	65	66	67	68	69	70	71			
		La lanthanum 138.91	Ce cerium 140.12	Pr praseodymium 140.91	Nd neodymium 144.24	Pm promethium 145	Sm samarium 150.36	Eu europium 151.96	Gd gadolinium 157.25	Tb terbium 158.93	Dy dysprosium 162.5	Ho holmium 164.93	Er erbium 167.26	Tm thulium 168.93	Yb ytterbium 173.05	Lu lutetium 174.97			
		89	90	91	92	93	94	95	96	97	98	99	100	101	102	103			
		Ac actinium (227)	Th thorium 232.04	Pa protactinium 231.04	U uranium 238.03	Np neptunium (237)	Pu plutonium (244)	Am americium (243)	Cm curium (247)	Bk berkelium (247)	Cf californium (251)	Esn einsteinium (252)	Fm fermium (257)	Md mendelevium (258)	No nobelium (259)	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		
H hydrogen 1.008	Be beryllium 9.0122	Li lithium 6.94	Mg magnesium 24.305	Ca calcium 40.078	Sc scandium 44.956	Ti titanium 50.942	V vanadium 51.996	Cr chromium 54.938	Mn manganese 55.845	Fe iron 56.833	Co cobalt 58.933	Ni nickel 58.693	Cu copper 63.546	Zn zinc 65.38	B boron 10.81	C carbon 12.011	N nitrogen 14.007	O oxygen 15.999	He helium 4.0026
Na sodium 22.99	Al aluminum 26.982	Si silicon 28.085	P phosphorus 30.974	S sulfur 32.06	Cl chlorine 35.45	Ar argon 39.95													
K potassium 39.098	Rb rubidium 85.468	Y yttrium 88.905	La lanthanum 138.91	Sc cerium 140.12	Ti praseodymium 140.91	V neodymium 144.24	Cr promethium 145	Mn samarium 150.36	Fe europium 151.96	Co gadolinium 157.25	Ni terbium 162.5	Cu dysprosium 162.5	Zn holmium 164.93	B erbium 167.26	C thulium 168.93	O ytterbium 173.05	Yb lutetium 174.97		
Ca strontium 87.62	Db rutherfordium (267)	Zr dubnium (268)	Sg seaborgium (269)	Bh bohrium (270)	Os meitnerium (270)	Ir darmstadtium (278)	Pt roentgenium (281)	Pd damarium (282)	Ru roentgenium (282)	Rh darmstadtium (282)	Pd platinum 195.08	Ag gold 196.97	Cd mercury 200.59	In thallium 204.38	Pb bismuth 208.98	Bi polonium (209)	At astatine (210)	Rn radon (222)	
Fr francium (223)	Ra radium (226)	89-103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118		
		Ac actinium (227)	Th thorium 232.04	Pa protactinium 231.04	U uranium 238.03	Np neptunium (237)	Pu plutonium (244)	Am americium (243)	Cm curium (247)	Bk berkelium (247)	Cf californium (251)	Esn einsteinium (252)	Fm fermium (257)	Md mendelevium (258)	No nobelium (259)	Lr lawrencium (266)			
		57	58	59	60	61	62	63	64	65	66	67	68	69	70	71			
		La lanthanum 138.91	Ce cerium 140.12	Pr praseodymium 140.91	Nd neodymium 144.24	Pm promethium 145	Sm samarium 150.36	Eu europium 151.96	Gd gadolinium 157.25	Tb terbium 158.93	Dy dysprosium 162.5	Ho holmium 164.93	Er erbium 167.26	Tm thulium 168.93	Yb ytterbium 173.05	Lu lutetium 174.97			
		89	90	91	92	93	94	95	96	97	98	99	100	101	102	103			
		Ac actinium (227)	Th thorium 232.04	Pa protactinium 231.04	U uranium 238.03	Np neptunium (237)	Pu plutonium (244)	Am americium (243)	Cm curium (247)	Bk berkelium (247)	Cf californium (251)	Esn einsteinium (252)	Fm fermium (257)	Md mendelevium (258)	No nobelium (259)	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
37	Rb	38	Ti
5	rubidium 55.468	39	V
65	Cs	40	Cr
7	francium [223]	41	Mn
87	Fr	42	Fe
2	Ra	43	Co
89-103	actinoids	44	Mn
104	Rf	45	Fe
105	netherfordium [267]	46	Co
106	Db	47	Ni
107	dubnium [268]	48	Cu
108	Sg	49	Zn
109	seaborgium [269]	50	Ga
110	Bh	51	Ge
111	Hs	52	As
112	Mt	53	Se
113	Ds	54	Br
114	Rg	55	Kr
115	Cn	56	I
116	Nh	57	Xe
117	Fl	58	xeon [222]
118	Mc	59	At
119	Lv	60	Rn
120	Ts	61	[210]
121	Og	62	[209]
6	La	59	Lu
7	Ce	60	Yb
89	Pr	61	Lu
90	Nd	62	Yb
91	Pm	63	Lu
92	Sm	64	Er
93	Eu	65	Tm
94	Gd	66	Yb
95	Tb	67	Ho
96	Dy	68	Er
97	No	69	Tm
98	Tm	70	Yb
99	Lu	71	Lu
100	Ac	72	Lu
101	Th	73	Lu
102	Pa	74	Lu
103	U	75	Lu
104	Np	76	Lu
105	Pu	77	Lu
106	Am	78	Lu
107	Cm	79	Lu
108	Bk	80	Lu
109	Cf	81	Lu
110	Es	82	Lu
111	Fm	83	Lu
112	Md	84	Lu
113	No	85	Lu
114	Ro	86	Lu
115	Lawrencium	87	Lu
116	Terrenezine	88	Lu
117	Oganesson	89	Lu
118	Lu	90	Lu

Title and Legend**show title**default: `true`

When set to `true` the title is shown, otherwise the title (Periodic Table of elements) is not shown.

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

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	6	Ti
5	rubidium 55.468	7	V
65	Cs	8	Cr
7	francium [223]	9	Mn
87	Fr	10	Fe
2	Ra	11	Co
89-103	actinoids	12	Ni
104	Rf	13	Cu
105	netherfordium [267]	14	Zn
106	Db	15	Ga
107	dubnium [268]	16	Ge
108	Sg	17	As
109	Bh	18	Se
110	Hs	19	Br
111	Mt	20	Kr
112	Ds	21	I
113	Rg	22	Xe
114	Cn	23	xeon [222]
115	Nh	24	At
116	Fl	25	Rn
117	Mc	26	[210]
118	Lv	27	[209]
119	Ts	28	[208]
120	Og	29	[207]
6	La	30	[206]
7	Ce	31	[205]
89	Pr	32	[204]
90	Nd	33	[203]
91	Pm	34	[202]
92	Sm	35	[201]
93	Eu	36	[200]
94	Gd	37	[199]
95	Tb	38	[198]
96	Dy	39	[197]
97	No	40	[196]
98	Tm	41	[195]
99	Lu	42	[194]
100	Ac	43	[193]
101	Th	44	[192]
102	Pa	45	[191]
103	U	46	[190]
104	Np	47	[189]
105	Pu	48	[188]
106	Am	49	[187]
107	Cm	50	[186]
108	Bk	51	[185]
109	Cf	52	[184]
110	Es	53	[183]
111	Fm	54	[182]
112	Md	55	[181]
113	No	56	[180]
114	Ro	57	[179]
115	Terrenezine	58	[178]
116	Oganesson	59	[177]
117	Lu	60	[176]

```
\pgfPT[Z list={1,...,36},show title=false]
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1	H hydrogen 1.008	2	He helium 4.0026
3	Li lithium 6.94	4	B 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 72.623
21	As arsenic 74.922	22	Se selenium 78.971
23	Br bromine 79.904	24	Kr krypton 83.798
25	Ga germanium 86.932	26	Ge selenium 87.905
27	As arsenic 91.482	28	Se bromine 91.902
29	Br krypton 95.945	30	Kr selenium 95.945
31	Ga germanium 101.922	32	Ge bromine 103.903
33	As krypton 107.903	34	Se germanium 107.903
35	Br selenium 108.903	36	Kr bromine 108.903
37	Ga germanium 112.903	38	Ge krypton 112.903
39	As bromine 115.903	40	Se germanium 115.903
41	Br selenium 118.903	42	Kr germanium 118.903
43	Ga krypton 121.903	44	Ge germanium 121.903
45	As germanium 122.903	46	Se krypton 122.903
47	Br germanium 126.903	48	Kr germanium 126.903
49	Ga krypton 130.903	50	Ge germanium 130.903
51	As germanium 132.903	52	Se krypton 132.903
53	Br germanium 136.903	54	Kr germanium 136.903
55	Ga krypton 140.903	56	Ge germanium 140.903
57	As germanium 144.903	58	Se krypton 144.903
59	Br germanium 148.903	60	Kr germanium 148.903
61	Ga krypton 152.903	62	Ge germanium 152.903
63	As germanium 156.903	64	Se krypton 156.903
65	Br germanium 160.903	66	Kr germanium 160.903
67	Ga krypton 164.903	68	Ge germanium 164.903
69	As germanium 168.903	70	Se krypton 168.903
71	Br germanium 172.903	72	Kr germanium 172.903
73	Ga krypton 176.903	74	Ge germanium 176.903
75	As germanium 180.903	76	Se krypton 180.903
77	Br germanium 184.903	78	Kr germanium 184.903
79	Ga krypton 188.903	80	Ge germanium 188.903
81	As germanium 192.903	82	Se krypton 192.903
83	Br germanium 196.903	84	Kr germanium 196.903
85	Ga krypton 200.903	86	Ge germanium 200.903
87	As germanium 204.903	88	Se krypton 204.903
89	Br germanium 208.903	90	Kr germanium 208.903
91	Ga krypton 212.903	92	Ge germanium 212.903
93	As germanium 216.903	94	Se krypton 216.903
95	Br germanium 220.903	96	Kr germanium 220.903
97	Ga krypton 224.903	98	Ge germanium 224.903
99	As germanium 228.903	100	Se krypton 228.903
101	Br germanium 232.903	102	Kr germanium 232.903
103	Ga krypton 236.903	104	Ge germanium 236.903
105	As germanium 240.903	106	Se krypton 240.903
107	Br germanium 244.903	108	Kr germanium 244.903
109	Ga krypton 248.903	110	Ge germanium 248.903
111	As germanium 252.903	112	Se krypton 252.903
113	Br germanium 256.903	114	Kr germanium 256.903
115	Ga krypton 260.903	116	Ge germanium 260.903
117	As germanium 264.903	118	Se krypton 264.903

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																			18
1	hydrogen 1.008																			2
2	lithium 6.94	B beryllium 9.0122																	He helium 4.0026	
3	Na sodium 22.99	Mg magnesium 24.305																	Ne neon 20.18	
4	K potassium 39.098	Ca calcium 40.078																	Ar argon 39.95	
		Sc scandium 44.956	Tl tinanium 47.867	V vanadium 50.942	Cr chromium 51.996	Mn manganese 54.938	Fe iron 55.845	Co cobalt 58.933	Ni nickel 58.693	Cu copper 63.546	Zn zinc 65.38									Kr krypton 83.798
		31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	

title color

default: *black*

Sets the title color.

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

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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Periodic Table of Elements

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

show legend

default: true

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

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

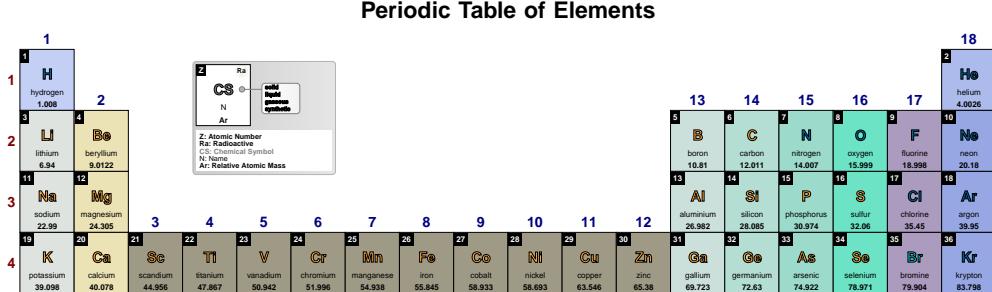
1	H	2											18			
1	hydrogen 1.008	2											He helium 4.0026			
2	Li lithium 6.94	Be beryllium 9.0122											10			
3	Na sodium 22.99	Mg magnesium 24.305	3	4	5	6	7	8	9	10	11	12	13	14	15	
4	K potassium 39.098	Ca calcium 40.078	21	Sc scandium 44.956	Ti titanium 47.867	V vanadium 50.942	Cr chromium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

legend acronyms

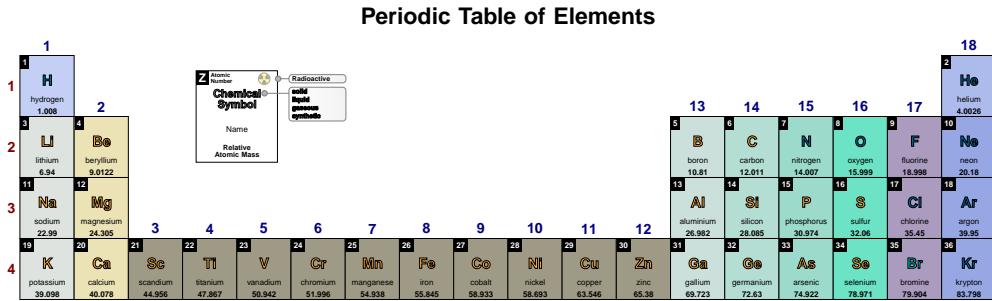
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When set to true, the legend consists of a cell using acronyms for its contents and the corresponding descriptions below that cell. When set to false, only the cell is displayed with the descriptions in place of the acronyms. In the latter case, the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

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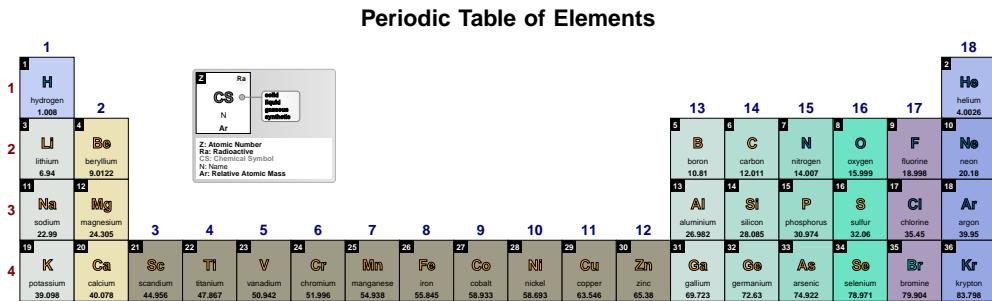


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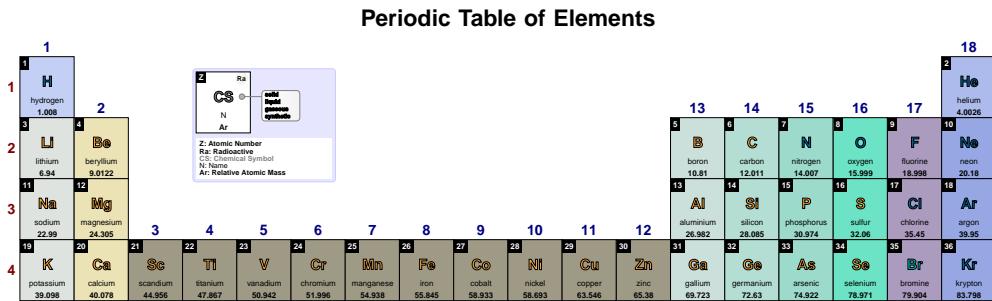
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Style to define the appearance of the box around the legend, legend pins and acronym descriptions, built with any of the Ti_kZ keys that can be applied to a path construction. *It only works when the key `legend acronyms` is set to true.*

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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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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

legend back color

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Sets the legend background color.

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Periodic Table of Elements																	
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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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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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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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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	Gallium	Germanium	As	Se	Br
5	B	boron	10.81	6	C	carbon	12.011	7	N	O							F	
6	Al	aluminum	26.982	7	Si	silicon	28.085	8	P	S	Phosphorus	Sulfur					S	
8				9				10		11								
10				11				12		13								
12				13				14		15								
14				15				16		17								
16				17				18										

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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	Gallium	Germanium	As	Se	Br
5	B	boron	10.81	6	C	carbon	12.011	7	N	O							F	
6	Al	aluminum	26.982	7	Si	silicon	28.085	8	P	S	Phosphorus	Sulfur					S	
8				9				10		11								
10				11				12		13								
12				13				14		15								
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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
4				Scandium	Titanium	Vanadium	Chromium	Manganese	Iron	Cobalt	Nickel	Copper	Zinc	Gallium	Germanium	As	Se	Br
5	B	boron	10.81	6	C	carbon	12.011	7	N	O							F	
6	Al	aluminum	26.982	7	Si	silicon	28.085	8	P	S	Phosphorus	Sulfur					S	
8				9				10		11								
10				11				12		13								
12				13				14		15								
14				15				16		17								
16				17				18										

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Periodic Table of Elements																		
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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	Gallium	Germanium	As	Se	Br
5	B	boron	10.81	6	C	carbon	12.011	7	N	O							F	
6	Al	aluminum	26.982	7	Si	silicon	28.085	8	P	S	Phosphorus	Sulfur					S	
8				9				10		11								
10				11				12		13								
12				13				14		15								
14				15				16		17								
16				17				18										

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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 44.956	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
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Periodic Table of Elements																	
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legend Z color

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Periodic Table of Elements																	
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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
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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 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 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 He helium 4.0026
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3 3 Sc scandium 44.956	4 4 Ti titanium 47.867	5 5 V vanadium 50.942	6 6 Cr chromium 51.996	7 7 Mn manganese 54.938	8 8 Fe iron 55.845	9 9 Co cobalt 58.933	10 10 Ni nickel 58.693	11 11 Cu copper 63.546	12 12 Zn zinc 65.38	13 13 Ga gallium 69.723	14 14 Ge germanium 72.63	15 15 As arsenic 74.922	16 16 Se selenium 78.971	17 17 Br bromine 79.904	18 18 Kr krypton 83.798		

show legend pins

default: true

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

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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 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 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 He helium 4.0026
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3 3 Sc scandium 44.956	4 4 Ti titanium 47.867	5 5 V vanadium 50.942	6 6 Cr chromium 51.996	7 7 Mn manganese 54.938	8 8 Fe iron 55.845	9 9 Co cobalt 58.933	10 10 Ni nickel 58.693	11 11 Cu copper 63.546	12 12 Zn zinc 65.38	13 13 Ga gallium 69.723	14 14 Ge germanium 72.63	15 15 As arsenic 74.922	16 16 Se selenium 78.971	17 17 Br bromine 79.904	18 18 Kr krypton 83.798		

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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 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 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 He helium 4.0026
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
3 3 Sc scandium 44.956	4 4 Ti titanium 47.867	5 5 V vanadium 50.942	6 6 Cr chromium 51.996	7 7 Mn manganese 54.938	8 8 Fe iron 55.845	9 9 Co cobalt 58.933	10 10 Ni nickel 58.693	11 11 Cu copper 63.546	12 12 Zn zinc 65.38	13 13 Ga gallium 69.723	14 14 Ge germanium 72.63	15 15 As arsenic 74.922	16 16 Se selenium 78.971	17 17 Br bromine 79.904	18 18 Kr krypton 83.798		

legend pins

default: {line width=.05pt,rounded corners=2pt,right color=black!15!,left color=white,draw=black!50}

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

\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 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 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 He helium 4.0026
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
3 3 Sc scandium 44.956	4 4 Ti titanium 47.867	5 5 V vanadium 50.942	6 6 Cr chromium 51.996	7 7 Mn manganese 54.938	8 8 Fe iron 55.845	9 9 Co cobalt 58.933	10 10 Ni nickel 58.693	11 11 Cu copper 63.546	12 12 Zn zinc 65.38	13 13 Ga gallium 69.723	14 14 Ge germanium 72.63	15 15 As arsenic 74.922	16 16 Se selenium 78.971	17 17 Br bromine 79.904	18 18 Kr krypton 83.798		

\pgfPT[Z list={1,...,36},legend pins={draw=red,fill=red!10}]

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]

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.

\pgfPTbuilcellstyle{myname}(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),(5.25-6.75;1-3;DiscC)]
\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
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]

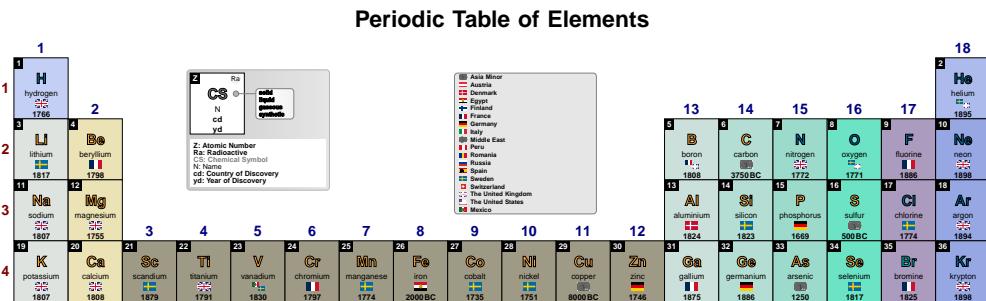
Periodic Table of Elements																	
1 H hydrogen 1.008	2 He helium 4.0026	3 Li lithium 6.94	4 Be beryllium 9.0122	5 B boron 10.81	6 C carbon 12.011	7 N nitrogen 14.007	8 O oxygen 15.999	9 F fluorine 18.998	10 Ne neon 20.18	11 Na sodium 22.99	12 Mg magnesium 24.305	13 Al aluminum 26.982	14 Si 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
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

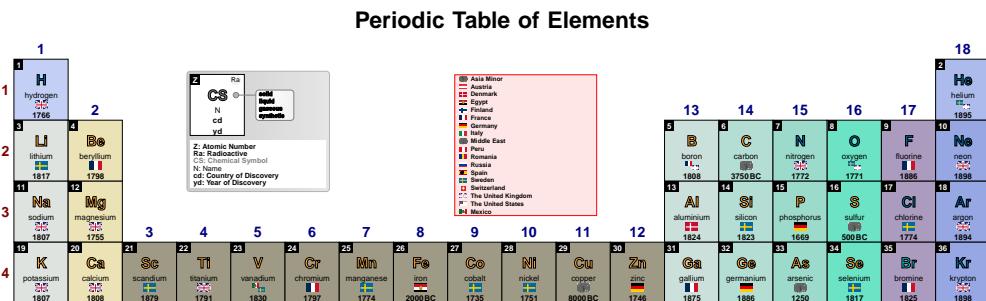
default: `{draw=black!50,fill=black!10,line width=.05pt, rounded corners=2pt}`

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

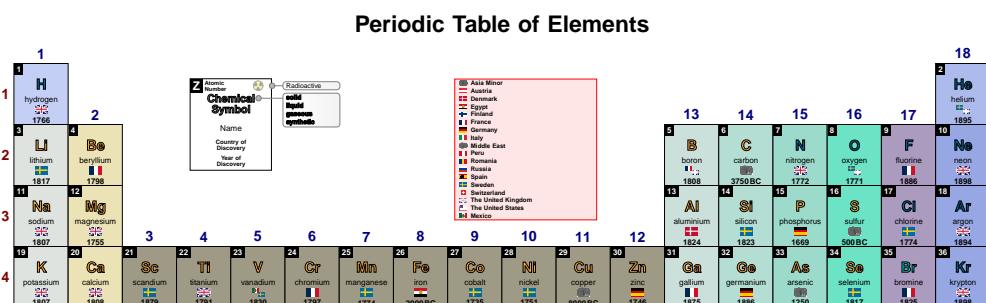
`\pgfPT[Z list={1,...,36},cell style=pgfPTdisc]`



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



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

**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:

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

► 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 35.495	16	Ar argon 39.95
17	K potassium 39.098	18	Rb rubidium 85.46
19	Ca calcium 40.078	20	Kr krypton 83.798
21	Sc scandium 44.956	22	Ti titanium 47.87
23	V vanadium 50.942	24	Cr chromium 51.986
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 65.39
31	Ga gallium 69.723	32	Ge germanium 72.63
33	As arsenic 74.922	34	Se selenium 78.921
35	Br bromine 79.904		

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

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 39.09	20	Ca calcium 40.08
21	Sc scandium 44.96	22	Ti titanium 47.87
23	V vanadium 50.94	24	Cr chromium 52.00
25	Mn manganese 54.94	26	Fe iron 55.85
27	Co cobalt 58.93	28	Ni nickel 58.71
29	Cu copper 63.55	30	Zn zinc 65.40
31	Ga gallium 69.72	32	Ge germanium 72.63
33	As arsenic 74.98	34	Se selenium 78.96
35	Br bromine 80.00	36	Kr krypton 83.80
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
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
2	Ra radioactive Cs symbol N name Ar relative atomic mass	18	

show group numbersdefault: *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	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	calcium 40.078
21	Sc	22	Ti
2	scandium 44.956	3	titanium 47.867
23	V	24	Cr
	vanadium 50.942	5	chromium 51.996
25	Mn	26	Fe
	manganese 54.938	6	iron 55.845
27	Co	28	Co
	cobalt 58.933	7	nickel 58.693
29	Ni	30	Cu
	copper 63.546	8	zinc 65.38
31	Zn	32	Ga
	zinc 65.38	9	Ge
33	As	34	As
	arsenic 74.922	10	Se
35	Br	36	Br
	bromine 79.904	11	Kr
	krypton 83.798	12	
		13	B
		14	C
		15	N
		16	O
		17	F
		18	Ne

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

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	21	Sc
	calcium 40.078	22	Ti
	scandium 44.956	23	V
	titanium 47.867	24	Cr
	vanadium 50.942	5	Mn
	chromium 51.996	6	Fe
	manganese 54.938	7	Co
	iron 55.845	8	Co
	cobalt 58.933	9	Ni
	nickel 58.693	10	Cu
	copper 63.546	11	Zn
	zinc 65.38	12	Ga
	gallium 69.723	13	Ge
	germanium 72.63	14	As
	arsenic 74.922	15	Se
	selenium 78.971	16	Br
	bromine 79.904	17	Kr
	krypton 83.798	18	

period label colordefault: *red!50!black*

Sets the period label color.

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

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	21	Sc
	calcium 40.078	22	Ti
	scandium 44.956	23	V
	titanium 47.867	24	Cr
	vanadium 50.942	5	Mn
	chromium 51.996	6	Fe
	manganese 54.938	7	Co
	iron 55.845	8	Co
	cobalt 58.933	9	Ni
	nickel 58.693	10	Cu
	copper 63.546	11	Zn
	zinc 65.38	12	Ga
	gallium 69.723	13	Ge
	germanium 72.63	14	As
	arsenic 74.922	15	Se
	selenium 78.971	16	Br
	bromine 79.904	17	Kr
	krypton 83.798	18	

group label colordefault: *blue!50!black*

Sets the group label color.

```
\pgfPT[Z list={1,...,36},group 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	B boron 10.81	6	C carbon 12.011
7	N nitrogen 14.007	8	O oxygen 15.998
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 44.958	22	Tl thallium 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	Ni nickel 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		Kr krypton 83.798

label font

default: `\small\bfseries`

Sets the label font.

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

Periodic Table of Elements

1	H hydrogen 1.008	Z	CS Ra solid liquid gas synthesis	2	He helium 4.0026
3	Li lithium 6.94	4	Be beryllium 9.0120	5	
6	Na sodium 22.99	7	Mg magnesium 24.305	8	
9	K potassium 39.098	10	Ca calcium 40.078	11	
12	Sc scandium 44.958	13	Ti titanium 47.867	14	V vanadium 50.942
14	Cr chromium 51.996	15	Mn manganese 54.938	16	Fe iron 55.845
16	Co cobalt 58.933	17	Ni nickel 63.546	18	Zn zinc 65.38
18	Ga gallium 69.723	19	Ge germanium 72.63	20	As arsenic 74.922
20	Se selenium 78.971	21	Br bromine 79.904	22	Kr krypton 83.798
22	Ra radioactive	23	Ar argon 39.95	24	
24	N nitrogen 14.007	25	P phosphorus 30.974	26	
26	S sulfur 32.06	27	Cl chlorine 35.45	28	
28	Al aluminum 26.982	29	Si silicon 28.085	30	
30	B boron 10.81	31	C carbon 12.011	32	
32	N nitrogen 14.007	33	O oxygen 15.999	34	
34	F fluorine 18.998	35	Ne neon 20.18	36	
36	Ar argon 39.95				
38					

per

default: $\{gr=true,c=red!50!black,f=\backslash small\backslash bfseries\}$

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

USAGE: `per={qr=<true|false>,c=<color>,f=}`

```
\p{qfPT[Z |list={1,...,36},per={qr=false,c=green!50!black}]}
```

Periodic Table of Elements

1	H hydrogen 1.008	2	Ra radioactive 4.0026	5	B boron 10.81	6	C carbon 12.011	7	N nitrogen 14.007	8	O oxygen 15.999	9	F fluorine 19.998	10	Ne helium 4.0026																	
2	Li lithium 6.94	Be beryllium 9.0122	3	Na sodium 22.99	4	Mg magnesium 24.305	5	Al aluminum 26.982	6	Si silicon 28.985	7	P phosphorus 30.974	8	S sulfur 32.06	9	Cl chlorine 35.45																
11	K potassium 39.098	12	Ca calcium 40.078	13	Sc scandium 44.958	14	Ti titanium 47.867	15	V vanadium 50.942	16	Cr chromium 51.996	17	Mn manganese 54.938	18	Fe iron 55.845																	
19	K potassium 39.098	20	Ca calcium 40.078	21	Sc scandium 44.958	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

gr

default: {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: qr={per=<true|false>,c=<color>,f=}

```
\pgfPT[Z list={1,...,36},gr={per=false,c=green!50!black}]
```

Periodic Table of Elements

1	H hydrogen 1.008	Ra	18
2	Be beryllium 9.0122		
3	Li lithium 6.94	CS Z: Atomic Number Ra: Radioactive Cs: Chemical Symbol N: Name Ar: Relative Atomic Mass	He helium 4.0026
4	Mg magnesium 24.305		
5	Al aluminum 26.982	13	Ne neon 20.18
6	Si silicon 28.085	14	
7	P phosphorus 30.974	15	
8	S sulfur 32.06	16	
9	Cl chlorine 35.45	17	
10	Ar argon 39.95	18	
11	K potassium 39.098	21	
12	Ca calcium 40.078	Sc scandium 44.956	22
13	Tl thallium 204.9767	V vanadium 50.942	23
14	Bi bismuth 208.9804	Cr chromium 51.996	24
15	As arsenic 74.922	Mn manganese 54.938	25
16	Se selenium 78.971	Fe iron 55.845	26
17	Br bromine 79.904	Co cobalt 58.933	27
18	Kr krypton 83.798	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	36

per+gr

default: $\{pc=red!50!black,gc=blue!50!black,f=\small\bfseries\}$

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
3	Li lithium 6.94	4	Be beryllium 9.0122
5	Mg magnesium 24.305	6	Ca calcium 40.078
7	Na sodium 22.99	8	Ar argon 39.95
9	K potassium 39.098	10	Ne neon 20.18
11	Si silicon 28.085	12	Ar argon 39.95
13	B boron 10.81	14	C carbon 12.011
15	N nitrogen 14.007	16	O oxygen 16.998
17	F fluorine 18.998	18	He helium 4.0026
19	P phosphorus 30.974	20	S sulfur 32.06
21	Al aluminum 26.982	22	Cl chlorine 35.45
23	Si silicon 28.085	24	Ar argon 39.95
25	Fe iron 55.845	26	Ge germanium 72.63
27	Co cobalt 58.933	28	As arsenic 74.623
29	Ni nickel 58.695	30	Se selenium 78.074
31	Zn zinc 65.39	32	Br bromine 80.004
33	Ge germanium 78.723	34	Kr krypton 83.799
35	As arsenic 75.53	36	Kr krypton 83.799

→ **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.

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

\pgfPT[show blocks,show title=false]

This table shows the periodic table from element 1 to 118. The elements are arranged in groups and periods. The s-block (alkali metals and alkaline earth metals) is highlighted in yellow. The p-block (noble gases, halogens, and other non-metals) is highlighted in light green. The d-block (transition metals) is highlighted in light blue. The f-block (lanthanides and actinides) is highlighted in light purple. A legend in the top left corner provides definitions for the symbols used: Z for Atomic Number, Ra for Radioactive, CS for Chemical Symbol, N for Name, and Ar for Relative Atomic Mass.

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

This table is similar to the first one, but it excludes the f-block elements (lanthanides and actinides). The s-block (yellow), d-block (light blue), and p-block (light green) elements are still present and color-coded.

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

This table is identical to the second one, but it includes the IUPAC name of each element directly below the symbol. The s-block (yellow), d-block (light blue), and p-block (light green) elements are color-coded.

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: {}

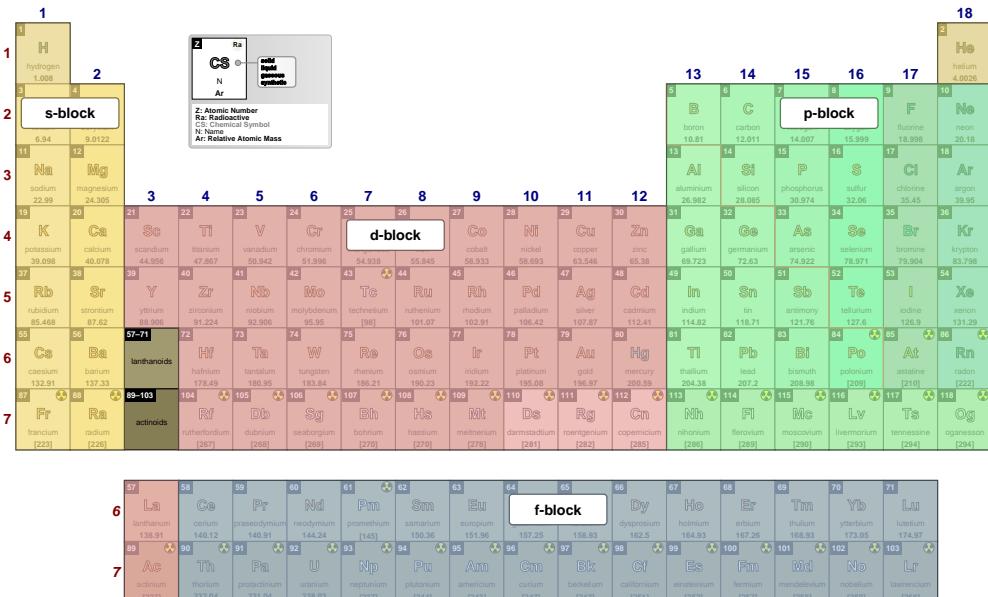
Sets the f block label font color. If no color is provided, the **f block color** will be used as the font color.

f block line widthdefault: *0.8pt*

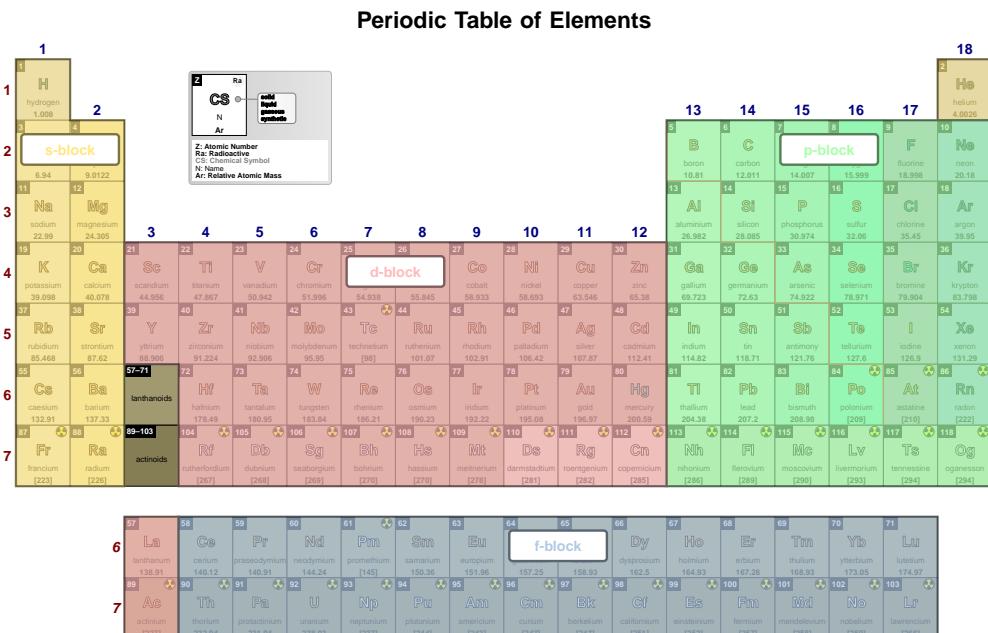
Sets the width of the line surrounding the f block.

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**.

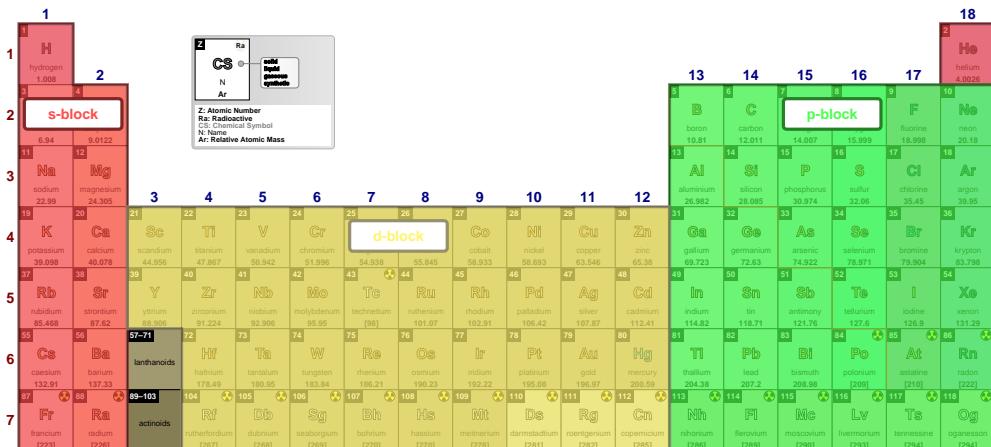
NOTE:

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]
```

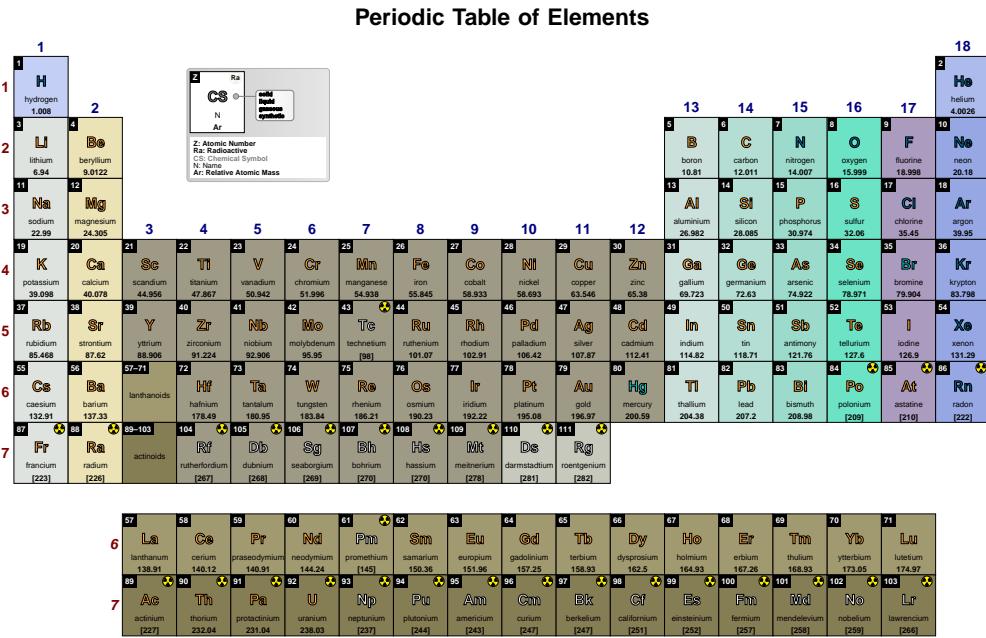


show families

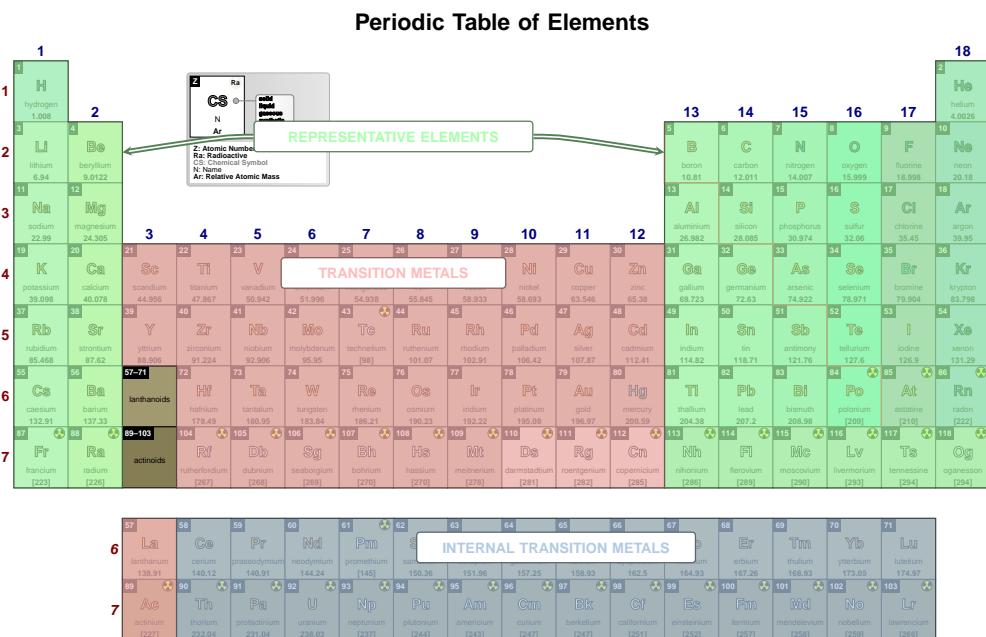
default: false

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 illustrates a periodic table with several features:

- Color Coding:** Groups 1-2 (H-He) are green; group 18 (He) is blue; transition metals (groups 3-12) are pink; lanthanoids (Ce-Lu) are purple; actinoids (Th-Lr) are red.
- Block Labels:**
 - REPRESENTATIVE ELEMENTS:** A green box spanning groups 1-2 and rows 1-7.
 - TRANSITION METALS:** A pink box spanning groups 3-12 and rows 1-7.
 - INTERNAL TRANSITION METALS:** A blue box spanning lanthanoids (Ce-Lu) and actinoids (Th-Lr).
- Legend:** Located in the top left, it defines symbols for 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, atomic mass, and relative atomic mass.

families fontdefault: `\small\bfseries`

Sets the font used in the family labels.

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

This periodic table is identical to the one above, except for the font used in the block labels:

- REPRESENTATIVE ELEMENTS:** A green box spanning groups 1-2 and rows 1-7.
- TRANSITION METALS:** A pink box spanning groups 3-12 and rows 1-7.
- INTERNAL TRANSITION METALS:** A blue box spanning lanthanoids (Ce-Lu) and actinoids (Th-Lr).

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.

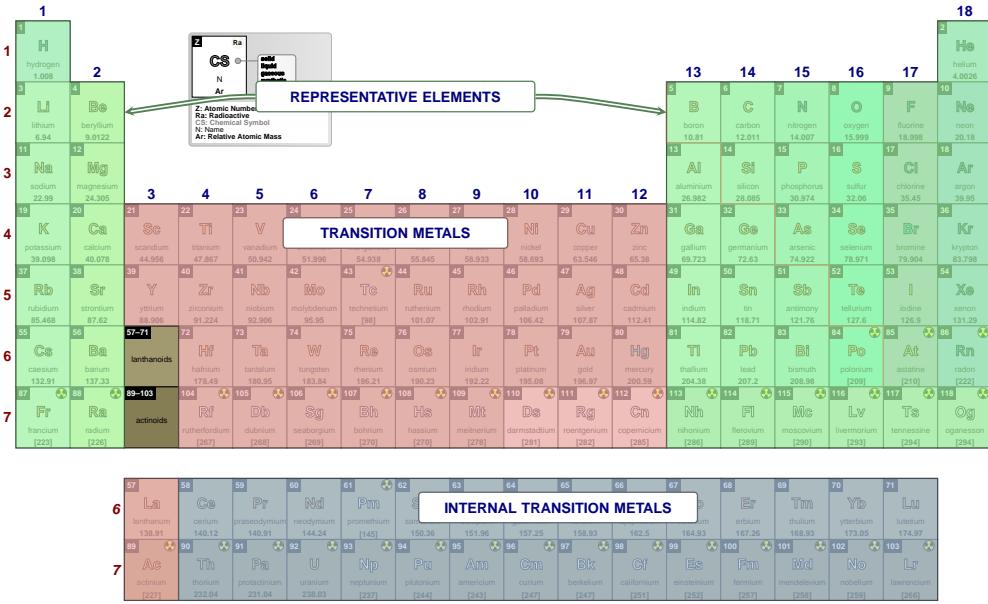
itm family line width default: *0.8pt*

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**.

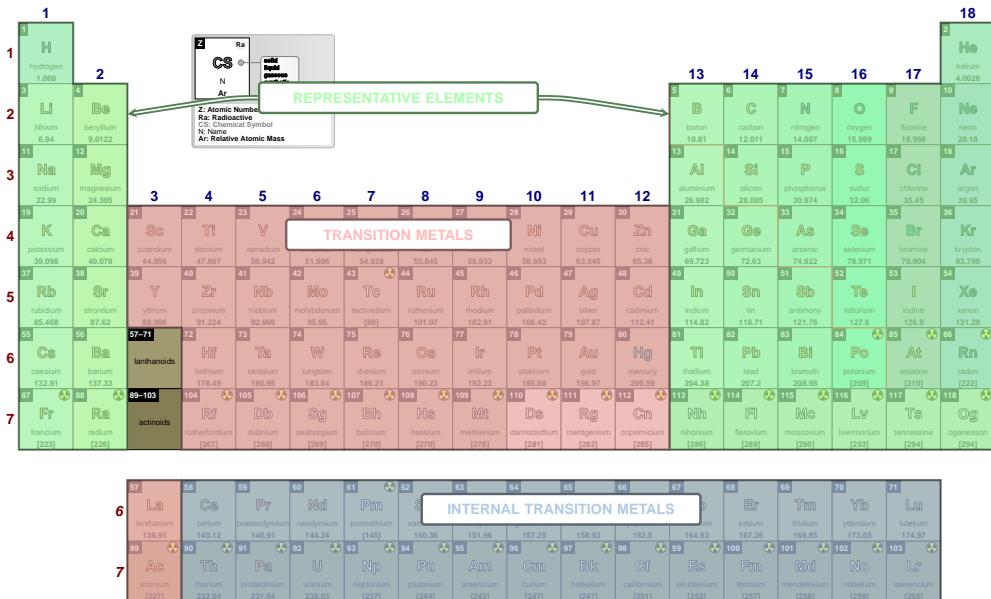
\pgfPT[**show title=false,families font color=blue!50!black**]



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**.

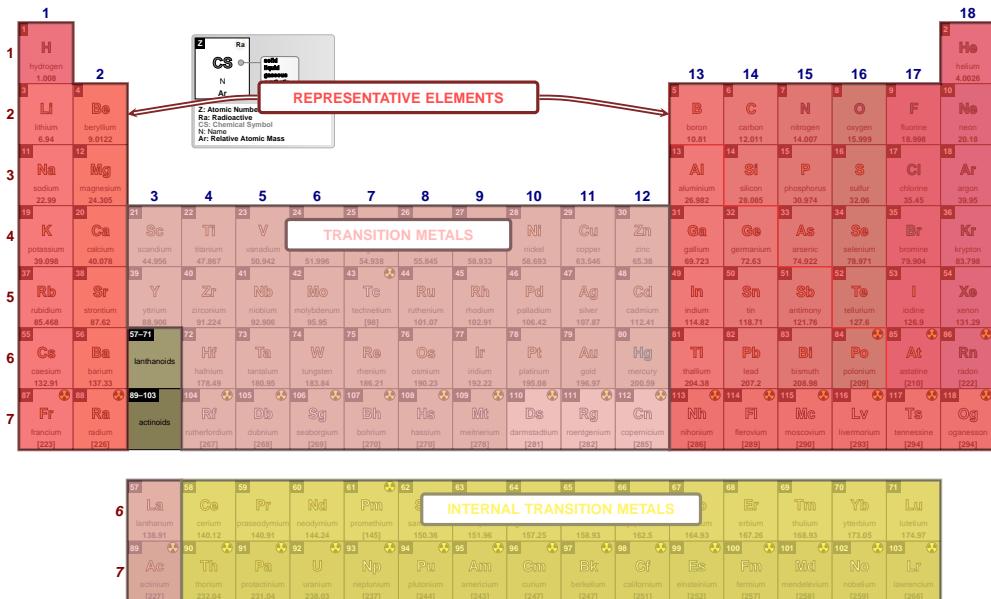
NOTE:

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.

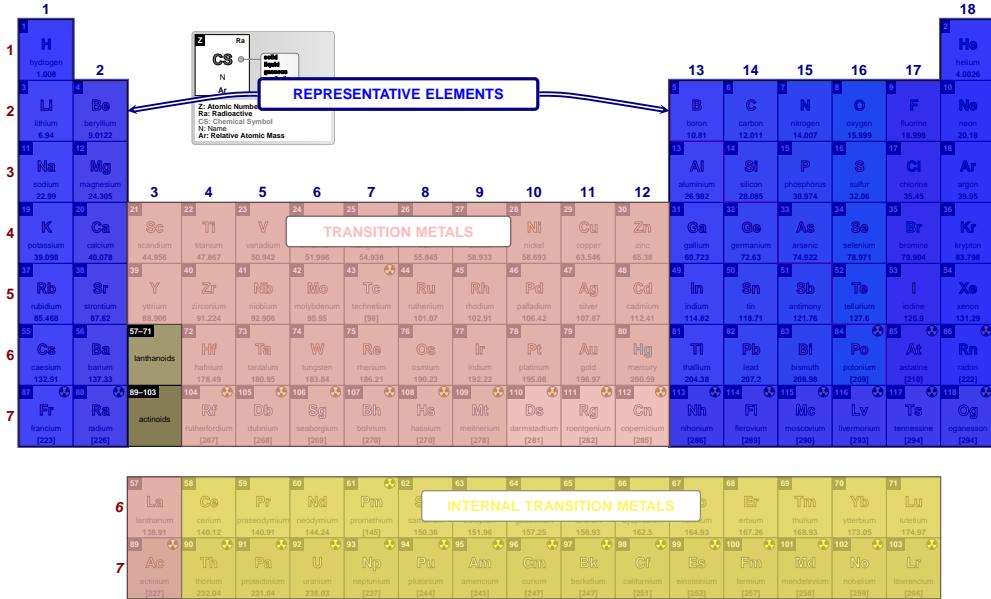
USAGE:

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

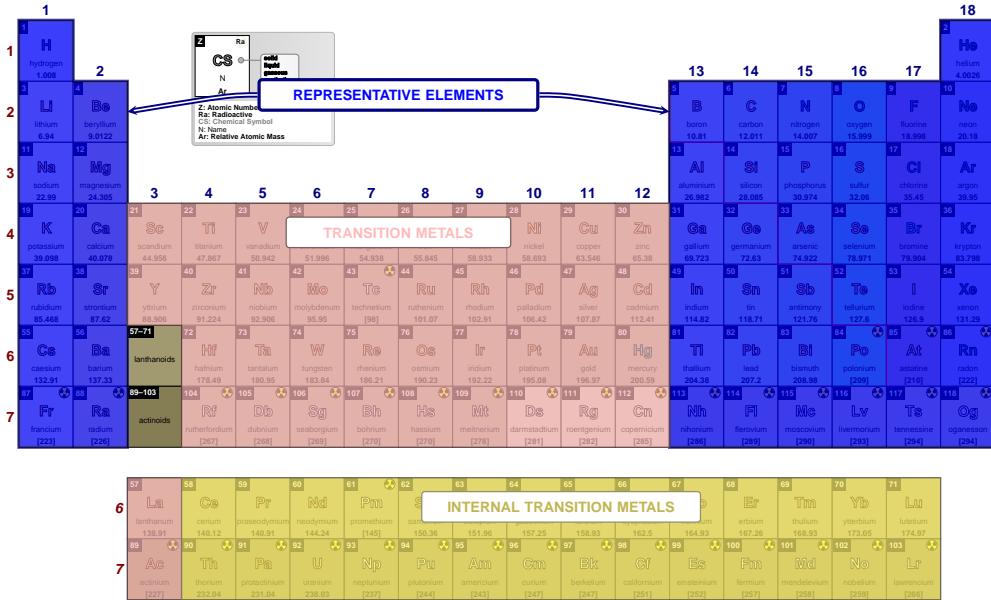
```
\pgfPT[families={rc=red!70!white,ic=yellow!70!white,lw=2pt},show title=false]
```



\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]`

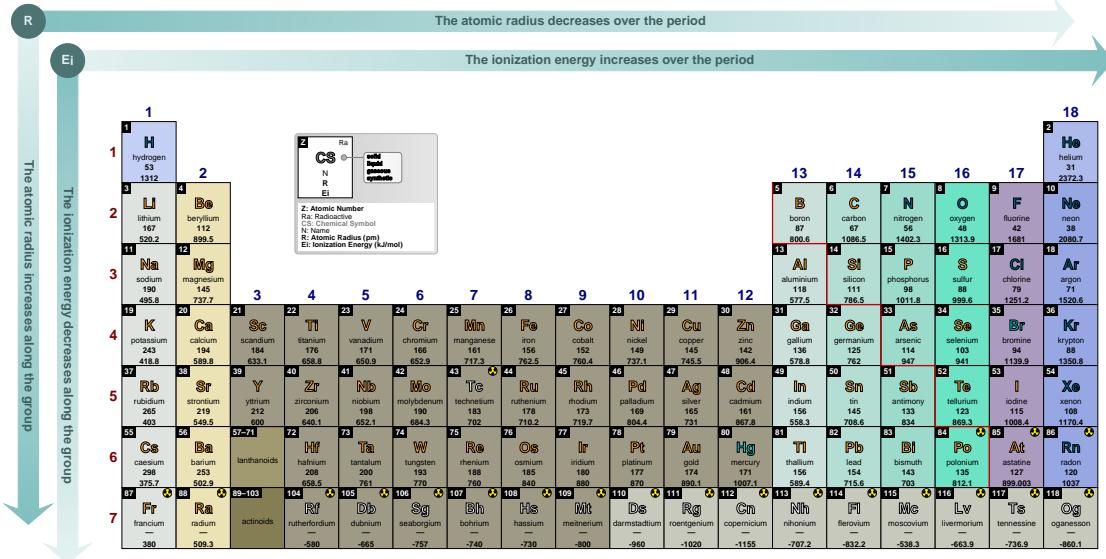
1	H	2	He
1	hydrogen 1.008	2	helium 4.0026
2	Li	3	Be
11	lithium 6.94	12	beryllium 9.0122
3	Na	4	Mg
19	sodium 22.99	20	magnesium 24.305
4	K	5	Ca
37	potassium 39.098	38	calcium 40.078
5	Rb	6	Sc
55	rubidium 85.468	39	titanium 44.956
6	Cs	7	Ti
87	caesium 132.91	21	vanadium 54.938
7	Fr	22	V
87	francium [223]	23	Cr
88-103	Ra	24	Mn
104	actinoids	25	Fe
105	rutherfordium [267]	26	Co
106	dubnium [268]	27	Ni
107	seaborgium [269]	28	Cu
108	bohrium —	29	Zn
109	hassium —	30	Ga
110	meitnerium [270]	31	Ge
111	darmstadtium [281]	32	As
112	roentgenium [282]	33	Se
113	copernicium [285]	34	Br
114	nihonium [286]	35	Kr
115	flerovium [289]	36	Xe
116	moscovium [290]	37	Og
117	livermorium [293]	38	Rn
118	tennessee [294]	39	[222]
119	oganesson [294]	40	

`\pgfPT[show periodic variations,cell style=pgfPTR]`

The diagram illustrates the periodic variations in atomic radius. A horizontal green arrow at the top indicates that atomic radius decreases from left to right across a period. A vertical blue arrow on the left indicates that atomic radius increases from top to bottom down a group. The Periodic Table is styled with the `pgfPTR` cell style, which uses a color gradient for atomic radius values, with lower values in red and higher values in blue.

1	H	2	He
1	hydrogen 53	2	helium 31
2	Li	3	Be
11	lithium 167	12	beryllium 112
3	Na	4	Mg
19	sodium 190	20	magnesium 145
4	K	5	Ca
37	potassium 243	18	Sc
5	Rb	21	Ti
25	rubidium 205	22	V
56	Cs	23	Cr
298	barium 253	24	Mn
87	Fr	25	Fe
88-103	Ra	26	Co
104	actinoids	27	Ni
105	rutherfordium —	28	Cu
106	dubnium —	29	Zn
107	seaborgium —	30	Ga
108	bohrium —	31	Ge
109	hassium —	32	As
110	meitnerium —	33	Se
111	darmstadtium —	34	Br
112	roentgenium —	35	Kr
113	copernicium —	36	Xe
114	nihonium —	37	Og
115	flerovium —	38	Rn
116	moscovium —	39	[222]
117	livermorium —	40	

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

**varR color**

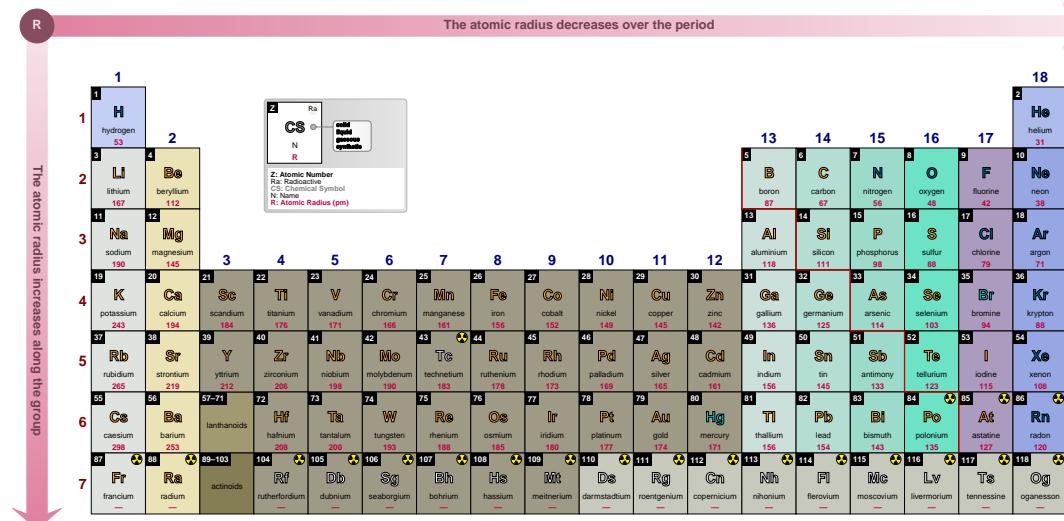
default: RGB: 128,191,191

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

NOTE:

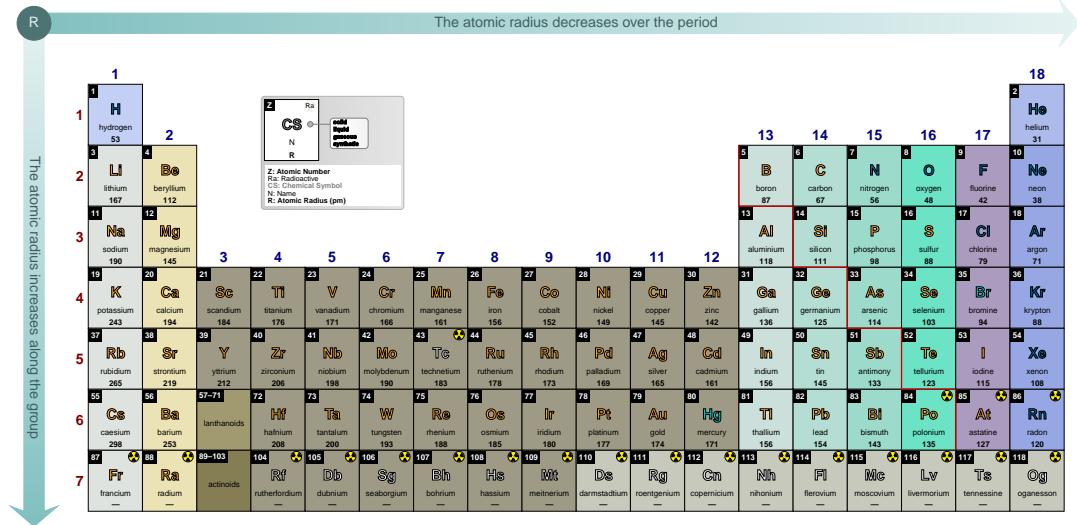
The color provided to **varR color** could be any defined color via the command `\definecolor` or by *mixing* colors, using, for instance, the syntax `color1!value!color2`, as explained in the `xcolor` package documentation.

\pgfPT[show periodic variations,cell style=pgfPTR,varR color=teal,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.

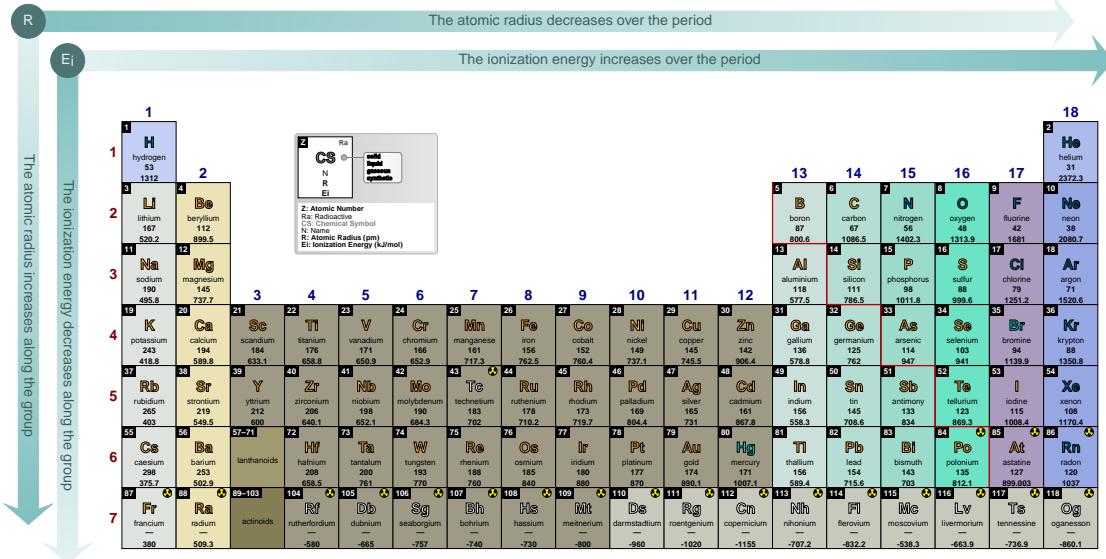
var font

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.

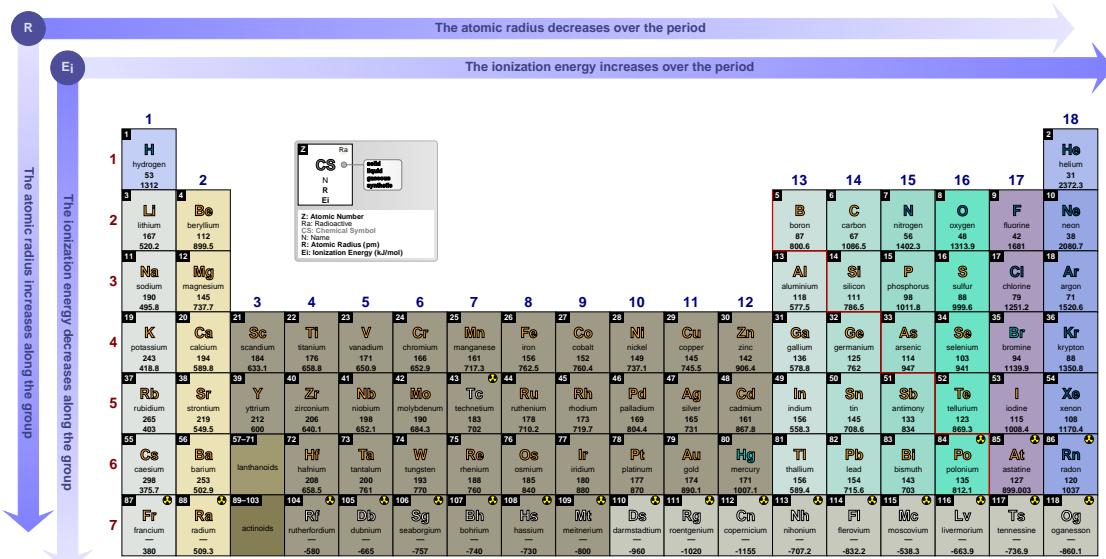
Setting `var color=<color>` is equivalent to setting `{varR color=<color>,varEi color=<color>, varEaff color=<color>}`.

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}`

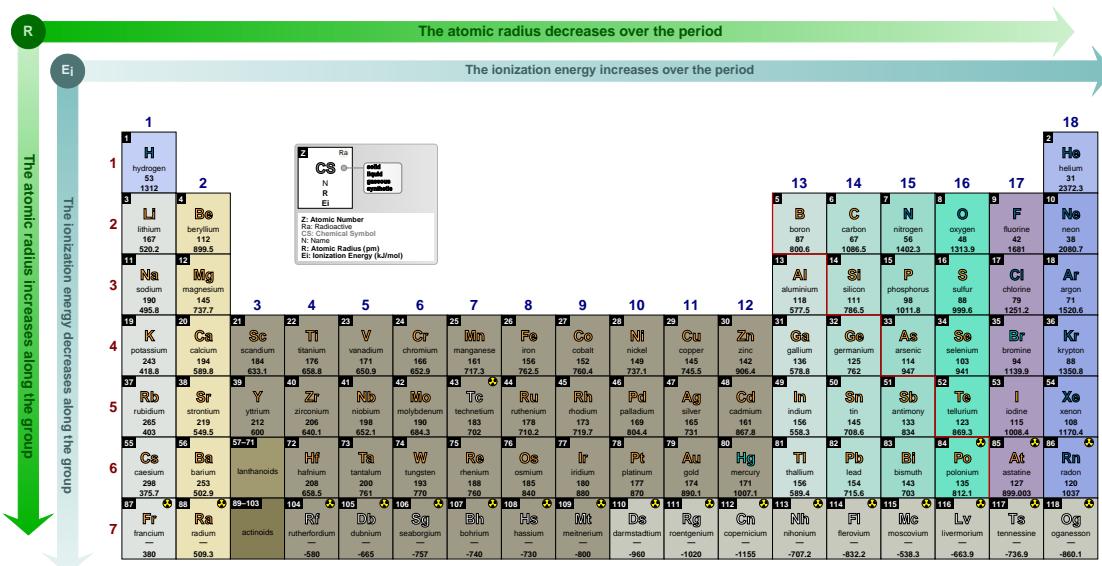
Pseudo style to set the keys: varR **color**, varR **font** and/or varR **font color**. None of the keys – c, f and fc – are mandatory.

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}`

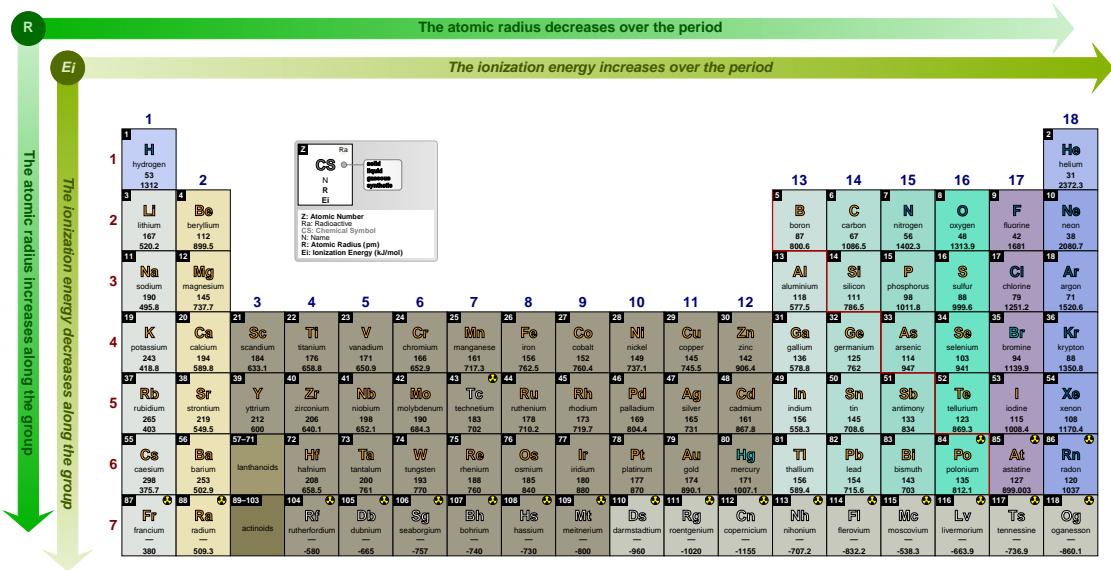
Pseudo style to set the keys: varEi **color**, varEi **font** and/or varEi **font color**. None of the keys – c, f and fc – are mandatory.

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: $\{c=\text{colorvariations}, f=\text{\footnotesize}\text{\bfseries}, fc=\text{color}\}$

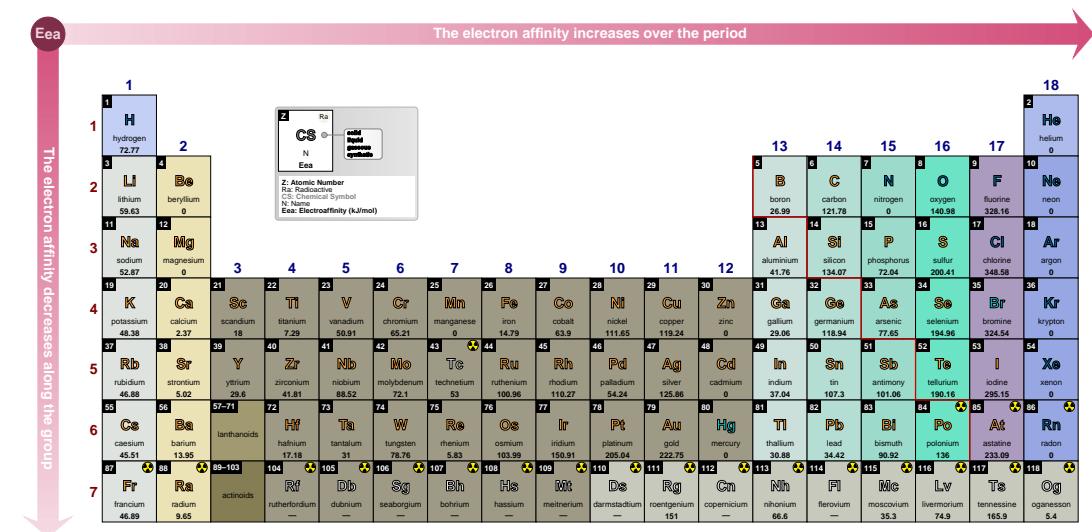
Pseudo style to set the keys: vareaff **color**, vareaff **font** and/or vareaff **font color**. None of the keys – c, f and fc – are mandatory.

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=pgfPTeaff,
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!10,
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	1 H	2	3 Li	4 Be	5	6	7	8	9	10	11	12	13 Al	14 Si	15 P	16 S	17 Cl	
1	hydrogen 1.008		lithium 6.94	beryllium 9.0122									boron 10.81	carbon 12.011	nitrogen 14.007	oxygen 15.999	fluorine 18.998	
2	2 He	3	4 Na	5 Mg	6	7	8	9	10	11	12	13	14	15	16	17	18	
1	helium 4.0026		sodium 22.99	magnesium 24.305									aluminum 26.982	silicon 28.085	phosphorus 30.974	sulfur 32.06	chlorine 35.45	argon 39.95
3	4 K	5 Ca	6 Sc	7 Ti	8 V	9 Cr	10 Mn	11 Fe	12 Co	13 Ni	14 Cu	15 Zn	16 Ga	17 Ge	18 As	19 Se	20 Br	
1	potassium 39.098	calcium 40.078	scandium 44.955	stannium 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
4	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 Kr	
1	rubidium 85.468	strontium 87.62	yttrium 88.905	zirconium 91.224	niobium 92.906	molybdenum 95.95	technetium [96]	ruthenium 101.07	rhodium 102.91	palladium 106.42	silver 107.87	cadmium 112.41	indium 114.82	tin 116.71	antimony 121.76	tellurium 127.6	iodine 126.9	xenon 131.29
5	6 Cs	7 Ba	8 La	9 Ce	10 Ta	11 W	12 Re	13 Os	14 Ir	15 Pt	16 Au	17 Hg	18 Tl	19 Pb	20 Bi	21 Po	22 At	
1	caesium 132.91	barium 137.33	lanthanides [226]	cerium 138.91	hafnium 140.12	tantalum 178.49	tungsten 180.95	rhenium 183.84	osmium 186.21	iridium 190.23	platinum 192.22	mercury 195.98	thallium 196.97	lead 200.59	bismuth 204.38	polonium 207.2	astatine 208.98	radon [222]
6	7 Fr	8 Ra	9 Ac	10 Th	11 Pa	12 U	13 Sg	14 Db	15 Bh	16 Hs	17 Mt	18 Ds	19 Rg	20 Cn	21 Nh	22 Fl	23 Mc	
1	francium [223]	radium [226]	actinoids [227]	rutherfordium [267]	dubnium [268]	seaborgium [269]	bohrium [270]	hassium [270]	meitnerium [276]	darmstadium [281]	roentgenium [282]	copernicium [285]	nihonium [286]	florium [289]	moscovium [290]	livemorium [293]	tennessine [294]	oganeson [294]
7	8 La	9 Ce	10 Pr	11 Nd	12 Pm	13 Sm	14 Eu	15 Gd	16 Tb	17 Dy	18 Ho	19 Er	20 Tm	21 Yb	22 Lu			
1	lanthanum 138.91	cerium 140.12	praseodymium 140.91	neodymium 144.24	promethium [145]	samarium 150.36	euroium 151.96	gadolinium 157.25	terbium 158.93	dysprosium 162.5	holmium 164.93	erbium 167.28	thulium 168.93	ytterbium 173.05	lutetium 174.97			
6	7 Th	8 Pa	9 U	10 Np	11 Pu	12 Am	13 Cm	14 Bk	15 Cf	16 Es	17 Fm	18 Md	19 No	20 Lr				
1	thorium 232.04	protactinium 231.04	uranium 238.03	neptunium [237]	plutonium [244]	americium [245]	curium [247]	berkelium [247]	californium [251]	einsteinium [252]	fermium [257]	mendelevium [258]	nobelium [259]	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:

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 chemicals 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]

1	A	2																	18
2	C	D																E	B
3	F		3	4	5	6	7	8	9	10	11	12						G	H
4	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**]

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

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 → Cell contents options: keys, styles and *pseudo styles*

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*

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

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

Periodic Table of Elements

1	H											18		
1	hydrogen											He		
1.008												helium		
2	Li											4.0026		
3	Be											beryllium		
6.94	9.0122											2		
11	Na											Ne		
3	Mg											neon		
sodium	magnesium											20.18		
22.99	24.305													
19	K	Ca	Sc	Tl	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ar	
39.098	40.078	44.956	47.867	50.942	51.996	manganese	iron	cobalt	nickel	copper	zinc	sulfur	chlorine	
potassium	calcium	scandium	thallium	vanadium	chromium	54.938	55.845	58.833	58.693	63.546	65.38	32.06	39.95	
39.098	40.078	44.956	47.867	50.942	51.996									
20	21	22	23	24	25	26	27	28	29	30	31	32	33	
1	Li	Be	Na	Mg	Al	Si	P	S	Cl	Ar	Kr	Br	Se	As
1	hydrogen	beryllium	sodium	magnesium	aluminum	silicon	phosphorus	sulfur	chlorine	argon	krypton	bromine	sele	arsenic
1.008	9.0122	22.99	24.305	26.982	28.085	28.085	30.974	32.06	39.95	39.95	83.798	79.904	78.971	74.922
2	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10					

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	2													18	
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										
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										

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	2													18	
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										
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										

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	2													18	
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										
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										

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 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
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

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 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
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

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 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
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

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 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 88.906	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 116.71	51 Sb antimony 121.76	52 Te tellurium 127.6	53 I iodine 126.9	54 Xe xenon 131.29

► 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 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 88.906	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 116.71	51 Sb antimony 121.76	52 Te tellurium 127.6	53 I iodine 126.9	54 Xe 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 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 88.906	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 116.71	51 Sb antimony 121.76	52 Te tellurium 127.6	53 I iodine 126.9	54 Xe 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

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	vanadium 50.942	7	chromium 51.996	8	manganese 54.938	9	iron 55.845	10	cobalt 58.933	11	nickel 58.693	12	copper 63.546	13	boron 10.81	14	carbon 12.011	15	nitrogen 14.007	16	oxygen 15.999	17	fluorine 18.998	18	helium 4.0026
1	potassium 39.098	2	calcium 40.078	3	rubidium 85.468	4	strontium 87.62	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	palladium 106.42	13	zinc 65.38	14	aluminum 26.982	15	silicon 28.085	16	phosphorus 30.974	17	sulfur 32.06	18	neon 20.18
1	cesium 132.91	2	barium 137.33	3	actinoids [223]	4	francium [226]	5	thulium 173.49	6	ytterbium 180.95	7	europium 183.84	8	thorium 186.21	9	neptunium 190.23	10	curium 192.22	11	berkelium 195.08	12	californium 200.59	13	thallium 204.38	14	lead 207.2	15	bismuth 208.98	16	polonium [209]	17	astatine [210]	18	radon [222]
1	lanthanum 138.91	2	cerium 140.12	3	praseodymium 140.91	4	neodymium 144.24	5	promethium [145]	6	samarium 150.36	7	europium 151.96	8	gadolinium 157.25	9	terbium 158.93	10	dysprosium 162.5	11	holmium 164.93	12	erbium 167.26	13	thulium 168.93	14	yterbium 173.05	15	lutetium 174.97	16	Yb	17	Lu		
1	actinium [227]	2	thorium 232.04	3	protactinium 231.04	4	uranium 238.03	5	neptunium [237]	6	plutonium [244]	7	americium [243]	8	curium [247]	9	berkelium [247]	10	californium [251]	11	einsteinium [252]	12	fermium [257]	13	mendelevium [258]	14	nobelium [259]	15	lawrencium [266]	16	Og	17	oganeson [244]		

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

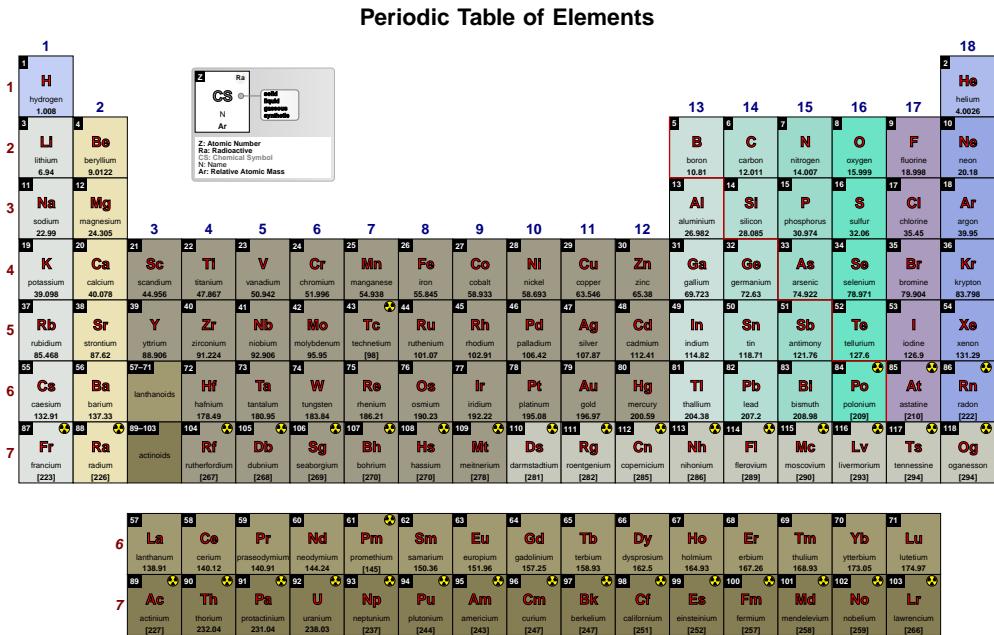
Periodic Table of Elements																																			
1	H	2	He	3	Li	4	Be	5	Na	6	Mg	7	Al	8	Si	9	P	10	S	11	F	12	Ne	13	B	14	C	15	N	16	O	17	Cl	18	He
1	hydrogen 1.008	2	beryllium 9.0122	3	lithium 6.94	4	magnesium 24.305	5	scandium 44.955	6	vanadium 50.942	7	chromium 51.996	8	manganese 54.938	9	iron 55.845	10	cobalt 58.933	11	nickel 58.693	12	copper 63.546	13	boron 10.81	14	carbon 12.011	15	nitrogen 14.007	16	oxygen 15.999	17	fluorine 18.998	18	helium 4.0026
1	potassium 39.098	2	calcium 40.078	3	rubidium 85.468	4	strontium 87.62	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	palladium 106.42	13	zinc 65.38	14	aluminum 26.982	15	silicon 28.085	16	phosphorus 30.974	17	sulfur 32.06	18	neon 20.18
1	cesium 132.91	2	barium 137.33	3	actinoids [223]	4	francium [226]	5	thulium 173.49	6	ytterbium 180.95	7	europium 183.84	8	thorium 186.21	9	neptunium 190.23	10	curium 192.22	11	berkelium 195.08	12	californium 200.59	13	thallium 204.38	14	lead 207.2	15	bismuth 208.98	16	polonium [209]	17	astatine [210]	18	radon [222]
1	lanthanum 138.91	2	cerium 140.12	3	praseodymium 140.91	4	neodymium 144.24	5	promethium [145]	6	samarium 150.36	7	europium 151.96	8	gadolinium 157.25	9	terbium 158.93	10	dysprosium 162.5	11	holmium 164.93	12	erbium 167.26	13	thulium 168.93	14	yterbium 173.05	15	lutetium 174.97	16	Yb	17	Lu		
1	actinium [227]	2	thorium 232.04	3	protactinium 231.04	4	uranium 238.03	5	neptunium [237]	6	plutonium [244]	7	americium [243]	8	curium [247]	9	berkelium [247]	10	californium [251]	11	einsteinium [252]	12	fermium [257]	13	mendelevium [258]	14	nobelium [259]	15	lawrencium [266]	16	Og	17	oganeson [244]		

CS all

default: black

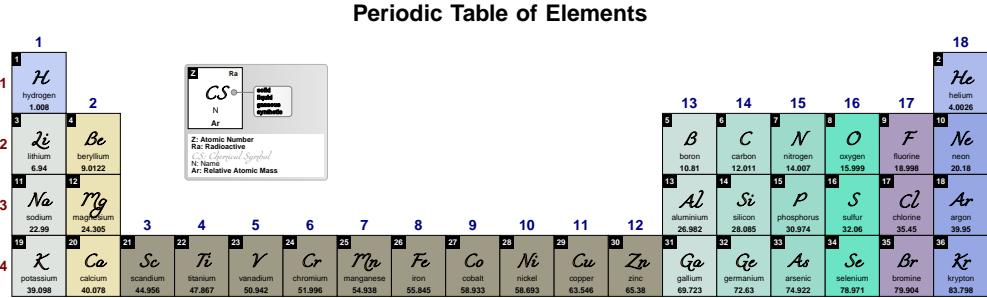
Style to set a common color to the chemical symbols, equivalent to CS solid=<color>, CS liquid=<color>, CS gas=<color>, CS synt=<color>.

\pgfPT[CS all=red]

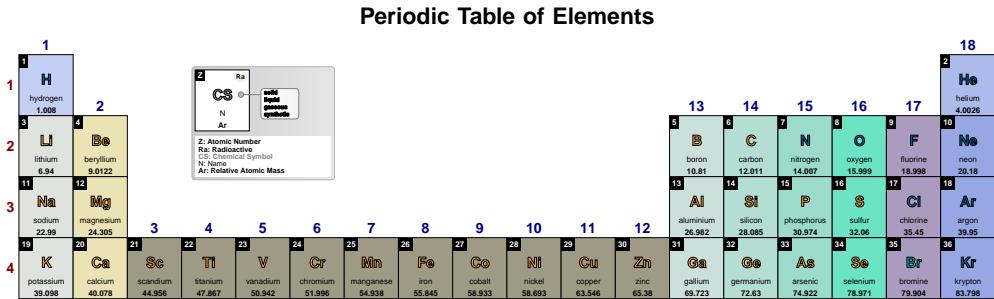
**CS font**default: `\small\bfseries`

Sets the font for the chemical symbol.

\pgfPT[Z list={1,...,36},CS font=\small\fontfamily{fmm}\selectfont]

**CS render mode**default: `fill and outline`Sets the chemical symbol render mode. Available modes are `fill`, `outline` or `fill and outline`.

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



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

Periodic Table of Elements

1	H	hydrogen	1.008	2	He	helium	4.0026	18
3	Li	lithium	6.94	4	Be	beryllium	9.0122	2
11	Na	sodium	22.99	12	Mg	magnesium	24.305	10
19	K	potassium	39.098	20	Ca	calcium	40.078	11
21	Sc	scandium	44.956	22	Ti	titanium	47.867	12
23	V	vanadium	50.942	24	Cr	chromium	51.996	13
25	Mn	manganese	54.938	26	Fe	iron	55.845	14
27	Co	cobalt	58.933	28	Ni	nickel	58.693	15
29	Cu	copper	63.546	30	Zn	zinc	65.38	16
31	Ga	gallium	69.723	32	Ge	germanium	72.63	17
33	As	arsenic	74.922	34	Se	selenium	78.971	18
35	Br	bromine	79.904	36	Kr	krypton	83.798	

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

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	Zn zinc 63.546	18	Ga gallium 65.38
19	Ge germanium 69.723	20	As arsenic 72.63
21	Se selenium 74.922	22	Br bromine 78.971
23	Kr krypton 83.798	24	
25		26	
27		28	
29		30	
31		32	
33		34	
35		36	

CS outline color

default: *black*

Sets the outline color for the chemical symbol.

```
\pgfPT[Z list={1,...,36},CS outline 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	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 51.986
13	Mn manganese 54.938	14	Fe iron 55.845
15	Co cobalt 58.933	16	Ni nickel 58.693
17	Zn zinc 63.546	18	Br bromine 65.38
19	Ga gallium 69.723	20	Kr krypton 78.971
21	Ge germanium 72.63	22	Se selenium 75.904
23	As arsenic 83.798	24	Br bromine 87.912
25	Ga germanium 94.723	26	Kr krypton 100.942
27	Ge germanium 102.905	28	Se selenium 108.906
29	As arsenic 114.903	30	Br bromine 118.904
31	Ga germanium 120.901	32	Kr krypton 132.905
33	Ge germanium 134.906	34	Se selenium 138.906
35	As arsenic 142.907	36	Br bromine 144.907
37	Ga germanium 146.908		

CS outline width

default: *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	H hydrogen 1.008	2	He helium 4.0026
3	Li lithium 6.94	4	B boron 10.81
2	Be beryllium 9.0122	5	C carbon 12.011
11	Mg magnesium 24.305	6	N nitrogen 14.007
3	Na sodium 22.99	7	O oxygen 15.999
12	Al aluminum 26.982	8	F fluorine 18.998
19	K potassium 39.098	9	Si silicon 28.085
4	Ca calcium 40.078	10	P phosphorus 30.974
20	Sc scandium 44.956	11	S sulfur 32.06
21	Ti titanium 47.867	12	Cl chlorine 35.455
22	V vanadium 50.942	13	Ar argon 39.95
23	Cr chromium 52.000	14	
24	Mn manganese 54.938	15	
25	Fe iron 55.845	16	
26	Co cobalt 58.933	17	
27	Ni nickel 58.693	18	
28	Zn zinc 63.546	19	
29	Ga gallium 69.723	20	
30	Ge germanium 72.633	21	
31	As arsenic 74.922	22	
32	Se selenium 78.971	23	
33	Rr ruthenium 78.984	24	
34	Kr krypton 83.798	25	

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	vanadium 50.942	
23	V	24	Cr	
	vanadium 51.996	chromium 54.938		
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 color**

default: 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	vanadium 50.942	
23	V	24	Cr	
	vanadium 51.996	chromium 54.938		
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 font

default: \fontseries/\selectfont\tiny

Sets the font of the element name.

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

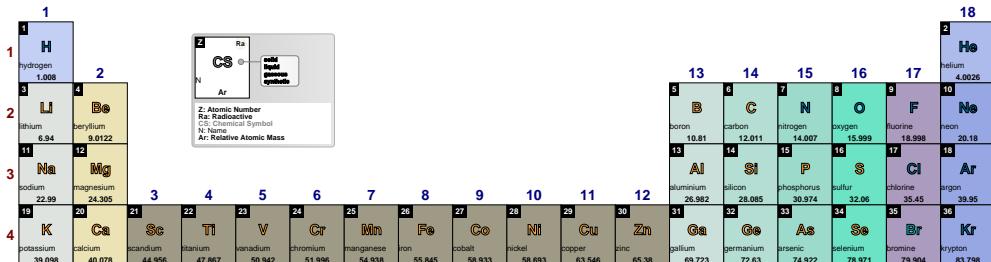
1	H	2	He	18
1	hydrogen 1.008	2	helium 4.0026	
3	Li	4	Be	
2	lithium 6.94	beryllium 9.0122		
11	Na	12	Mg	
3	sodium 22.99	magnesium 24.305		
19	K	20	Ca	
4	potassium 39.098	calcium 40.078		
21	Sc	22	Ti	
	scandium 44.956	47.867	vanadium 50.942	
23	V	24	Cr	
	vanadium 51.996	chromium 54.938		
25	Mn	26	Fe	
	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]



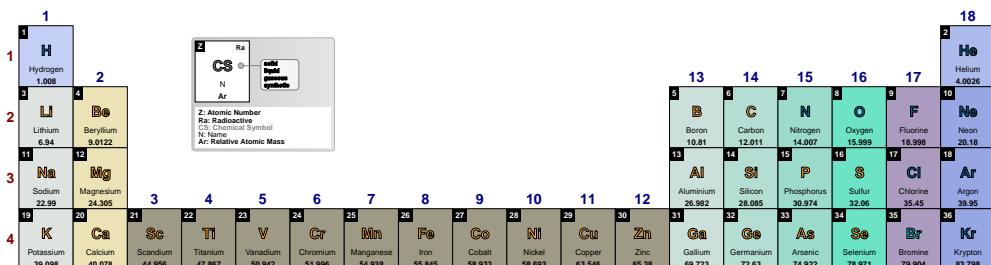
A standard periodic table where each element's name is positioned to the left of its corresponding box, as specified by the 'name align=left' option.

capitalize element names

default: false

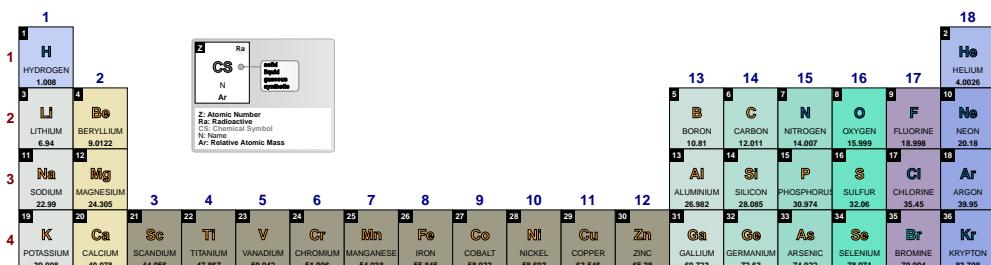
If set to **true** the first letter of the name of the elements is a capital letter. If set to **TRUE** the whole name of the elements is in capital letters
(changed in v1.0.1)

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



A standard periodic table where each element's name is capitalized, as specified by the 'capitalize element names=true' option.

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



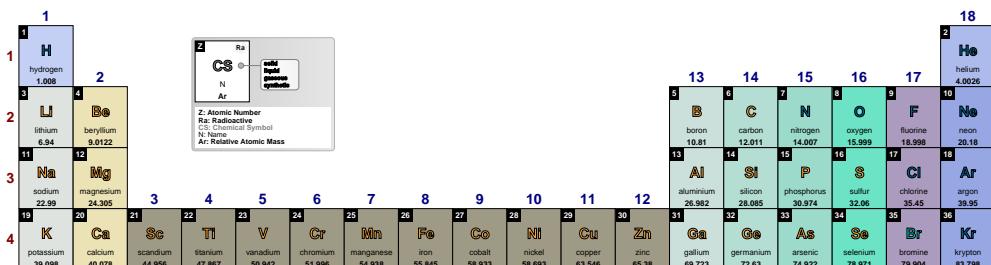
A standard periodic table where each element's name is fully capitalized, as specified by the 'capitalize element names=TRUE' option.

name

no value

A style equivalent to `capitalize element names=false`

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



A standard periodic table where each element's name is in a standard style (not capitalized), as specified by the 'name' style.

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

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

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
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
10	Cl	Chlorine 35.45	11	Ar	Argon 39.95
12	Al	Aluminum 26.982	13	Si	Silicon 28.085
14	P	Phosphorus 30.974	15	S	Sulfur 32.06
16	Cl	Chlorine 35.45	17	Br	Bromine 79.904
18	He	Helium 4.0026	19	Ne	Neon 20.18

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	2	He	HELUM 4.0026
2	Li	LITHIUM 6.94	3	Be	BERYLLIUM 9.0122
3	Na	MAGNESIUM 22.99	4	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
10	Cl	CHLORINE 35.45	11	Ar	ARGON 39.95
12	Al	ALUMINUM 26.982	13	Si	SILICON 28.085
14	P	PHOSPHORUS 30.974	15	S	SULFUR 32.06
16	Cl	CHLORINE 35.45	17	Br	BROMINE 79.904
18	He	HELUM 4.0026	19	Ne	NEON 20.18

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	2	He	helium 4.0026
2	Li	lithium 6.94	3	Be	beryllium 9.0122
3	Na	sodium 22.99	4	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
10	Cl	chlorine 35.45	11	Ar	argon 39.95
12	Al	aluminum 26.982	13	Si	silicon 28.085
14	P	phosphorus 30.974	15	S	sulfur 32.06
16	Cl	chlorine 35.45	17	Br	bromine 79.904
18	He	helium 4.0026	19	Ne	neon 20.18

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 names and their relative atomic masses is a bold, small-sized font. A legend box in the top-left corner provides information about the keys used in the code: Z: Atomic Number, Ra: Radioactive, CS: Chemical Symbol, N: Name, and 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 names and their relative atomic masses is a standard medium-sized font. A legend box in the top-left corner provides information about the keys used in the code: Z: Atomic Number, Ra: Radioactive, CS: Chemical Symbol, N: Name, and 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 names and their relative atomic masses is a standard medium-sized font. A legend box in the top-left corner provides information about the keys used in the code: Z: Atomic Number, Ra: Radioactive, CS: Chemical Symbol, N: Name, and 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}]

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

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

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}]

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

1	H hydrogen 1.0	2	He helium 1.0
3	Li lithium 6.9	4	Be beryllium 9.0
5	Mg magnesium 24.3	6	Ca calcium 40.1
7	Sc scandium 45.0	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	K potassium 39.1	20	As arsenic 74.9
21	Ca calcium 40.1	22	Se selenium 78.9
23	Sc scandium 45.0	24	Br bromine 80.0
25	Ti titanium 47.9	26	Kr krypton 83.8
27	V vanadium 50.9	28	Ar argon 39.96
29	Cr chromium 52.0	30	Cl chlorine 35.5
31	Mn manganese 54.9	32	S sulfur 32.1
33	Fe iron 55.9	34	P phosphorus 31.0
35	Co cobalt 58.9	36	Cl chlorine 35.5
37	Cu copper 63.6	38	Ar argon 39.96
39	Zn zinc 65.4	40	Ne neon 20.2
41	Ga gallium 69.7	42	He helium 1.0
43	Ge germanium 72.6	44	Br bromine 80.0
45	As arsenic 74.9	46	Kr krypton 83.8
47	Se selenium 78.9	48	Ar argon 39.96
49	Br bromine 80.0	50	Ne neon 20.2
51	Kr krypton 83.8	52	He helium 1.0

→ The density

d color

default: *black*

Sets the density value text color.

```
\pgfPTbuilcellstyle{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]
```

1	1	18																		
H hydrogen 0.08988	2	2	Ra	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Li	Be	B	C	N	O	F	Ne	He												
lithium 0.534	beryllium 1.850	boron 2.367	carbon 2.267	nitrogen 1.251	oxygen 1.429	fluorine 1.7	neon 0.9002	helium 0.1786												
Na	Mg	Al	Si	P	S	Cl	Ar													
sodium 0.968	magnesium 1.738	aluminum 2.700	silicon 2.330	phosphorus 1.823	sulfur 1.960	chlorine 1.784	argon 1.784													
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr			
potassium 0.890	calcium 1.550	scandium 2.985	titanium 4.506	vanadium 5.110	chromium 7.150	manganese 7.210	iron 7.860	cobalt 8.900	nickel 8.950	copper 7.140	zinc 6.910	gallium 5.910	germanium 5.323	arsenic 5.727	seleium 4.810	bromine 3.192	krypton 3.749			
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36			

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

1	H hydrogen 0.08986	2	He helium 0.07866
3	Li lithium 0.534	4	Be beryllium 1.850
5	Mg magnesium 1.738	6	Al aluminum 2.700
7	Si silicon 2.330	8	P phosphorus 1.823
9	S sulfur 1.969	10	Cl chlorine 1.784
11	K potassium 0.890	12	Ar argon 1.784
13	B boron 2.540	14	Ne neon 0.9602
15	C carbon 2.267	16	O oxygen 1.429
17	N nitrogen 1.291	18	F fluorine 1.7
19	Ca calcium 1.550	20	Sc scandium 2.985
21	Ti titanium 4.508	22	V vanadium 6.119
23	Cr chromium 7.150	24	Mn manganese 7.219
25	Fe iron 8.900	26	Co cobalt 8.900
27	Ni nickel 8.900	28	Cu copper 8.900
29	Zn zinc 7.149	30	Ga gallium 5.910
31	Ge germanium 5.323	32	As arsenic 5.277
33	Se selenium 4.810	34	Br bromine 3.102
35	Kr krypton 3.749	36	

d font

default: \tiny\bfseries

Sets the density value text font.

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

1	H hydrogen 0.08988	2	He helium 0.1786
3	Li lithium 0.534	4	Be beryllium 1.850
5	B boron 2.340	6	C carbon 2.267
7	N nitrogen 1.251	8	O oxygen 1.429
9	F fluorine 1.7	10	Ne neon 0.9002
11	Na sodium 0.968	12	Mg magnesium 1.738
13	Al aluminum 2.700	14	Si silicon 2.330
15	P phosphorus 1.823	16	S sulfur 1.960
17	Cl chlorine 1.784	18	Ar argon 1.784
19	K potassium 0.890	20	Ca calcium 1.550
21	Sc scandium 2.985	22	Ti titanium 4.508
23	V vanadium 6.110	24	Cr chromium 7.150
25	Mn manganese 7.210	26	Fe iron 7.860
27	Co cobalt 8.900	28	Ni nickel 8.998
29	Cu copper 8.960	30	Zn zinc 7.149
31	Ga gallium 5.910	32	Ge germanium 5.323
33	As arsenic 5.277	34	Se selenium 4.810
35	Br bromine 3.192	36	Kr krypton 3.749

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

1	H hydrogen 0.08988	2	He helium 0.1776
3	Li lithium 0.534	4	Be beryllium f.850
5	Mg magnesium 1.738	6	
7		8	
9		10	
11		12	
13	B boron 2.340	14	C carbon 2.267
15	N nitrogen f.251	16	O oxygen f.429
17	F fluorine 1.7	18	Ne neon 0.9002
19	K potassium 0.890	20	Ca calcium 1.550
21	Sc scandium 2.985	22	Ti titanium 4.506
23	V vanadium 6.110	24	Cr chromium 7.150
25	Mn manganese 7.210	26	Fe iron 7.860
27	Co cobalt 8.900	28	Ni nickel 8.908
29	Cu copper 8.960	30	Zn zinc 7.140
31	Ga gallium 5.910	32	Ge germanium 5.323
33	As arsenic 5.727	34	Se selenium 4.810
35	Br bromine 3.1028	36	Kr krypton 3.749

d unit

default: *both*

Sets the unit for the density of the elements. The two possible values to this key are **g/dm³** (g/dm^3), **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]
```

1	H hydrogen 0.08988	2	He helium 0.1786
3	Li lithium 0.534	4	Be beryllium 1.850
5	B boron 2.340	6	C carbon 2.267
7	N nitrogen 1.251	8	O oxygen 1.429
9	F fluorine 1.7	10	Ne neon 0.9002
11	Na sodium 0.968	12	Mg magnesium 1.738
13	Al aluminium 2.700	14	Si silicon 2.330
15	P phosphorus 1.823	16	S sulfur 1.360
17	Cl chlorine 3.2	18	Ar argon 1.784
19	K potassium 3.000	20	Ca calcium 4.350
21	Sc scandium 3.985	22	Ti titanium 4.500
23	V vanadium 5.650	24	Cr chromium 7.650
25	Mn manganese 7.200	26	Fe iron 7.800
27	Co cobalt 8.900	28	Ni nickel 8.900
29	Cu copper 8.960	30	Zn zinc 7.140
31	Ga gallium 6.040	32	Ge germanium 5.320
33	As arsenic 6.720	34	Se selenium 4.810
35	Br bromine 3.020	36	Kr krypton 3.240

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

1	H hydrogen 0.0008988	2	He helium 0.001786
3	Li lithium 0.534	4	Be beryllium 1.850
5	Na sodium 0.968	6	Mg magnesium 1.738
7	K potassium 2.020	8	Ca calcium 0.569
9	Sc scandium 0.929	10	Ti titanium 4.500
11	V vanadium 5.640	12	Cr chromium 6.140
13	Mn manganese 7.440	14	Fe iron 7.870
15	Co cobalt 8.900	16	Ni nickel 8.920
17	Cu copper 8.960	18	Zn zinc 9.780
19	Ga gallium 6.600	20	Ge germanium 5.920
21	As arsenic 5.020	22	Se selenium 5.020
23	Br bromine 3.120	24	Kr krypton 3.992
25	Ra radioactive 226Ra	26	He helium 0.001786
27	Cs cesium 1.320	28	O oxygen 0.001429
29	N nitrogen 0.001251	30	F fluorine 0.00117
31	B boron 2.340	32	Ne neon 0.0010902
33	C carbon 2.267	34	Cl chlorine 0.0010784
35	P phosphorus 2.700	36	Ar argon 0.001032
37	S sulfur 2.330	38	I iodine 1.960
39	Si silicon 1.823	40	Br bromine 1.823
41	Al aluminum 1.700	42	Kr krypton 1.700
43	Si silicon 1.600	44	Ar argon 1.600
45	Ge germanium 1.560	46	Cl chlorine 1.560
47	As arsenic 1.520	48	Br bromine 1.520
49	Se selenium 1.480	50	Kr krypton 1.480
51	B boron 1.420	52	Ar argon 1.420
53	C carbon 1.380	54	Cl chlorine 1.380
55	P phosphorus 1.340	56	Br bromine 1.340
57	S sulfur 1.300	58	Kr krypton 1.300
59	Si silicon 1.260	60	Ar argon 1.260
61	Ge germanium 1.220	62	Cl chlorine 1.220
63	As arsenic 1.180	64	Br bromine 1.180
65	Se selenium 1.140	66	Kr krypton 1.140
67	B boron 1.100	68	Ar argon 1.100
69	C carbon 1.060	70	Cl chlorine 1.060
71	P phosphorus 1.020	72	Br bromine 1.020
73	S sulfur 0.980	74	Kr krypton 0.980
75	Si silicon 0.940	76	Ar argon 0.940
77	Ge germanium 0.900	78	Cl chlorine 0.900
79	As arsenic 0.860	80	Br bromine 0.860
81	Se selenium 0.820	82	Kr krypton 0.820
83	B boron 0.780	84	Ar argon 0.780
85	C carbon 0.740	86	Cl chlorine 0.740
87	P phosphorus 0.700	88	Br bromine 0.700
89	S sulfur 0.660	90	Kr krypton 0.660
91	Si silicon 0.620	92	Ar argon 0.620
93	Ge germanium 0.580	94	Cl chlorine 0.580
95	As arsenic 0.540	96	Br bromine 0.540
97	Se selenium 0.500	98	Kr krypton 0.500
99	B boron 0.460	100	Ar argon 0.460
101	C carbon 0.420	102	Cl chlorine 0.420
103	P phosphorus 0.380	104	Br bromine 0.380
105	S sulfur 0.340	106	Kr krypton 0.340
107	Si silicon 0.300	108	Ar argon 0.300
109	Ge germanium 0.260	110	Cl chlorine 0.260
111	As arsenic 0.220	112	Br bromine 0.220
113	Se selenium 0.180	114	Kr krypton 0.180
115	B boron 0.140	116	Ar argon 0.140
117	C carbon 0.100	118	Cl chlorine 0.100
119	P phosphorus 0.060	120	Br bromine 0.060
121	S sulfur 0.020	122	Kr krypton 0.020
123	Si silicon 0.000	124	Ar argon 0.000

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

1	H hydrogen 0.08988	2	Ra radioactive radium 0.00000	18
3	Li lithium 6.94	4	Be beryllium 18.59	
5	B boron 10.81	6	C carbon 12.01	
7	N nitrogen 14.01	8	O oxygen 15.999	
9	F fluorine 18.998	10	Ne neon 20.183	
11	Na magnesium 24.31	12	Mg magnesium 24.31	17
13	Al aluminum 26.982	14	Si silicon 28.085	18
15	P phosphorus 30.974	16	S sulfur 32.066	19
17	Cl chlorine 35.453	18	Ar argon 39.902	
19	K potassium 39.098	20	Ca calcium 40.08	
21	Sc scandium 45.0	22	Ti titanium 47.867	
23	V vanadium 50.942	24	Cr chromium 52.00	
25	Mn manganese 54.938	26	Fe iron 55.85	
27	Co cobalt 58.933	28	Ni nickel 58.7	
29	Cu copper 63.546	30	Zn zinc 65.4	
31	Ga gallium 69.724	32	Ge germanium 72.63	
33	As arsenic 75.0	34	Se selenium 78.96	
35	Br bromine 80.0	36	Kr krypton 83.8	

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/dm³ or in g/cm³, respectively.. So giving this key a value of -1 (the value of the melting or boiling point 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/dm³) or 7 (g/cm³). Any other integer provided will be processed as -1.

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

A standard periodic table showing elements from Hydrogen (H) to Xenon (Xe). Each element cell contains its atomic number (Z), symbol, name, and density. A legend in the top right corner defines the keys: Z: Atomic Number, Ra: Radioactive, CS: Chemical Symbol, N: Name, and d: Density (g/cm³; g/dm³ for the gases).

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

A periodic table where density values are rounded to 0 decimal places. The values in the density column are now integers: Helium (0.176), Lithium (1.534), Beryllium (1.850), Sodium (0.968), Magnesium (1.738), Potassium (0.890), Calcium (1.550), Rubidium (1.532), Strontium (2.640), Yttrium (4.472), 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), Tellurium (3.1028), and Xenon (5.894).

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

A periodic table where density values are rounded to 1 decimal place. The values in the density column are now rounded to one decimal place: Helium (0.2), Lithium (0.5), Beryllium (1.9), Sodium (1.0), Magnesium (1.7), Potassium (0.9), Calcium (1.6), Rubidium (1.5), Strontium (2.6), Yttrium (4.5), Scandium (3.0), Titanium (6.1), Vanadium (6.1), Chromium (7.2), Manganese (7.2), Iron (7.9), Cobalt (8.9), Nickel (8.9), Copper (9.0), Zinc (7.1), Gallium (5.9), Germanium (5.3), Arsenic (5.7), Selenium (4.8), Tellurium (3.1), and Xenon (5.9).

\pgfPT[d precision=2]

1	H	He
hydrogen 0.09		helium 0.18
2	Be	
lithium 0.53	beryllium 1.85	
3	Mg	
sodium 0.97	magnesium 1.74	
4	Ca	
potassium 0.89	calcium 1.55	
5	Sc	
	scandium 2.99	
6	Ti	
	titanium 4.51	
7	V	
	vanadium 6.11	
8	Cr	
	chromium 7.15	
9	Mn	
	manganese 7.55	
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	Sb	
	selenium 4.81	
19	Br	
	bromine 3.10	
20	Kr	
	krypton 3.75	
21	Sc	
	scandium 2.99	
22	Ti	
	titanium 4.51	
23	V	
	vanadium 6.11	
24	Cr	
	chromium 7.15	
25	Mn	
	manganese 7.55	
26	Fe	
	iron 7.86	
27	Co	
	cobalt 8.90	
28	Ni	
	nickel 8.91	
29	Cu	
	copper 8.96	
30	Zn	
	zinc 7.14	
31	Ga	
	gallium 5.91	
32	Ge	
	germanium 5.32	
33	As	
	arsenic 5.73	
34	Sb	
	selenium 4.81	
35	Br	
	bromine 3.10	
36	Kr	
	krypton 3.75	
37	Rb	
	rubidium 1.53	
38	Str	
	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 12.41	
46	Pd	
	palladium 12.02	
47	Ag	
	silver 10.49	
48	Cd	
	cadmium 8.65	
49	In	
	indium 7.31	
50	Sn	
	tin 7.27	
51	Sb	
	antimony 6.70	
52	Te	
	tellurium 6.24	
53	I	
	iodine 4.93	
54	Xe	
	xenon 5.89	

\pgfPT[d precision=3]

1	H											18					
hydrogen 0.090												He					
1	2											helium 0.179					
Li	Be																
lithium 0.534	beryllium 1.880																
3	4																
Li	Be																
2	11																
Li	Mg																
lithium 0.534	magnesium 1.738																
3	4	5	6	7	8	9	10	11	12	13	14	15	16	17			
Na	Mg									B	C	N	O	F			
sodium 0.968	magnesium 1.738									boron 2.340	carbon 2.267	nitrogen 1.251	oxygen 1.429	fluorine 1.7			
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
K	Ca	Sc	Tl	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
potassium 0.890	calcium 1.350	scandium 2.985	thallium 4.506	vanadium 5.110	chromium 7.150	manganese 7.216	iron 7.860	cobalt 8.900	nickel 8.908	copper 8.960	zinc 11.140	gallium 5.910	germanium 5.323	arsenic 5.727	selenium 4.810	bromine 3.103	krypton 3.740
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
rubidium 1.532	strontium 2.640	yttrium 4.472	zirconium 6.520	niobium 8.570	molybdenum 10.280	technetium 11.000	ruthenium 12.450	rhodium 12.410	palladium 12.023	silver 10.490	cadmium 8.650	indium 7.310	tin 7.265	antimony 6.697	tellurium 6.240	iodine 4.933	xenon 5.894

\pgfPT[d precision=4]

1	H																	18
hydrogen 0.0899																		He helium 0.1786
2	Be																	19
lithium 0.534	beryllium 1.850																	Ne neon 0.9002
3	Mg																	20
sodium 0.968	magnesium 1.738																	Kr krypton 3.749
4	Ca																	21
potassium 0.896	calcium 1.550																	Br bromine 3.1028
5	Sc																	22
	scandium 2.985																	Tl thallium 4.506
6	V																	23
	vanadium 6.110																	Cr chromium 7.150
7	Mn																	24
	manganese 7.960																	Fe iron 7.960
8	Co																	25
	cobalt 8.900																	Mn manganese 8.900
9	Ni																	26
	nickel 8.908																	Fe iron 7.960
10	Cu																	27
	copper 8.960																	Co cobalt 8.900
11	Zn																	28
	zinc 9.140																	Ni nickel 8.908
12	Ga																	29
	gallium 9.510																	Co cobalt 8.900
13	Ge																	30
	germanium 9.523																	Al aluminum 9.700
14	As																	31
	arsenic 9.577																	Si silicon 9.230
15	S																	32
	sulfur 9.160																	P phosphorus 9.183
16	O																	33
	oxygen 1.429																	Cl chlorine 3.2
17	F																	34
	fluorine 1.7																	Se selenium 4.810
18	Ar																	35
	argon 1.784																	Kr krypton 3.749
19	Rb																	36
	rubidium 1.532																	Br bromine 3.1028
20	Sr																	37
	strontium 2.640																	Y yttrium 4.472
21	Tl																	38
	thallium 4.506																	Zr zirconium 6.520
22	V																	39
	vanadium 6.110																	Nb niobium 8.570
23	Cr																	40
	chromium 7.150																	Tc technetium 10.280
24	Mn																	41
	manganese 7.960																	Mo molybdenum 11.000
25	Fe																	42
	iron 7.960																	Ru rhodium 12.450
26	Co																	43
	cobalt 8.900																	Td rhuthenium 12.410
27	Ni																	44
	nickel 8.908																	Rh rhodium 12.023
28	Cu																	45
	copper 8.960																	Pd palladium 10.490
29	Zn																	46
	zinc 9.140																	Ag silver 8.650
30	Ga																	47
	gallium 9.510																	Cd cadmium 8.650
31	Ge																	48
	germanium 9.523																	In indium 7.310
32	S																	49
	sulfur 9.160																	Sn tin 7.265
33	As																	50
	arsenic 9.577																	Sb antimony 6.697
34	Se																	51
	selenium 4.810																	Te tellurium 6.240
35	Br																	52
	bromine 3.1028																	I iodine 4.933
36	Kr																	53
	krypton 3.749																	Xe xenon 5.894

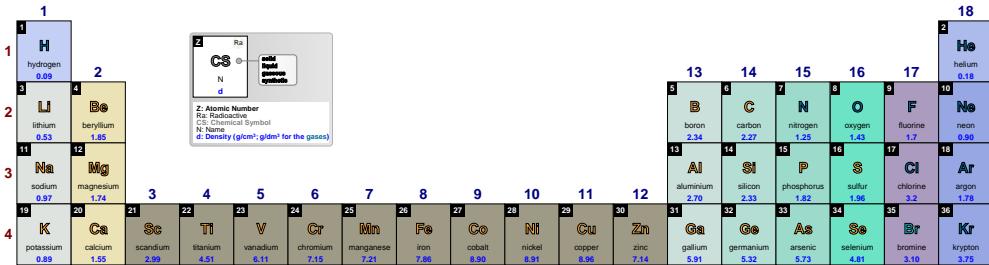
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ddefault: `{c=black,f=\tiny\bfseries,p=-1,u=both}`

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>}`

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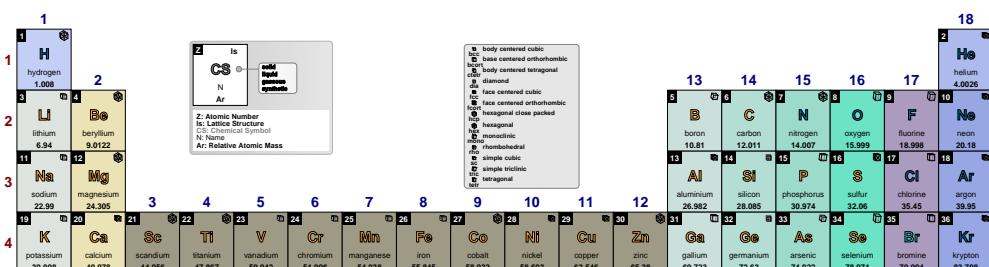


► The lattice structure

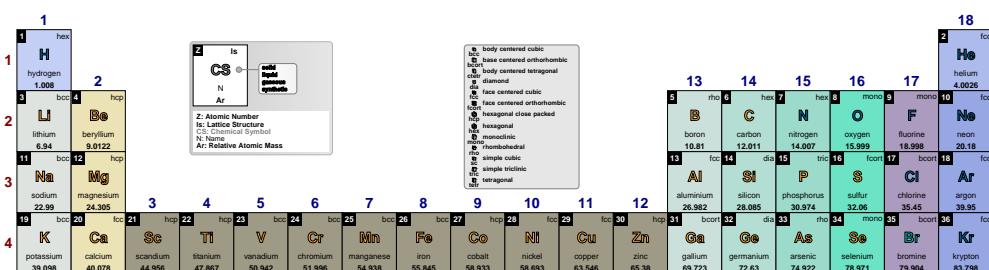
lsdefault: `fig`

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

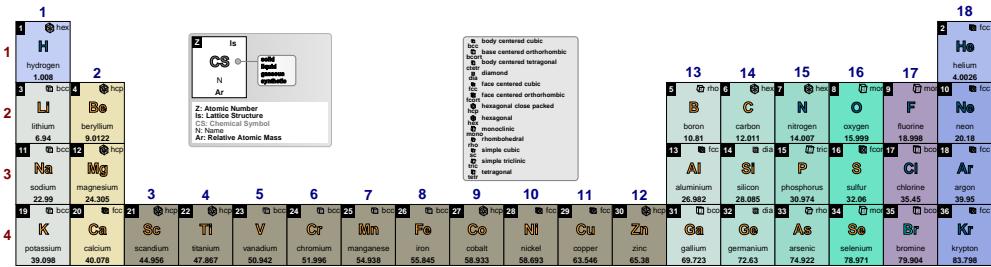
`\pgfPT[Z list={1,...,36},cell style=pgfPTIs]`



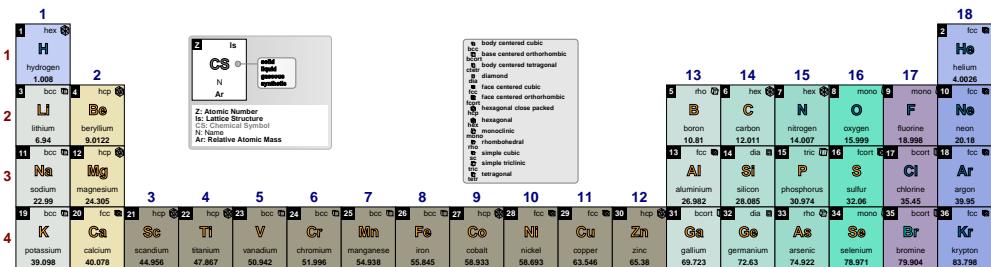
`\pgfPT[Z list={1,...,36},cell style=pgfPTIs,ls=txt]`



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



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

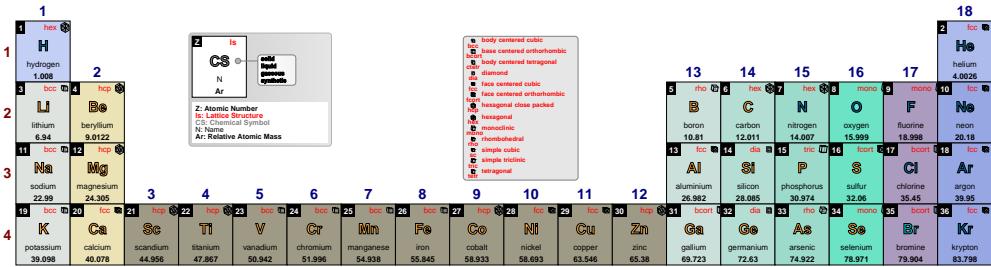


ls color

default: *black*

Sets the lattice structure text color.

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

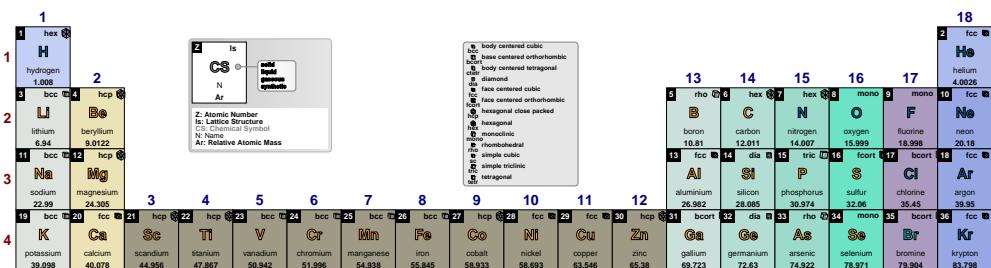


ls font

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 the following key differences from the default:

- The lattice structure labels (e.g., "body centered cubic", "base centered orthorhombic", etc.) are positioned to the left of the element boxes.
- The element properties (Z, R, CS, N, Ls) are enclosed in a separate box at the top left of the table.

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)*

\pgfPTbuilcellstyle{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 the following key differences from the default:

- The lattice structure labels (e.g., "body centered cubic", "base centered orthorhombic", etc.) are positioned to the left of the element boxes.
- The element properties (Z, R, CS, N, Ls) are enclosed in a separate box at the top left of the table.
- The lattice structure constants are displayed in picometers (pm).

\pgfPT[ls unit=A]

A standard periodic table layout with the following key differences from the default:

- The lattice structure labels (e.g., "body centered cubic", "base centered orthorhombic", etc.) are positioned to the left of the element boxes.
- The element properties (Z, R, CS, N, Ls) are enclosed in a separate box at the top left of the table.
- The lattice structure constants are displayed in angstroms (\AA).

ls precision

default: -1

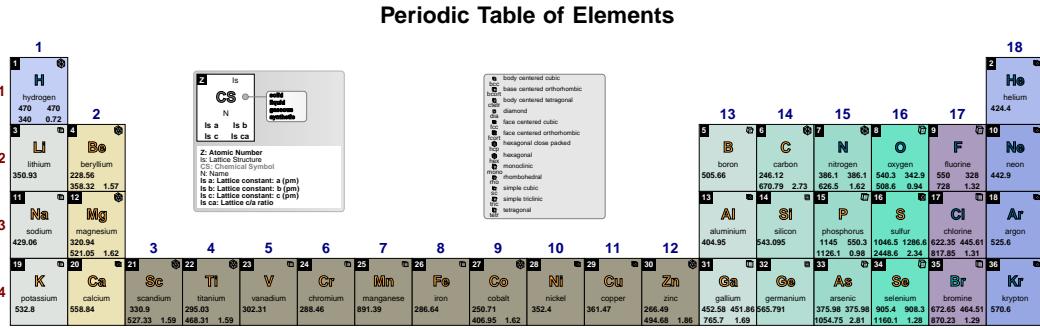
Sets the lattice structure constants - a, b, and c - precision, as also the lattice c/a ratio, i.e., the decimal places displayed in their value, performing the respective rounding, without zero padding the value.

NOTE:

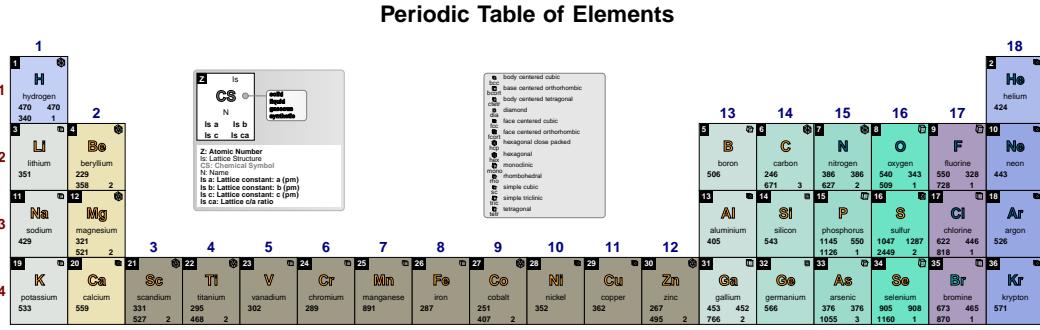
Rounding is performed over the constants data or c/a ratio values which actually have a maximum of 2 or 4 decimal places, when the values are in picometers or in angstroms, respectively. So giving this key a value of -1 (the value of the constants or c/a ratio as-is) or 2 or 4 has the same effect.

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.

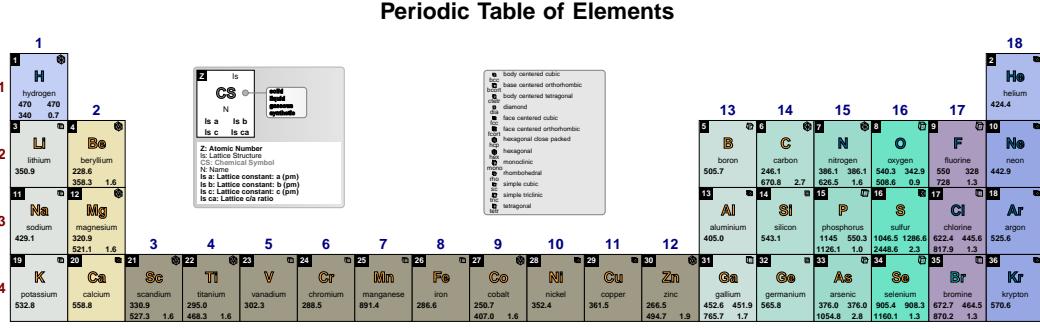
```
\pgfPTbuilcellstyle{myls}{(6,3)}% 6 rows by 3 columns
[(1;1-2;Z),(1;2-3;ls),(2-3;1.5-3.5;CS),(4;1-3;name),(5;1-2.5;lsa),
(5;2.5-3;lsb),(6;1-2.5;lsc),(6;2.5-3;lsca)]
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\pgfPT
```



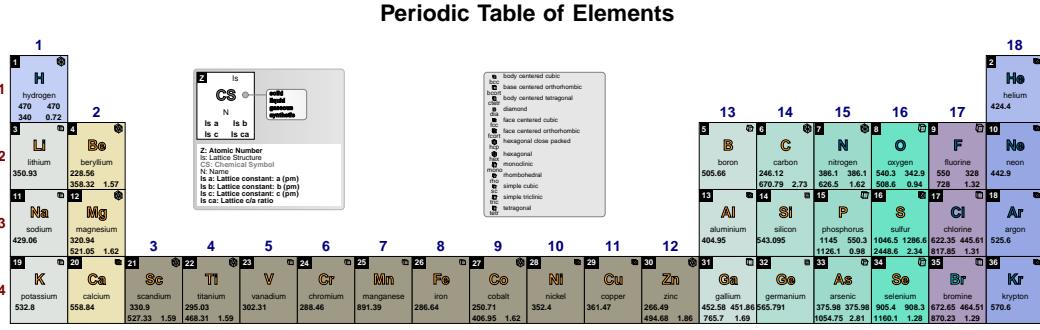
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\pgfPT[ls precision=1]



\pgfPT[ls precision=2]



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

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 4.70 4.70 3.40 0.72	2 Be beryllium 2.29 2.29 3.58 1.57	3 Li lithium 3.51 3.51 3.58 1.57	4 Na sodium 4.29 4.29 3.21 5.21 1.62	5 Mg magnesium 3.21 3.21 3.58 1.57	6 Al aluminum 4.05 4.05 5.43 5.43	7 Si silicon 2.46 2.46 2.73 2.73	8 P phosphorus 3.86 3.86 5.09 5.09	9 S sulfur 3.43 3.43 4.46 4.46	10 O oxygen 3.20 3.20 7.28 7.28	11 F fluorine 4.43 4.43 5.59 5.59	12 Ne neon 4.43 4.43 5.22 5.22	13 B boron 5.06 5.06 6.71 6.71	14 C carbon 5.58 5.58 6.27 6.27	15 N nitrogen 5.58 5.58 6.27 6.27	16 O oxygen 5.58 5.58 6.27 6.27	17 F fluorine 5.58 5.58 6.27 6.27	18 Ne neon 5.58 5.58					
19 K potassium 5.33 5.33 5.59 5.59	20 Ca calcium 5.27 5.27 1.59 4.68 1.59	21 Sc scandium 3.31 3.31 2.95 3.02	22 Ti titanium 2.95 2.95 3.02	23 V vanadium 2.89 2.89	24 Cr chromium 8.91 8.91	25 Mn manganese 2.87 2.87	26 Fe iron 2.87 2.87	27 Co cobalt 2.51 2.51	28 Ni nickel 3.52 3.52	29 Cu copper 3.62 3.62	30 Zn zinc 2.67 2.67	31 Ga gallium 4.95 4.95 4.53 4.53	32 Ge germanium 4.52 4.52 5.66 5.66	33 As arsenic 3.76 3.76 3.76 3.76	34 Se selenium 2.81 2.81 9.05 9.05	35 Br bromine 6.73 6.73 4.65 4.65	36 Kr krypton 5.71 5.71 6.73 6.73					
37 Rb rubidium 5.87 5.87 6.00 6.00	38 Sr strontium 5.87 5.87 6.00 6.00	39 Y yttrium 5.87 5.87 6.00 6.00	40 Zr zirconium 5.87 5.87 6.00 6.00	41 Nb niobium 6.00 6.00 6.00 6.00	42 Ta tantalum 6.00 6.00 6.00 6.00	43 Hf hafnium 6.00 6.00 6.00 6.00	44 Ta tantalum 6.00 6.00 6.00 6.00	45 W tungsten 6.00 6.00 6.00 6.00	46 Re rhenium 6.00 6.00 6.00 6.00	47 Os osmium 6.00 6.00 6.00 6.00	48 Ru ruthenium 6.00 6.00 6.00 6.00	49 Rh rhodium 6.00 6.00 6.00 6.00	50 Pd palladium 6.00 6.00 6.00 6.00	51 Pt platinum 6.00 6.00 6.00 6.00	52 Au gold 6.00 6.00 6.00 6.00	53 Hg mercury 6.00 6.00 6.00 6.00	54 Tl thallium 6.00 6.00 6.00 6.00	55 Pb lead 6.00 6.00 6.00 6.00	56 Bi bismuth 6.00 6.00 6.00 6.00	57 Po polonium 6.00 6.00 6.00 6.00	58 At astatine 6.00 6.00 6.00 6.00	59 Rn radon 6.00 6.00 6.00 6.00

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

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18					
1 H hydrogen 4.70 4.70 3.40 0.72	2 Be beryllium 2.29 2.29 3.58 1.57	3 Li lithium 3.51 3.51 3.58 1.57	4 Na sodium 4.29 4.29 3.21 5.21 1.62	5 Mg magnesium 3.21 3.21 3.58 1.57	6 Al aluminum 4.05 4.05 5.43 5.43	7 Si silicon 2.46 2.46 2.73 2.73	8 P phosphorus 3.86 3.86 5.09 5.09	9 S sulfur 3.43 3.43 4.46 4.46	10 O oxygen 3.20 3.20 7.28 7.28	11 F fluorine 4.43 4.43 5.59 5.59	12 Ne neon 4.43 4.43 5.22 5.22	13 B boron 5.06 5.06 6.71 6.71	14 C carbon 5.58 5.58 6.27 6.27	15 N nitrogen 5.58 5.58 6.27 6.27	16 O oxygen 5.58 5.58 6.27 6.27	17 F fluorine 5.58 5.58 6.27 6.27	18 Ne neon 5.58 5.58					
19 K potassium 5.33 5.33 5.59 5.59	20 Ca calcium 5.27 5.27 1.59 4.68 1.59	21 Sc scandium 3.31 3.31 2.95 3.02	22 Ti titanium 2.95 2.95 3.02	23 V vanadium 2.89 2.89	24 Cr chromium 8.91 8.91	25 Mn manganese 2.87 2.87	26 Fe iron 2.87 2.87	27 Co cobalt 2.51 2.51	28 Ni nickel 3.52 3.52	29 Cu copper 3.62 3.62	30 Zn zinc 2.67 2.67	31 Ga gallium 4.95 4.95 4.53 4.53	32 Ge germanium 4.52 4.52 5.66 5.66	33 As arsenic 3.76 3.76 3.76 3.76	34 Se selenium 2.81 2.81 9.05 9.05	35 Br bromine 6.73 6.73 4.65 4.65	36 Kr krypton 5.71 5.71 6.73 6.73					
37 Rb rubidium 5.87 5.87 6.00 6.00	38 Sr strontium 5.87 5.87 6.00 6.00	39 Y yttrium 5.87 5.87 6.00 6.00	40 Zr zirconium 5.87 5.87 6.00 6.00	41 Nb niobium 6.00 6.00 6.00 6.00	42 Ta tantalum 6.00 6.00 6.00 6.00	43 Hf hafnium 6.00 6.00 6.00 6.00	44 Ta tantalum 6.00 6.00 6.00 6.00	45 W tungsten 6.00 6.00 6.00 6.00	46 Re rhenium 6.00 6.00 6.00 6.00	47 Os osmium 6.00 6.00 6.00 6.00	48 Ru ruthenium 6.00 6.00 6.00 6.00	49 Rh rhodium 6.00 6.00 6.00 6.00	50 Pd palladium 6.00 6.00 6.00 6.00	51 Pt platinum 6.00 6.00 6.00 6.00	52 Au gold 6.00 6.00 6.00 6.00	53 Hg mercury 6.00 6.00 6.00 6.00	54 Tl thallium 6.00 6.00 6.00 6.00	55 Pb lead 6.00 6.00 6.00 6.00	56 Bi bismuth 6.00 6.00 6.00 6.00	57 Po polonium 6.00 6.00 6.00 6.00	58 At astatine 6.00 6.00 6.00 6.00	59 Rn radon 6.00 6.00 6.00 6.00

The discovery year

DiscY color

default: black

Sets the discovery year color.

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

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 4.70 4.70 3.40 0.72	2 Be beryllium 2.29 2.29 3.58 1.57	3 Li lithium 3.51 3.51 3.58 1.57	4 Na sodium 4.29 4.29 3.21 5.21 1.62	5 Mg magnesium 3.21 3.21 3.58 1.57	6 Al aluminum 4.05 4.05 5.43 5.43	7 Si silicon 2.46 2.46 2.73 2.73	8 P phosphorus 3.86 3.86 5.09 5.09	9 S sulfur 3.43 3.43 4.46 4.46	10 O oxygen 3.20 3.20 7.28 7.28	11 F fluorine 4.43 4.43 5.59 5.59	12 Ne neon 4.43 4.43 5.22 5.22	13 B boron 5.06 5.06 6.71 6.71	14 C carbon 5.58 5.58 6.27 6.27	15 N nitrogen 5.58 5.58 6.27 6.27	16 O oxygen 5.58 5.58 6.27 6.27	17 F fluorine 5.58 5.58 6.27 6.27	18 Ne neon 5.58 5.58					
19 K potassium 5.33 5.33 5.59 5.59	20 Ca calcium 5.27 5.27 1.59 4.68 1.59	21 Sc scandium 3.31 3.31 2.95 3.02	22 Ti titanium 2.95 2.95 3.02	23 V vanadium 2.89 2.89	24 Cr chromium 8.91 8.91	25 Mn manganese 2.87 2.87	26 Fe iron 2.87 2.87	27 Co cobalt 2.51 2.51	28 Ni nickel 3.52 3.52	29 Cu copper 3.62 3.62	30 Zn zinc 2.67 2.67	31 Ga gallium 4.95 4.95 4.53 4.53	32 Ge germanium 4.52 4.52 5.66 5.66	33 As arsenic 3.76 3.76 3.76 3.76	34 Se selenium 2.81 2.81 9.05 9.05	35 Br bromine 6.73 6.73 4.65 4.65	36 Kr krypton 5.71 5.71 6.73 6.73					
37 Rb rubidium 5.87 5.87 6.00 6.00	38 Sr strontium 5.87 5.87 6.00 6.00	39 Y yttrium 5.87 5.87 6.00 6.00	40 Zr zirconium 5.87 5.87 6.00 6.00	41 Nb niobium 6.00 6.00 6.00 6.00	42 Ta tantalum 6.00 6.00 6.00 6.00	43 Hf hafnium 6.00 6.00 6.00 6.00	44 Ta tantalum 6.00 6.00 6.00 6.00	45 W tungsten 6.00 6.00 6.00 6.00	46 Re rhenium 6.00 6.00 6.00 6.00	47 Os osmium 6.00 6.00 6.00 6.00	48 Ru ruthenium 6.00 6.00 6.00 6.00	49 Rh rhodium 6.00 6.00 6.00 6.00	50 Pd palladium 6.00 6.00 6.00 6.00	51 Pt platinum 6.00 6.00 6.00 6.00	52 Au gold 6.00 6.00 6.00 6.00	53 Hg mercury 6.00 6.00 6.00 6.00	54 Tl thallium 6.00 6.00 6.00 6.00	55 Pb lead 6.00 6.00 6.00 6.00	56 Bi bismuth 6.00 6.00 6.00 6.00	57 Po polonium 6.00 6.00 6.00 6.00	58 At astatine 6.00 6.00 6.00 6.00	59 Rn radon 6.00 6.00 6.00 6.00

DiscY font

default: $\tiny\bfseries$

Sets the discovery year font.

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

Periodic Table of Elements

The image shows the periodic table of elements, version 18. It includes element symbols, atomic numbers, country of discovery, year of discovery, and chemical properties. A legend at the bottom right defines symbols for solid, liquid, and gaseous states.

Element	Atomic Number	Chemical Symbol	Country of Discovery	Year of Discovery	State
H	1	H	hydrogen	1766	Gas
Li	3	Li	lithium	1817	Solid
Be	4	Be	boronium	1798	Solid
Na	11	Na	sodium	1807	Solid
Mg	12	Mg	magnesium	1755	Solid
K	19	K	potassium	1807	Solid
Ca	20	Ca	calcium	1808	Solid
Sc	21	Sc	scandium	1879	Solid
Tl	23	Tl	titanium	1791	Solid
V	24	V	vanadium	1830	Solid
Cr	25	Cr	chromium	1774	Solid
Mn	26	Mn	manganese	1800BC	Solid
Fe	27	Fe	iron	1755	Solid
Co	28	Co	cobalt	1751	Solid
Ni	29	Ni	copper	8000BC	Solid
Cu	30	Cu	zinc	1746	Solid
Zn	31	Zn	gallium	1875	Solid
Ga	32	Ga	germanium	1886	Solid
Ge	33	Ge	arsenic	1250	Solid
As	34	As	antimony	1817	Solid
Se	35	Se	strontium	1894	Solid
Br	36	Br	barium	1823	Solid
Kr	37	Kr	kratom	1895	Solid
He	2	He	helium	1895	Gas

DiscY BC scale

default: 1

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

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

Periodic Table of Elements

This figure is a detailed periodic table where each element's box contains specific information:

- Element Properties:**
 - Hydrogen (H):** Hydrogen is highlighted in blue.
 - Be (Boron):** Boron is highlighted in yellow.
 - Mg (Magnesium):** Magnesium is highlighted in green.
 - K (Potassium):** Potassium is highlighted in red.
 - Ca (Calcium):** Calcium is highlighted in purple.
 - Sc (Scandium):** Scandium is highlighted in orange.
 - Tl (Thallium):** Thallium is highlighted in pink.
 - V (Vanadium):** Vanadium is highlighted in light blue.
 - Cr (Chromium):** Chromium is highlighted in light green.
 - Min (Manganese):** Manganese is highlighted in light red.
 - Fe (Iron):** Iron is highlighted in light purple.
 - Co (Cobalt):** Cobalt is highlighted in light orange.
 - Ni (Nickel):** Nickel is highlighted in light pink.
 - Cu (Copper):** Copper is highlighted in light blue-green.
 - Zn (Zinc):** Zinc is highlighted in light greenish-blue.
 - Ga (Gallium):** Gallium is highlighted in light red.
 - Ge (Germanium):** Germanium is highlighted in light purple.
 - As (Arsenic):** Arsenic is highlighted in light orange.
 - Se (Selenium):** Selenium is highlighted in light pink.
 - Br (Bromine):** Bromine is highlighted in light blue.
 - Kr (Krypton):** Krypton is highlighted in light green.
- Discovery Details:**
 - Element 1 (Hydrogen):** Discovered by Boyle in 1661.
 - Element 2 (Helium):** Discovered by Ramsay in 1868.
 - Element 3 (Lithium):** Discovered by Döbereiner in 1807.
 - Element 4 (Boron):** Discovered by Böttger in 1789.
 - Element 5 (Boron):** Discovered by Scheele in 1771.
 - Element 6 (Carbon):** Discovered by Scheele in 1772.
 - Element 7 (Nitrogen):** Discovered by Cavendish in 1771.
 - Element 8 (Oxygen):** Discovered by Priestley in 1774.
 - Element 9 (Fluorine):** Discovered by Dumas in 1886.
 - Element 10 (Neon):** Discovered by Ramsay in 1895.
 - Element 11 (Sodium):** Discovered by Humphry Davy in 1807.
 - Element 12 (Magnesium):** Discovered by Döbereiner in 1755.
 - Element 13 (Aluminum):** Discovered by Böttger in 1808.
 - Element 14 (Silicon):** Discovered by Böttger in 1823.
 - Element 15 (Phosphorus):** Discovered by Priestley in 1669.
 - Element 16 (Sulfur):** Discovered by Priestley in 1800.
 - Element 17 (Chlorine):** Discovered by Dumas in 1774.
 - Element 18 (Argon):** Discovered by Ramsay in 1894.
 - Element 19 (Potassium):** Discovered by Döbereiner in 1807.
 - Element 20 (Calcium):** Discovered by Döbereiner in 1808.
 - Element 21 (Scandium):** Discovered by Böttger in 1808.
 - Element 22 (Titanium):** Discovered by Döbereiner in 1808.
 - Element 23 (Vanadium):** Discovered by Döbereiner in 1808.
 - Element 24 (Chromium):** Discovered by Döbereiner in 1808.
 - Element 25 (Manganese):** Discovered by Döbereiner in 1808.
 - Element 26 (Iron):** Discovered by Döbereiner in 1808.
 - Element 27 (Cobalt):** Discovered by Döbereiner in 1808.
 - Element 28 (Nickel):** Discovered by Döbereiner in 1808.
 - Element 29 (Copper):** Discovered by Döbereiner in 1808.
 - Element 30 (Zinc):** Discovered by Döbereiner in 1808.
 - Element 31 (Gallium):** Discovered by Böttger in 1808.
 - Element 32 (Germanium):** Discovered by Böttger in 1808.
 - Element 33 (Arsenic):** Discovered by Böttger in 1808.
 - Element 34 (Selenium):** Discovered by Böttger in 1808.
 - Element 35 (Bromine):** Discovered by Böttger in 1808.
 - Element 36 (Krypton):** Discovered by Böttger in 1808.
- Periodic Trends:**
 - Group 1 (Alkali Metals):** Increases in atomic radius from Li to Cs.
 - Group 17 (Halogens):** Increases in atomic radius from F to I.
 - Group 18 (Noble Gases):** Increases in atomic radius from He to Rn.
 - Period 1 (H, He):** Increases in atomic radius from H to He.
 - Period 2 (Li to Ne):** Increases in atomic radius from Li to Ne.
 - Period 3 (Na to Ar):** Increases in atomic radius from Na to Ar.
 - Period 4 (K to Kr):** Increases in atomic radius from K to Kr.
 - Period 5 (Rb to Rn):** Increases in atomic radius from Rb to Rn.
 - Period 6 (Cs to Rn):** Increases in atomic radius from Cs to Rn.
 - Period 7 (Fr to Rn):** Increases in atomic radius from Fr to Rn.

► ***The electron distribution***

```
\pgfPTbuilcellstyle{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;eConfign!)]
```

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 1	2 He helium 2	3 Li lithium 2:1	4 Be beryllium 2:2	5 B boron 2:3	6 C carbon 2:4	7 N nitrogen 2:5	8 O oxygen 2:6	9 F fluorine 2:7	10 Ne neon 2:8	11 Na sodium 2:8:1	12 Mg magnesium 2:8:2	13 Al aluminum 2:8:3	14 Si silicon 2:8:4	15 P phosphorus 2:8:5	16 S sulfur 2:8:6	17 Cl chlorine 2:8:7	18 Ar argon 2:8:8
19 K potassium 2:8:8:1	20 Ca calcium 2:8:8:2	21 Sc scandium 2:8:8:2	22 Ti titanium 2:8:10:2	23 V vanadium 2:8:11:2	24 Cr chromium 2:8:13:1	25 Mn manganese 2:8:13:2	26 Fe iron 2:8:14:2	27 Co cobalt 2:8:15:2	28 Ni nickel 2:8:16:2	29 Cu copper 2:8:16:1	30 Zn zinc 2:8:18:2	31 Ga gallium 2:8:18:3	32 Ge germanium 2:8:18:4	33 As arsenic 2:8:18:5	34 Se selenium 2:8:18:6	35 Br bromine 2:8:18:7	36 Kr krypton 2:8:18:8
37 Rb rubidium 2:8:18:1	38 Sr strontium 2:8:18:2	39 Y yttrium 2:8:18:2	40 Zr zirconium 2:8:18:10:2	41 Nb niobium 2:8:18:12:1	42 Mo molybdenum 2:8:18:13:1	43 Tc technetium 2:8:18:13:2	44 Ru ruthenium 2:8:18:15:1	45 Rh rhodium 2:8:18:16:1	46 Pd palladium 2:8:18:18	47 Ag silver 2:8:18:18:1	48 Cd cadmium 2:8:18:18:2	49 In indium 2:8:18:18:3	50 Sn tin 2:8:18:18:4	51 Sb antimony 2:8:18:18:5	52 Te tellurium 2:8:18:18:6	53 I iodine 2:8:18:18:7	54 Xe xenon 2:8:18:18:8
<small>Z: Atomic Number Ra: Radon CS: Chemical Symbol N: Name ed: Electron Distribution ec: Electronic Configuration</small>																	

eDist font

default: `\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 1	2 He helium 2	3 Li lithium 2:1	4 Be beryllium 2:2	5 B boron 2:3	6 C carbon 2:4	7 N nitrogen 2:5	8 O oxygen 2:6	9 F fluorine 2:7	10 Ne neon 2:8	11 Na sodium 2:8:1	12 Mg magnesium 2:8:2	13 Al aluminum 2:8:3	14 Si silicon 2:8:4	15 P phosphorus 2:8:5	16 S sulfur 2:8:6	17 Cl chlorine 2:8:7	18 Ar argon 2:8:8
19 K potassium 2:8:8:1	20 Ca calcium 2:8:8:2	21 Sc scandium 2:8:8:2	22 Ti titanium 2:8:10:2	23 V vanadium 2:8:11:2	24 Cr chromium 2:8:13:1	25 Mn manganese 2:8:13:2	26 Fe iron 2:8:14:2	27 Co cobalt 2:8:15:2	28 Ni nickel 2:8:16:2	29 Cu copper 2:8:16:1	30 Zn zinc 2:8:18:2	31 Ga gallium 2:8:18:3	32 Ge germanium 2:8:18:4	33 As arsenic 2:8:18:5	34 Se selenium 2:8:18:6	35 Br bromine 2:8:18:7	36 Kr krypton 2:8:18:8
37 Rb rubidium 2:8:18:1	38 Sr strontium 2:8:18:2	39 Y yttrium 2:8:18:2	40 Zr zirconium 2:8:18:10:2	41 Nb niobium 2:8:18:12:1	42 Mo molybdenum 2:8:18:13:1	43 Tc technetium 2:8:18:13:2	44 Ru ruthenium 2:8:18:15:1	45 Rh rhodium 2:8:18:16:1	46 Pd palladium 2:8:18:18	47 Ag silver 2:8:18:18:1	48 Cd cadmium 2:8:18:18:2	49 In indium 2:8:18:18:3	50 Sn tin 2:8:18:18:4	51 Sb antimony 2:8:18:18:5	52 Te tellurium 2:8:18:18:6	53 I iodine 2:8:18:18:7	54 Xe xenon 2:8:18:18:8
<small>Z: Atomic Number Ra: Radon CS: Chemical Symbol N: Name ed: Electron Distribution ec: Electronic Configuration</small>																	

eDist sep

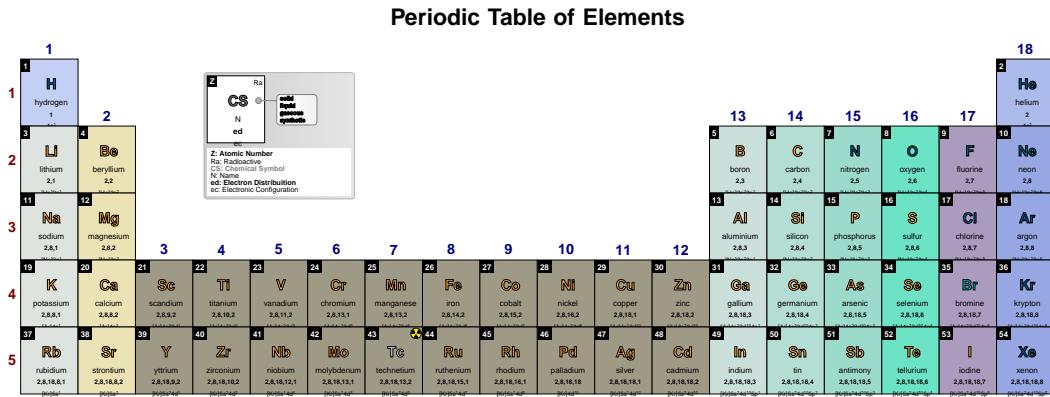
default: `:`

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 1	2 He helium 2	3 Li lithium 2:1	4 Be beryllium 2:2	5 B boron 2:3	6 C carbon 2:4	7 N nitrogen 2:5	8 O oxygen 2:6	9 F fluorine 2:7	10 Ne neon 2:8	11 Na sodium 2:8:1	12 Mg magnesium 2:8:2	13 Al aluminum 2:8:3	14 Si silicon 2:8:4	15 P phosphorus 2:8:5	16 S sulfur 2:8:6	17 Cl chlorine 2:8:7	18 Ar argon 2:8:8
19 K potassium 2:8:8:1	20 Ca calcium 2:8:8:2	21 Sc scandium 2:8:8:2	22 Ti titanium 2:8:10:2	23 V vanadium 2:8:11:2	24 Cr chromium 2:8:13:1	25 Mn manganese 2:8:13:2	26 Fe iron 2:8:14:2	27 Co cobalt 2:8:15:2	28 Ni nickel 2:8:16:2	29 Cu copper 2:8:16:1	30 Zn zinc 2:8:18:2	31 Ga gallium 2:8:18:3	32 Ge germanium 2:8:18:4	33 As arsenic 2:8:18:5	34 Se selenium 2:8:18:6	35 Br bromine 2:8:18:7	36 Kr krypton 2:8:18:8
37 Rb rubidium 2:8:18:1	38 Sr strontium 2:8:18:2	39 Y yttrium 2:8:18:2	40 Zr zirconium 2:8:18:10:2	41 Nb niobium 2:8:18:12:1	42 Mo molybdenum 2:8:18:13:1	43 Tc technetium 2:8:18:13:2	44 Ru ruthenium 2:8:18:15:1	45 Rh rhodium 2:8:18:16:1	46 Pd palladium 2:8:18:18	47 Ag silver 2:8:18:18:1	48 Cd cadmium 2:8:18:18:2	49 In indium 2:8:18:18:3	50 Sn tin 2:8:18:18:4	51 Sb antimony 2:8:18:18:5	52 Te tellurium 2:8:18:18:6	53 I iodine 2:8:18:18:7	54 Xe xenon 2:8:18:18:8
<small>Z: Atomic Number Ra: Radon CS: Chemical Symbol N: Name ed: Electron Distribution ec: Electronic Configuration</small>																	

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



► The other contents

For all the *other contents* available for the cells of the periodic table, two keys can be set: <content name> color and <content name> font.

The <content name>'s list:

- ✓ **R**: atomic radius
- ✓ **Rcov**: covalent radius
- ✓ **Rion**: ionic radius
- ✓ **Ei**: first ionization energy
- ✓ **eneg**: electronegativity (Pauling)
- ✓ **eaaff**: electroaffinity
- ✓ **O**: oxidation states
- ✓ **Tmelt**: melting point (Kelvin)
- ✓ **TmeltC**: melting point (Celsius degrees)
- ✓ **Tboil**: boiling point (Kelvin)
- ✓ **TboilC**: boiling point (Celsius degrees)

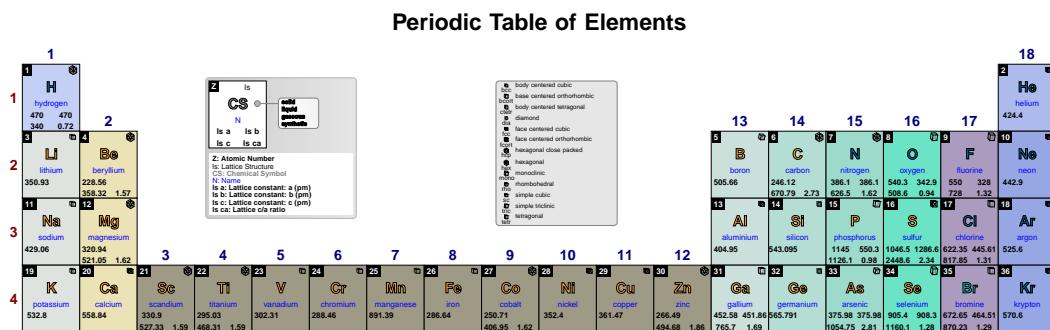
- ✓ **eConfig**: electronic configuration (increasing n)
- ✓ **eConfigN**: electronic configuration (increasing n+ ℓ)
- ✓ **Cp**: specific heat capacity
- ✓ **kT**: thermal conductivity
- ✓ **Isa**: lattice constant - a
- ✓ **Isb**: lattice constant - b
- ✓ **Isc**: lattice constant - c
- ✓ **Isca**: lattice c/a ratio
- ✓ **DiscC**: discover country
- ✓ **spectra**: visible range spectral lines

<content name> color

Sets the <content name> color.

default: *black*

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



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

Periodic Table of Elements

This periodic table uses a `\tiny\itshape` font for all text within the cells, including element names, atomic numbers, and other numerical values. The overall layout is clean and minimalist.

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

This periodic table uses a `\tiny\itshape` font for all text within the cells, except for the element symbols (H, He, Li, Be, etc.) which remain in a standard bold font. The text inside the cells is smaller and italicized.

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

This periodic table uses a blue color for all text within the cells, except for the element symbols (H, He, Li, Be, etc.) which remain black. The blue text is clearly legible against the white background of the cells.

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.

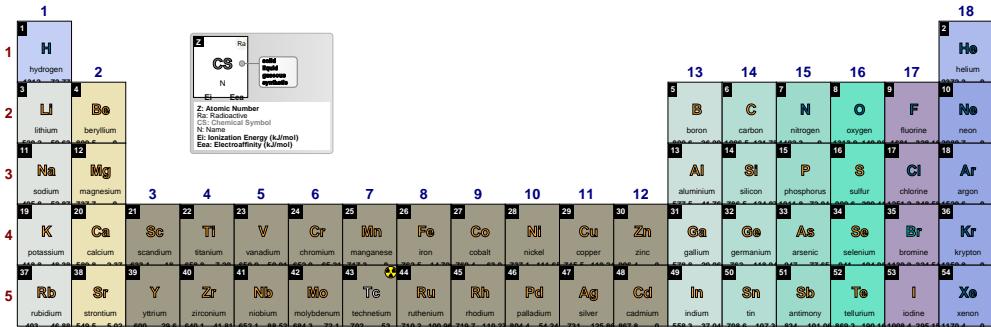
NOTE:

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

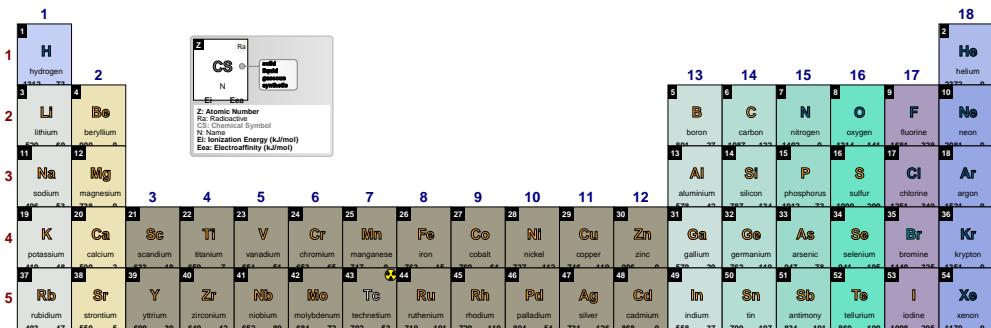
So giving this key a value of -1 (the value of the energy as-is) or 3 has the same effect.

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.

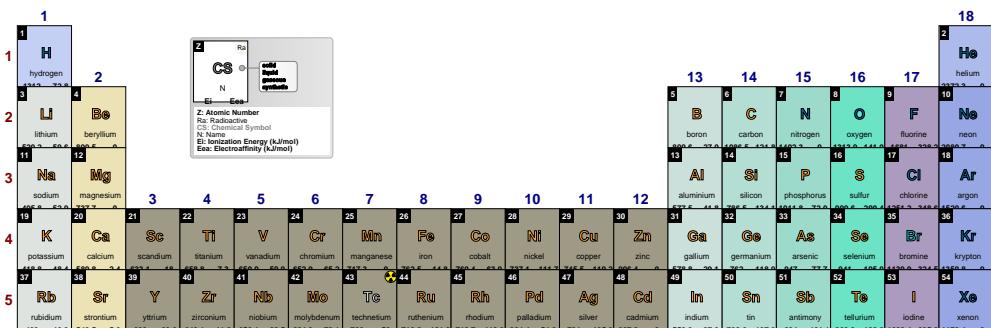
```
\pgfPTbuilcellstyle{myE}(5,3)% 5 rows by 3 columns
[(1;1-2;Z),(1;3;radio),(2-3;1.5-3.5;CS),(4;1-3;name),(5;1-2.5;Ei), (5;2.5-3;eaff)]
\pgfPTstyle[Z list={1,...,54},cell style=myE,show title=false]
\pgfPT
```



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



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



\pgfPT[E precision=2]

A standard periodic table with atomic number (Z), symbol, name, and various properties for each element. The table includes rows for groups 1 through 18. A legend in the top-left corner provides definitions for Z, CS, N, Ei, and Eea.

\pgfPT[E precision=3]

A standard periodic table with atomic number (Z), symbol, name, and various properties for each element. The table includes rows for groups 1 through 18. A legend in the top-left corner provides definitions for Z, CS, N, Ei, and Eea.

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.

\pgfPTbuilcellstyle{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

A standard periodic table with atomic number (Z), symbol, name, and various properties for each element. The table includes rows for groups 1 through 18. A legend in the top-left corner provides definitions for Z, CS, N, Ei, and Eea, and includes additional keys for Tmelt, Tboil, TmeltC, and TboilC.

\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	1339	1297	2469
5	Mg	magnesium	923	1363	938	1990
6	Ca	calcium	1115	1757	842	1484
7	Sc	scandium	3109	1941	3560	2183
8	Ti	titanium	3560	1910	3407	2180
9	V	vandium	2183	3680	2180	2755
10	Cr	chromium	2180	2755	1246	2001
11	Mn	manganese	1519	2334	1811	3134
12	Fe	iron	1518	2881	1495	2927
13	Co	cobalt	1495	2927	1495	2730
14	Ni	nickel	1495	2927	1495	2835
15	Cu	copper	1495	2927	1495	2652
16	Zn	zinc	1495	2927	1495	2607
17	Ga	gallium	303	2673	1211	3106
18	Ge	germanium	303	2673	1211	2833
19	As	arsenic	1090	887	817	614
20	Se	selenium	494	958	221	605
21	Br	bromine	266	332	-7	59
22	Kr	krypton	116	120	-157	-153

\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	1339	1297	2469
5	Mg	magnesium	923	1363	938	1990
6	Ca	calcium	1115	1757	842	1484
7	Sc	scandium	3109	1941	3560	2183
8	Ti	titanium	3560	1910	3407	2180
9	V	vandium	2183	3680	2180	2755
10	Cr	chromium	2180	2755	1246	2001
11	Mn	manganese	1519	2334	1811	3134
12	Fe	iron	1518	2881	1495	2927
13	Co	cobalt	1495	2927	1495	2835
14	Ni	nickel	1495	2927	1495	2652
15	Cu	copper	1495	2927	1495	2607
16	Zn	zinc	1495	2927	1495	2607
17	Ga	gallium	303	2673	1211	3106
18	Ge	germanium	303	2673	1211	2833
19	As	arsenic	1090	887	817	614
20	Se	selenium	494	958	221	605
21	Br	bromine	266	332	-7	59
22	Kr	krypton	116	120	-157	-153

\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	1339	1297	2469
5	Mg	magnesium	923	1363	938	1990
6	Ca	calcium	1115	1757	842	1484
7	Sc	scandium	3109	1941	3560	2183
8	Ti	titanium	3560	1910	3407	2180
9	V	vandium	2183	3680	2180	2755
10	Cr	chromium	2180	2755	1246	2001
11	Mn	manganese	1519	2334	1811	3134
12	Fe	iron	1518	2881	1495	2927
13	Co	cobalt	1495	2927	1495	2835
14	Ni	nickel	1495	2927	1495	2652
15	Cu	copper	1495	2927	1495	2607
16	Zn	zinc	1495	2927	1495	2607
17	Ga	gallium	303	2673	1211	3106
18	Ge	germanium	303	2673	1211	2833
19	As	arsenic	1090	887	817	614
20	Se	selenium	494	958	221	605
21	Br	bromine	266	332	-7	59
22	Kr	krypton	116	120	-157	-153

\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	1339	1297	2469
5	Mg	magnesium	923	1363	938	1990
6	Ca	calcium	1115	1757	842	1484
7	Sc	scandium	3109	1941	3560	2183
8	Ti	titanium	3560	1910	3407	2180
9	V	vandium	2183	3680	2180	2755
10	Cr	chromium	2180	2755	1246	2001
11	Mn	manganese	1519	2334	1811	3134
12	Fe	iron	1518	2881	1495	2927
13	Co	cobalt	1495	2927	1495	2835
14	Ni	nickel	1495	2927	1495	2652
15	Cu	copper	1495	2927	1495	2607
16	Zn	zinc	1495	2927	1495	2607
17	Ga	gallium	303	2673	1211	3106
18	Ge	germanium	303	2673	1211	2833
19	As	arsenic	1090	887	817	614
20	Se	selenium	494	958	221	605
21	Br	bromine	266	332	-7	59
22	Kr	krypton	116	120	-157	-153

\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	1339	1297	2469
5	Mg	magnesium	923	1363	938	1990
6	Ca	calcium	1115	1757	842	1484
7	Sc	scandium	3109	1941	3560	2183
8	Ti	titanium	3560	1910	3407	2180
9	V	vandium	2183	3680	2180	2755
10	Cr	chromium	2180	2755	1246	2001
11	Mn	manganese	1519	2334	1811	3134
12	Fe	iron	1518	2881	1495	2927
13	Co	cobalt	1495	2927	1495	2835
14	Ni	nickel	1495	2927	1495	2652
15	Cu	copper	1495	2927	1495	2607
16	Zn	zinc	1495	2927	1495	2607
17	Ga	gallium	303	2673	1211	3106
18	Ge	germanium	303	2673	1211	2833
19	As	arsenic	1090	887	817	614
20	Se	selenium	494	958	221	605
21	Br	bromine	266	332	-7	59
22	Kr	krypton	116	120	-157	-153

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.

```
\pgfPTbuilcellstyle{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	23 V vanadium 24.89
24 Cr chromium 23.35	25 Mn manganese 26.32	26 Fe iron 25.1
27 Co cobalt 24.81	28 Ni nickel 26.07	29 Cu copper 24.44
30 Zn zinc 25.39	31 Ga gallium 25.86	32 Ge germanium 23.222
33 As arsenic 24.64	34 Se selenium 25.363	35 Br bromine 75.69
36 Kr krypton 20.866		

\pgfPT[Cp precision=0]

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 28.2	12 4 Mg magnesium 25	
19 4 K potassium 30	20 5 Ca calcium 26	
21 Sc scandium 26	22 Ti titanium 25	23 V vanadium 25
24 Cr chromium 23	25 Mn manganese 26	26 Fe iron 25
27 Co cobalt 25	28 Ni nickel 26	29 Cu copper 24
30 Zn zinc 25	31 Ga gallium 26	32 Ge germanium 23
33 As arsenic 25	34 Se selenium 25	35 Br bromine 76
36 Kr krypton 21		

\pgfPT[Cp precision=1]

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 16.4	
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	23 V vanadium 24.9
24 Cr chromium 23.4	25 Mn manganese 26.3	26 Fe iron 25.1
27 Co cobalt 24.8	28 Ni nickel 26.1	29 Cu copper 24.4
30 Zn zinc 25.4	31 Ga gallium 25.9	32 Ge germanium 23.2
33 As arsenic 24.6	34 Se selenium 25.4	35 Br bromine 75.7
36 Kr krypton 20.8		

\pgfPT[Cp precision=2]

Periodic Table of Elements

1	H hydrogen 28.84	2	He helium 29.79	18
3	Li lithium 24.86	4	Be beryllium 16.44	
5	Na sodium 28.23	6	Mg magnesium 24.87	
7	K potassium 29.6	8	Ca calcium 25.93	
9	Sc scandium 25.52	10	Ti titanium 25.06	
11	V vanadium 24.89	12	Cr chromium 23.35	
13	Mn manganese 26.32	14	Fe iron 25.1	
15	Co cobalt 24.81	16	Ni nickel 26.07	
17	Cu copper 24.44	18	Zn zinc 25.39	
19	Ga gallium 25.86	20	Ge germanium 23.22	
21	As arsenic 24.64	22	Se selenium 25.36	
23	Br bromine 31.95	24	Kr krypton 20.79	
25	Ra radioactive radium 11.09	26	Cs radioactive cesium 8.52	
27	B boron 11.09	28	C carbon 8.52	
29	N nitrogen 29.12	30	O oxygen 29.38	
31	P phosphorus 23.82	32	S sulfur 22.75	
33	Al aluminum 24.2	34	Cl chlorine 31.95	
35	Si silicon 23.82	36	Ar argon 20.79	
37	F fluorine 31.30			
38	Ne neon 20.79			

\pgfPT[Cp precision=3]

Periodic Table of Elements

1	H hydrogen 28.836	2	He helium 20.786
3	Li lithium 24.86	4	Be beryllium 16.443
5	Mg magnesium 24.869	6	Al aluminum 19.789
7	Si silicon 19.789	8	P phosphorus 22.75
9	N nitrogen 23.78	10	S sulfur 22.75
11	O oxygen 31.304	12	Cl chlorine 31.949
13	B boron 8.517	14	Ar argon 20.786
15	C carbon 8.517	16	F fluorine 31.304
17	N nitrogen 23.78	18	Ne neon 20.786
19	K potassium 29.6	20	Ca calcium 25.929
21	Sc scandium 25.52	22	Ti titanium 25.06
23	V vanadium 24.89	24	Cr chromium 23.35
25	Mn manganese 26.32	26	Fe iron 25.1
27	Co cobalt 24.81	28	Ni nickel 26.07
29	Cu copper 24.44	30	Zn zinc 25.39
31	Ga gallium 25.86	32	Ge germanium 23.222
33	As arsenic 24.64	34	Se selenium 25.363
35	Br bromine 75.69	36	Kr krypton 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:

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.

```
\pgfPTbuilcellstyle{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 hydrogen 1.0805	Ra Ra radioactive Cs N Kt	He helium 0.1513
2	Li lithium 84.8	Be beryllium 200	Ne neon 0.0491
3	Na sodium 156	Mg magnesium 156	F fluorine 0.0277
4	K potassium 149.06	Ca calcium 149.06	Cl chlorine 0.1772
5	Sc scandium 144.96	Ti titanium 147.90	Ar argon 0.0809
6	V vanadium 145.90	Cr chromium 147.90	Kr krypton 0.2900
7	Mn manganese 145.90	Fe iron 147.90	Br bromine 0.4000
8	Co cobalt 147.90	Ni nickel 147.90	Se selenium 0.3000
9	Cu copper 147.90	Zn zinc 147.90	Te tellurium 0.2000
10	Ga gallium 147.90	Ge germanium 147.90	I iodine 0.1000
11	As arsenic 147.90	Se selenium 147.90	Xe xenon 0.0500
12	Se selenium 147.90	Br bromine 147.90	Rn radon 0.0200
13	B boron 27.4	C carbon 14.0	He helium 0.1513
14	N nitrogen 0.02583	O oxygen 0.02658	Ne neon 0.0491
15	P phosphorus 31.0	S sulfur 32.0	F fluorine 0.0277
16	Si silicon 14.0	Cl chlorine 0.1772	Cl chlorine 0.1772
17	Al aluminum 27.0	Ar argon 0.0809	Ar argon 0.0809
18			

\pgfPT[kT precision=0]

1	H hydrogen 0	2	He helium 0
3	Li lithium 85	4	Be beryllium 200
5	Mg magnesium 156	6	Ca calcium 201
7	Sc scandium 16	8	Ti titanium 22
9	V vanadium 31	10	Cr chromium 94
11	Mn manganese 80	12	Fe iron 100
13	Co cobalt 401	14	Ni nickel 91
15	Cu copper zinc 116	16	Zn zinc 116
17	Ga gallium 41	18	Ge germanium 60
19	As arsenic 50	20	Se selenium 1
21	Br bromine 0	22	Kr krypton 0
23	Ra radioactive solid liquid gas cyanide cyanate cyanide cyanate	24	KT Thermal Conductivity (Wm ⁻¹ K ¹)
25	B boron 27	26	C carbon 140
27	Al aluminum 237	28	N nitrogen 0
29	Si silicon 149	30	O oxygen 0
31	P phosphorus 0	32	S sulfur 0
33	Cl chlorine 0	34	F fluorine 0
35	Ar argon 0	36	Ne neon 0

\pgfPT[kT precision=1]

\pgfPT[kT precision=2]

1	H hydrogen 0.18	2	He helium 0.15
3	Li lithium 8.48	4	Be beryllium 200
11	Na sodium 142	12	Mg magnesium 156
19	K potassium 165.5	20	Cs caesium 201
4	Sc scandium 15.8	21	Ti titanium 21.9
		22	V vanadium 30.2
		23	Cr chromium 52.0
		24	Mn manganese 54.9
		25	Fe iron 55.85
		26	Co cobalt 58.9
		27	Ni nickel 58.8
		28	Cu copper 63.5
		29	Zn zinc 65.4
		30	Ga gallium 69.7
		31	Ge germanium 72.2
		32	As arsenic 75.3
		33	Se selenium 78.3
		34	Br bromine 80.3
		35	Kr krypton 83.8
		36	Xe xenon 84.8
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17			
18			

\pgfPT[kT precision=3]

1	H hydrogen 0.181	2	He helium 0.151
3	Li lithium 8.48	4	B boron 200
11	Na sodium 156	12	Mg magnesium 156
19	K potassium 1050	20	Ca calcium 450
4	Sc scandium 450	21	Ti titanium 450
		22	V vanadium 450
		23	Cr chromium 450
		24	Mn manganese 450
		25	Fe iron 450
		26	Co cobalt 450
		27	Ni nickel 450
		28	Cu copper 450
		29	Zn zinc 450
		30	Ga gallium 450
		31	Ge germanium 450
		32	As arsenic 450
		33	Se selenium 450
		34	Br bromine 450
		35	Kr krypton 450
		36	Rb rubidium 450
		37	Fr francium 450
		38	He helium 0.151
		39	Ne neon 0.049
		40	Ar argon 0.018
		41	Cl chlorine 0.018
		42	S sulfur 0.205
		43	P phosphorus 0.236
		44	Si silicon 0.236
		45	Al aluminum 0.205
		46	Si silicon 0.205
		47	N nitrogen 0.026
		48	O oxygen 0.027
		49	F fluorine 0.049
		50	Ne neon 0.049
		51	Ar argon 0.018
		52	Cl chlorine 0.018
		53	S sulfur 0.205
		54	P phosphorus 0.236
		55	Si silicon 0.236
		56	Al aluminum 0.205
		57	Si silicon 0.205
		58	N nitrogen 0.026
		59	O oxygen 0.027
		60	F fluorine 0.049
		61	Ne neon 0.049
		62	Ar argon 0.018
		63	Cl chlorine 0.018
		64	S sulfur 0.205
		65	P phosphorus 0.236
		66	Si silicon 0.236
		67	Al aluminum 0.205
		68	Si silicon 0.205
		69	N nitrogen 0.026
		70	O oxygen 0.027
		71	F fluorine 0.049
		72	Ne neon 0.049
		73	Ar argon 0.018
		74	Cl chlorine 0.018
		75	S sulfur 0.205
		76	P phosphorus 0.236
		77	Si silicon 0.236
		78	Al aluminum 0.205
		79	Si silicon 0.205
		80	N nitrogen 0.026
		81	O oxygen 0.027
		82	F fluorine 0.049
		83	Ne neon 0.049
		84	Ar argon 0.018
		85	Cl chlorine 0.018
		86	S sulfur 0.205
		87	P phosphorus 0.236
		88	Si silicon 0.236
		89	Al aluminum 0.205
		90	Si silicon 0.205
		91	N nitrogen 0.026
		92	O oxygen 0.027
		93	F fluorine 0.049
		94	Ne neon 0.049
		95	Ar argon 0.018
		96	Cl chlorine 0.018
		97	S sulfur 0.205
		98	P phosphorus 0.236
		99	Si silicon 0.236
		100	Al aluminum 0.205
		101	Si silicon 0.205
		102	N nitrogen 0.026
		103	O oxygen 0.027
		104	F fluorine 0.049
		105	Ne neon 0.049
		106	Ar argon 0.018
		107	Cl chlorine 0.018
		108	S sulfur 0.205
		109	P phosphorus 0.236
		110	Si silicon 0.236
		111	Al aluminum 0.205
		112	Si silicon 0.205
		113	N nitrogen 0.026
		114	O oxygen 0.027
		115	F fluorine 0.049
		116	Ne neon 0.049
		117	Ar argon 0.018
		118	Cl chlorine 0.018
		119	S sulfur 0.205
		120	P phosphorus 0.236
		121	Si silicon 0.236
		122	Al aluminum 0.205
		123	Si silicon 0.205
		124	N nitrogen 0.026
		125	O oxygen 0.027
		126	F fluorine 0.049
		127	Ne neon 0.049
		128	Ar argon 0.018
		129	Cl chlorine 0.018
		130	S sulfur 0.205
		131	P phosphorus 0.236
		132	Si silicon 0.236
		133	Al aluminum 0.205
		134	Si silicon 0.205
		135	N nitrogen 0.026
		136	O oxygen 0.027
		137	F fluorine 0.049
		138	Ne neon 0.049
		139	Ar argon 0.018
		140	Cl chlorine 0.018
		141	S sulfur 0.205
		142	P phosphorus 0.236
		143	Si silicon 0.236
		144	Al aluminum 0.205
		145	Si silicon 0.205
		146	N nitrogen 0.026
		147	O oxygen 0.027
		148	F fluorine 0.049
		149	Ne neon 0.049
		150	Ar argon 0.018
		151	Cl chlorine 0.018
		152	S sulfur 0.205
		153	P phosphorus 0.236
		154	Si silicon 0.236
		155	Al aluminum 0.205
		156	Si silicon 0.205
		157	N nitrogen 0.026
		158	O oxygen 0.027
		159	F fluorine 0.049
		160	Ne neon 0.049
		161	Ar argon 0.018
		162	Cl chlorine 0.018
		163	S sulfur 0.205
		164	P phosphorus 0.236
		165	Si silicon 0.236
		166	Al aluminum 0.205
		167	Si silicon 0.205
		168	N nitrogen 0.026
		169	O oxygen 0.027
		170	F fluorine 0.049
		171	Ne neon 0.049
		172	Ar argon 0.018
		173	Cl chlorine 0.018
		174	S sulfur 0.205
		175	P phosphorus 0.236
		176	Si silicon 0.236
		177	Al aluminum 0.205
		178	Si silicon 0.205
		179	N nitrogen 0.026
		180	O oxygen 0.027
		181	F fluorine 0.049
		182	Ne neon 0.049
		183	Ar argon 0.018
		184	Cl chlorine 0.018
		185	S sulfur 0.205
		186	P phosphorus 0.236
		187	Si silicon 0.236
		188	Al aluminum 0.205
		189	Si silicon 0.205
		190	N nitrogen 0.026
		191	O oxygen 0.027
		192	F fluorine 0.049
		193	Ne neon 0.049
		194	Ar argon 0.018
		195	Cl chlorine 0.018
		196	S sulfur 0.205
		197	P phosphorus 0.236
		198	Si silicon 0.236
		199	Al aluminum 0.205
		200	Si silicon 0.205
		201	N nitrogen 0.026
		202	O oxygen 0.027
		203	F fluorine 0.049
		204	Ne neon 0.049
		205	Ar argon 0.018
		206	Cl chlorine 0.018
		207	S sulfur 0.205
		208	P phosphorus 0.236
		209	Si silicon 0.236
		210	Al aluminum 0.205
		211	Si silicon 0.205
		212	N nitrogen 0.026
		213	O oxygen 0.027
		214	F fluorine 0.049
		215	Ne neon 0.049
		216	Ar argon 0.018
		217	Cl chlorine 0.018
		218	S sulfur 0.205
		219	P phosphorus 0.236
		220	Si silicon 0.236
		221	Al aluminum 0.205
		222	Si silicon 0.205
		223	N nitrogen 0.026
		224	O oxygen 0.027
		225	F fluorine 0.049
		226	Ne neon 0.049
		227	Ar argon 0.018
		228	Cl chlorine 0.018
		229	S sulfur 0.205
		230	P phosphorus 0.236
		231	Si silicon 0.236
		232	Al aluminum 0.205
		233	Si silicon 0.205
		234	N nitrogen 0.026
		235	O oxygen 0.027
		236	F fluorine 0.049
		237	Ne neon 0.049
		238	Ar argon 0.018
		239	Cl chlorine 0.018
		240	S sulfur 0.205
		241	P phosphorus 0.236
		242	Si silicon 0.236
		243	Al aluminum 0.205
		244	Si silicon 0.205
		245	N nitrogen 0.026
		246	O oxygen 0.027
		247	F fluorine 0.049
		248	Ne neon 0.049
		249	Ar argon 0.018
		250	Cl chlorine 0.018
		251	S sulfur 0.205
		252	P phosphorus 0.236
		253	Si silicon 0.236
		254	Al aluminum 0.205
		255	Si silicon 0.205
		256	N nitrogen 0.026
		257	O oxygen 0.027
		258	F fluorine 0.049
		259	Ne neon 0.049
		260	Ar argon 0.018
		261	Cl chlorine 0.018
		262	S sulfur 0.205
		263	P phosphorus 0.236
		264	Si silicon 0.236
		265	Al aluminum 0.205
		266	Si silicon 0.205
		267	N nitrogen 0.026
		268	O oxygen 0.027
		269	F fluorine 0.049
		270	Ne neon 0.049
		271	Ar argon 0.018
		272	Cl chlorine 0.018
		273	S sulfur 0.205
		274	P phosphorus 0.236
		275	Si silicon 0.236
		276	Al aluminum 0.205
		277	Si silicon 0.205
		278	N nitrogen 0.026
		279	O oxygen 0.027
		280	F fluorine 0.049
		281	Ne</b

\pgfPT[kT precision=4]

1	H	He
hydrogen		helium
0.1805		0.1513
2	Li	Ne
lithium	beryllium	neon
6.84	200	0.277
3	Mg	Ar
sodium	magnesium	argon
142	156	0.177
4	K	Kr
potassium	calcium	krypton
19	20	36
5	Sc	Br
scandium	titanium	bromine
21	22	37
6	Ti	Rb
titanium	vanadium	ruthenium
23	24	38
7	V	Os
vanadium	chromium	osmium
25	26	39
8	Cr	Ir
chromium	manganese	iridium
27	28	40
9	Fe	Pt
iron	cobalt	platinum
29	30	41
10	Co	Au
cobalt	nickel	gold
31	32	42
11	Ni	Hg
nickel	copper	mercury
33	34	43
12	Zn	Tl
copper	zinc	thallium
35	36	44
13	Ga	Pb
gallium	germanium	lead
37	38	45
14	Ge	Bi
germanium	arsenic	bismuth
39	40	46
15	As	Po
arsenic	selenium	polonium
41	42	47
16	Se	At
selenium	tin	astatine
43	44	48
17	Te	Rn
tin	iodine	radon
45	46	49
18	Fr	Ra
iodine	francium	radioactive
47	48	50
19	Cs	Fr
francium	cesium	francium
49	50	51
20	N	Ra
cesium	nitrogen	radioactive
51	52	53
21	KT	Fr
radioactive	thermal conductivity	francium
52	53	54
22	KT	Fr
radioactive	thermal conductivity	francium
54	55	56
23	KT	Fr
radioactive	thermal conductivity	francium
55	56	57
24	KT	Fr
radioactive	thermal conductivity	francium
56	57	58
25	KT	Fr
radioactive	thermal conductivity	francium
57	58	59
26	KT	Fr
radioactive	thermal conductivity	francium
58	59	60
27	KT	Fr
radioactive	thermal conductivity	francium
59	60	61
28	KT	Fr
radioactive	thermal conductivity	francium
60	61	62
29	KT	Fr
radioactive	thermal conductivity	francium
61	62	63
30	KT	Fr
radioactive	thermal conductivity	francium
62	63	64
31	KT	Fr
radioactive	thermal conductivity	francium
63	64	65
32	KT	Fr
radioactive	thermal conductivity	francium
64	65	66
33	KT	Fr
radioactive	thermal conductivity	francium
65	66	67
34	KT	Fr
radioactive	thermal conductivity	francium
66	67	68
35	KT	Fr
radioactive	thermal conductivity	francium
67	68	69
36	KT	Fr
radioactive	thermal conductivity	francium
68	69	70
37	KT	Fr
radioactive	thermal conductivity	francium
69	70	71
38	KT	Fr
radioactive	thermal conductivity	francium
70	71	72
39	KT	Fr
radioactive	thermal conductivity	francium
71	72	73
40	KT	Fr
radioactive	thermal conductivity	francium
72	73	74
41	KT	Fr
radioactive	thermal conductivity	francium
73	74	75
42	KT	Fr
radioactive	thermal conductivity	francium
74	75	76
43	KT	Fr
radioactive	thermal conductivity	francium
75	76	77
44	KT	Fr
radioactive	thermal conductivity	francium
76	77	78
45	KT	Fr
radioactive	thermal conductivity	francium
77	78	79
46	KT	Fr
radioactive	thermal conductivity	francium
78	79	80
47	KT	Fr
radioactive	thermal conductivity	francium
79	80	81
48	KT	Fr
radioactive	thermal conductivity	francium
80	81	82
49	KT	Fr
radioactive	thermal conductivity	francium
81	82	83
50	KT	Fr
radioactive	thermal conductivity	francium
82	83	84
51	KT	Fr
radioactive	thermal conductivity	francium
83	84	85
52	KT	Fr
radioactive	thermal conductivity	francium
84	85	86
53	KT	Fr
radioactive	thermal conductivity	francium
85	86	87
54	KT	Fr
radioactive	thermal conductivity	francium
86	87	88
55	KT	Fr
radioactive	thermal conductivity	francium
87	88	89
56	KT	Fr
radioactive	thermal conductivity	francium
88	89	90
57	KT	Fr
radioactive	thermal conductivity	francium
89	90	91
58	KT	Fr
radioactive	thermal conductivity	francium
90	91	92
59	KT	Fr
radioactive	thermal conductivity	francium
91	92	93
60	KT	Fr
radioactive	thermal conductivity	francium
92	93	94
61	KT	Fr
radioactive	thermal conductivity	francium
93	94	95
62	KT	Fr
radioactive	thermal conductivity	francium
94	95	96
63	KT	Fr
radioactive	thermal conductivity	francium
95	96	97
64	KT	Fr
radioactive	thermal conductivity	francium
96	97	98
65	KT	Fr
radioactive	thermal conductivity	francium
97	98	99
66	KT	Fr
radioactive	thermal conductivity	francium
98	99	100
67	KT	Fr
radioactive	thermal conductivity	francium
99	100	101
68	KT	Fr
radioactive	thermal conductivity	francium
100	101	102
69	KT	Fr
radioactive	thermal conductivity	francium
101	102	103
70	KT	Fr
radioactive	thermal conductivity	francium
102	103	104
71	KT	Fr
radioactive	thermal conductivity	francium
103	104	105
72	KT	Fr
radioactive	thermal conductivity	francium
104	105	106
73	KT	Fr
radioactive	thermal conductivity	francium
105	106	107
74	KT	Fr
radioactive	thermal conductivity	francium
106	107	108
75	KT	Fr
radioactive	thermal conductivity	francium
107	108	109
76	KT	Fr
radioactive	thermal conductivity	francium
108	109	110
77	KT	Fr
radioactive	thermal conductivity	francium
109	110	111
78	KT	Fr
radioactive	thermal conductivity	francium
110	111	112
79	KT	Fr
radioactive	thermal conductivity	francium
111	112	113
80	KT	Fr
radioactive	thermal conductivity	francium
112	113	114
81	KT	Fr
radioactive	thermal conductivity	francium
113	114	115
82	KT	Fr
radioactive	thermal conductivity	francium
114	115	116
83	KT	Fr
radioactive	thermal conductivity	francium
115	116	117
84	KT	Fr
radioactive	thermal conductivity	francium
116	117	118
85	KT	Fr
radioactive	thermal conductivity	francium
117	118	119
86	KT	Fr
radioactive	thermal conductivity	francium
118	119	120
87	KT	Fr
radioactive	thermal conductivity	francium
119	120	121
88	KT	Fr
radioactive	thermal conductivity	francium
120	121	122
89	KT	Fr
radioactive	thermal conductivity	francium
121	122	123
90	KT	Fr
radioactive	thermal conductivity	francium
122	123	124
91	KT	Fr
radioactive	thermal conductivity	francium
123	124	125
92	KT	Fr
radioactive	thermal conductivity	francium
124	125	126
93	KT	Fr
radioactive	thermal conductivity	francium
125	126	127
94	KT	Fr
radioactive	thermal conductivity	francium
126	127	128
95	KT	Fr
radioactive	thermal conductivity	francium
127	128	129
96	KT	Fr
radioactive	thermal conductivity	francium
128	129	130
97	KT	Fr
radioactive	thermal conductivity	francium
129	130	131
98	KT	Fr
radioactive	thermal conductivity	francium
130	131	132
99	KT	Fr
radioactive	thermal conductivity	francium
131	132	133
100	KT	Fr
radioactive	thermal conductivity	francium
132	133	134
101	KT	Fr
radioactive	thermal conductivity	francium
133	134	135
102	KT	Fr
radioactive	thermal conductivity	francium
134	135	136
103	KT	Fr
radioactive	thermal conductivity	francium
135	136	137
104	KT	Fr
radioactive	thermal conductivity	francium
136	137	138
105	KT	Fr
radioactive	thermal conductivity	francium
137	138	139
106	KT	Fr
radioactive	thermal conductivity	francium
138	139	140
107	KT	Fr
radioactive	thermal conductivity	francium
139	140	141
108	KT	Fr
radioactive	thermal conductivity	francium
140	141	142
109	KT	Fr
radioactive	thermal conductivity	francium
141	142	143
110	KT	Fr
radioactive	thermal conductivity	francium
142	143	144
111	KT	Fr
radioactive	thermal conductivity	francium
143	144	145
112	KT	Fr
radioactive	thermal conductivity	francium
144	145	146
113	KT	Fr
radioactive	thermal conductivity	francium
145	146	147
114	KT	Fr
radioactive	thermal conductivity	francium
146	147	148
115	KT	Fr
radioactive	thermal conductivity	francium
147	148	149
116	KT	Fr
radioactive	thermal conductivity	francium
148	149	150
117	KT	Fr
radioactive	thermal conductivity	francium
149	150	151
118	KT	Fr
radioactive	thermal conductivity	francium
150	151	152
119	KT	Fr
radioactive	thermal conductivity	francium
151	152	153
120	KT	Fr
radioactive	thermal conductivity	francium
152	153	154
121	KT	Fr
radioactive	thermal conductivity	francium
153	154	155
122	KT	Fr
radioactive	thermal conductivity	francium
154	155	156
123	KT	Fr
radioactive	thermal conductivity	francium
155	156	157
124	KT	Fr
radioactive	thermal conductivity	francium
156	157	158
125	KT	Fr
radioactive	thermal conductivity	francium
157	158	159
126	KT	Fr
radioactive	thermal conductivity	francium
158	159	160
127	KT	Fr
radioactive	thermal conductivity	francium
159	160	161
128	KT	Fr
radioactive	thermal conductivity	francium
160	161	162
129	KT	Fr
radioactive	thermal conductivity	francium
161	162	163
130	KT	Fr
radioactive	thermal conductivity	francium
162	163	164
131	KT	Fr
radioactive	thermal conductivity	francium
163	164	165
132	KT	Fr
radioactive	thermal conductivity	francium
164	165	166
133	KT	Fr
radioactive	thermal conductivity	francium
165	166	167
134	KT	Fr
radioactive	thermal conductivity	francium
166	167	168
135	KT	Fr
radioactive	thermal conductivity	francium
167	168	169
136	KT	Fr
radioactive	thermal conductivity	francium
168	169	170
137	KT	Fr
radioactive	thermal conductivity	francium
169	170	171
138	KT	Fr
radioactive	thermal conductivity	francium
170	171	172
139	KT	Fr </td

\pgfPT[kT precision=5]

1	H	hydrogen 0.1605	2		
2	Li	lithium 6.94	3	Be	beryllium 200
3	Na	sodium 22.99	4	Mg	magnesium 24.31
4	K	potassium 39.1025	5	Ca	calcium 20.18
5	Sc	scandium 44.956	6	Ti	titanium 47.87
6	V	vandium 50.94	7	Cr	chromium 52.00
7	Mn	manganese 54.94	8	Fe	iron 55.85
8	Co	cobalt 58.93	9	Ni	nickel 58.71
9	Cu	copper 63.55	10	Zn	zinc 65.40
10	Ga	gallium 69.72	11	Ge	germanium 72.61
11	As	arsenic 74.98	12	Se	selenium 78.96
12	Br	bromine 80.00	13	Al	aluminum 13.98
13	Si	silicon 14.71	14	P	phosphorus 15.10
14	S	sulfur 16.00	15	O	oxygen 16.00
15	Cl	chlorine 31.90	16	F	fluorine 18.99
16	Ar	argon 39.95	17	Ne	neon 20.18
17			18	He	helium 4.00
18					

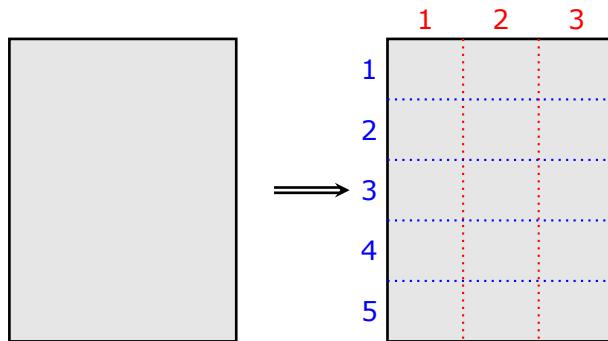
Z: Atomic Number
Ra: Radioactivity
Cs: Chemical Symbol
N: Name
KT: Thermal Conductivity (Wm⁻¹K⁻¹)

\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:

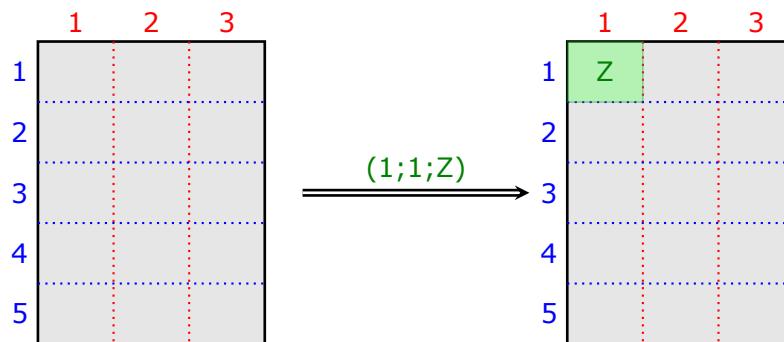


The next task is to assign contents to the cell by typing *trios* with the structure

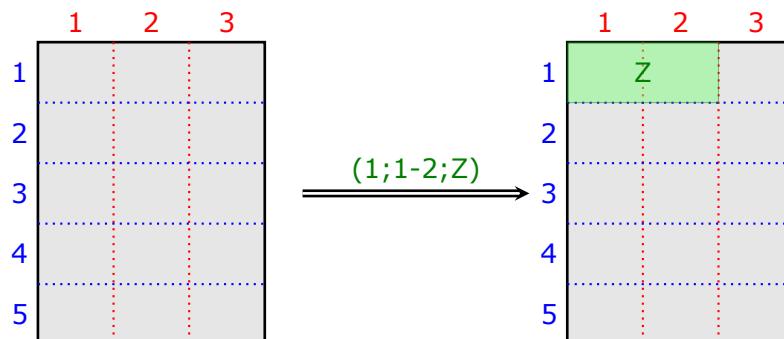
- **(row;column;content)**
- or **(start row-end row;start column-end column;content)**
- or a combination of both.

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, lsca, DiscY, DiscC and spectra.

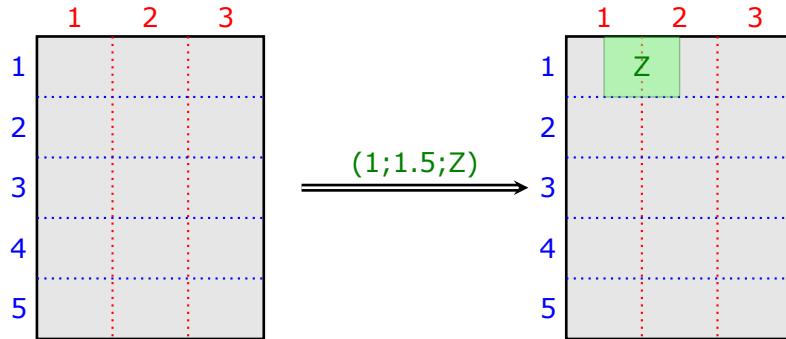
Assigning, for instance, **(1;1;Z)** will show the atomic number in the first row and in the first column,



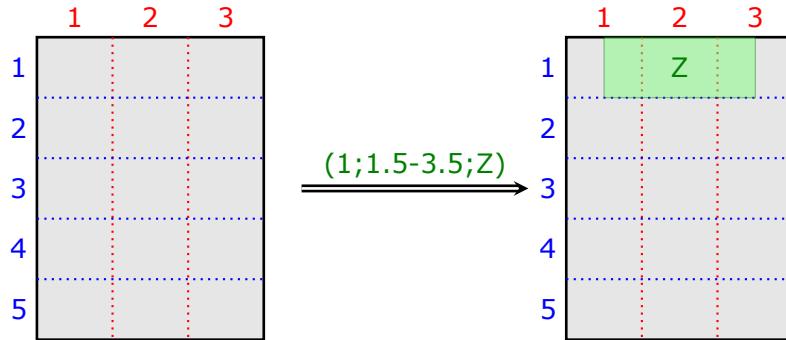
while the assignment **(1;1-2;Z)** will show the atomic number in the first row and filling the first and second columns,



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		CS	
3			
4		name	
5			
6		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		CS	
3			
4		name	
5			
6		Ar	
7			

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		CS	
3			
4		name	
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 two ways to make a new color scheme:

- with the command `\pgfPTnewColorScheme`
- and using the *script* in the file `pgfPTcolorSchemes.html`

✖ Designing a color scheme with `\pgfPTnewColorScheme`

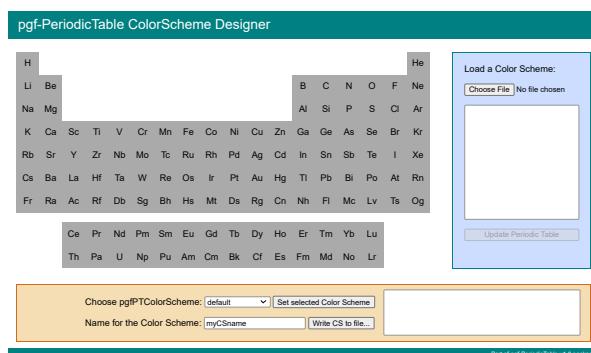
This command provides a way to set the cell background color of each of the 118 elements of the Periodic Table. *If the intention is to set the background color for all of them, it is highly recommended to use the file `pgfPTcolorSchemes.html`, unless the trailing color begin at a small atomic number.*

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.

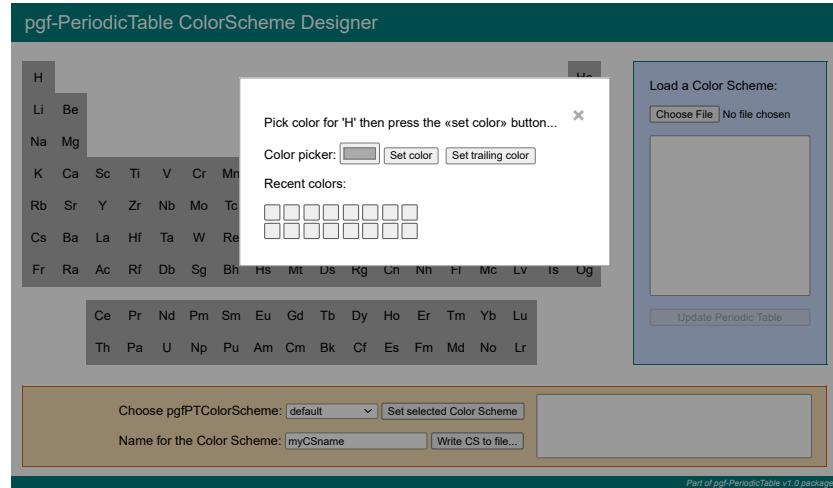
If the color list has ten entries, these entries will set the background colors of the elements with atomic numbers from 1 to 10. For the following atomic numbers, greater than or equal to 11, the trailing color will be used in the color background.

✖ Designing a color scheme with `pgfPTcolorSchemes.html`

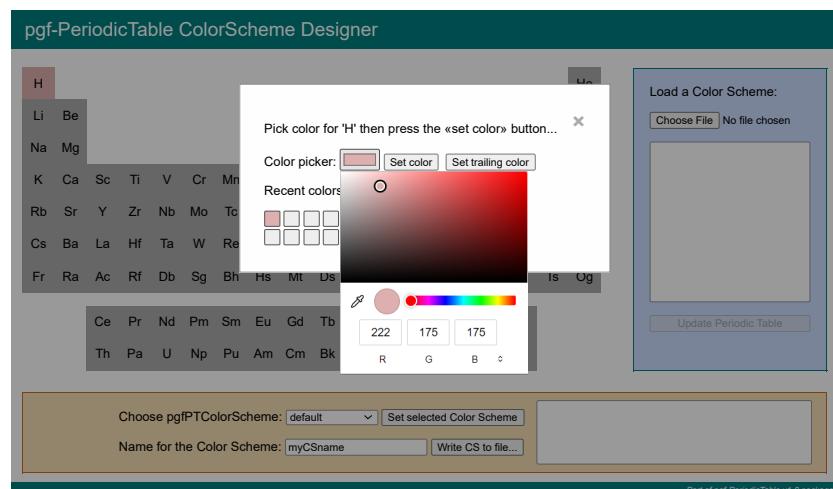


The `pgfPTcolorSchemes.html` designer is an *html* file with a little *javascript* code to perform the task of building a color scheme to use with the **back color scheme** key associated with the `\pgfPT` command.

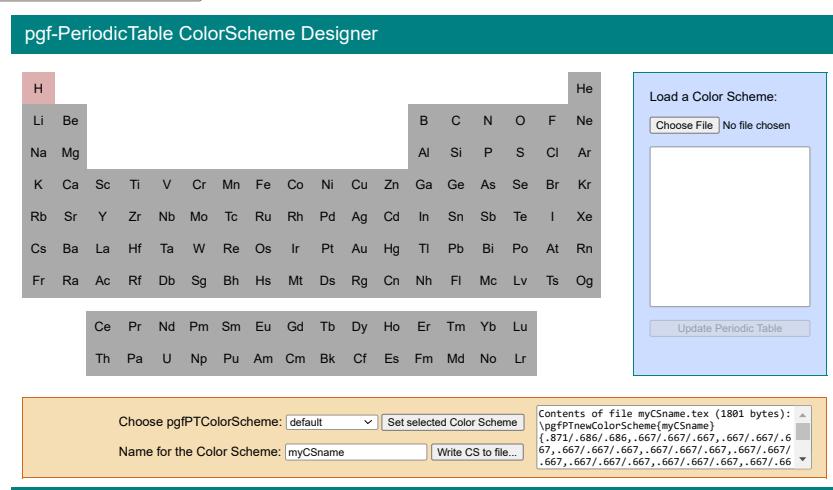
The Periodic Table of the Elements is displayed on the page and clicking on an element opens a color dialog:



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...**:

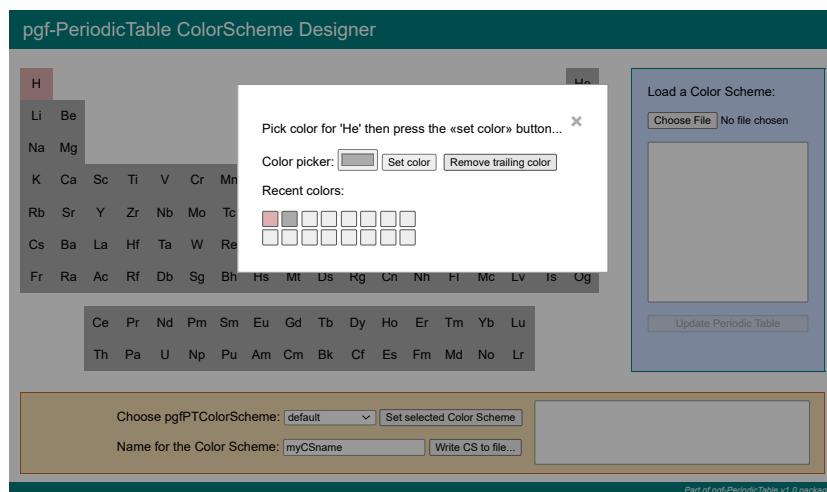


To use a color scheme saved in a file there are two possible ways:

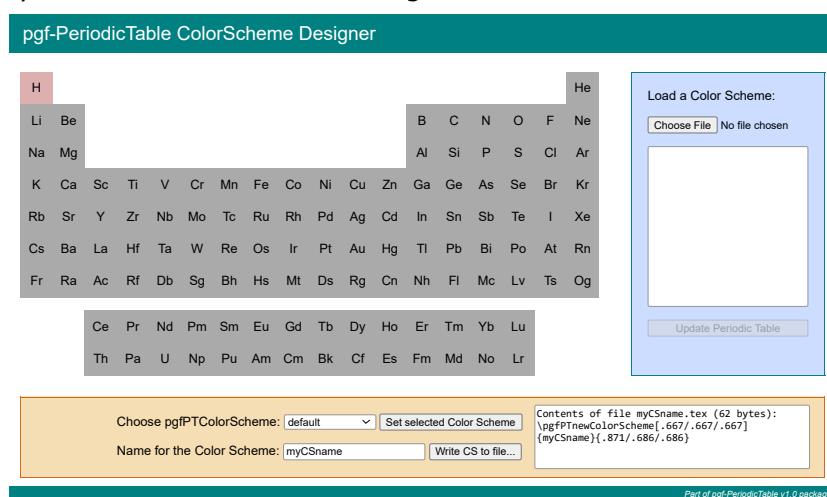
- loading the file in the working document via the `\input` L^AT_EX command, for instance, `\input{myCSname.tex}`.
- or by opening the file and copying and pasting its contents into the working document.

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

The screenshot shows a periodic table where elements are colored according to different schemes. The top right corner features a 'Load a Color Scheme:' section with a file input field containing 'CSTemp.tex' and its content:

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

Below this is an 'Update Periodic Table' button.

At the bottom, there's a control panel with a dropdown menu set to 'default', a 'Set selected Color Scheme' button, and fields for 'Name for the Color Scheme' (set to 'myCname') and '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

The periodic table now displays a 'Soft' color scheme, with the background being light blue and the elements having pastel-like colors. The control panel at the bottom remains the same.

Part of pgf-PeriodicTable v1.0 package

All the operations described are always available.

A few more examples

The following examples could be used for students or for any other purposes.

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\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	1.01	1766	1	2	B	beryllium	9.0122	1798	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18						
2	L	lithium	6.94	1.1	1817	1798	B	Be	beryllium	9.0122	1798	C	Ca	calcium	40.07	1808	1798	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Zn	Ge	He				
3	N	sodium	22.99	2.8	1807	1755	Mg	Mg	magnesium	24.305	1755	Al	Al	aluminum	26.982	1808	1798	Sc	Sc	Scandium	44.956	1807	1798	Cr	Mn	Fe	Co	Ni	Zn	Ge	He	
4	K	potassium	39.09	2.8	1807	1798	Ca	Ca	calcium	40.07	1808	1798	Si	Si	silicon	28.09	1808	1798	Sc	Sc	Scandium	44.956	1807	1798	Cr	Mn	Fe	Co	Ni	Zn	Ge	He
5	Rb	rubidium	85.468	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Cr	Cr	chromium	52.00	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Cr	Cr	Cr	Cr	Cr	Cr	Ge	He
6	Cs	caesium	132.91	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
7	Fr	francium	[223]	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
8	Fr	radium	[226]	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
9	Fr	actinoids	[227]	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
10	La	lanthanum	139.91	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
11	Ce	cerium	140.12	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
12	Pr	praseodymium	140.91	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
13	Nd	neodymium	144.24	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
14	Pm	promethium	[145]	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
15	Sm	samarium	150.36	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
16	Eu	europeum	151.96	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
17	Gd	gadolinium	157.25	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
18	Tb	terbium	162.5	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
19	Dy	dysprosium	166.93	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
20	Ho	holmium	169.93	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
21	Er	erbium	176.26	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
22	Tm	thulium	173.05	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
23	Yb	ytterbium	174.97	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
24	Lu	lutetium	174.97	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
25	La	lanthanum	138.91	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
26	Ce	cerium	140.12	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
27	Pr	praseodymium	140.91	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
28	Nd	neodymium	144.24	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
29	Pm	promethium	[145]	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
30	Sm	samarium	150.36	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
31	Eu	europeum	151.96	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
32	Gd	gadolinium	157.85	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
33	Tb	terbium	162.5	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
34	Dy	dysprosium	166.93	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
35	Ho	holmium	169.93	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
36	Er	erbium	173.05	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
37	Tm	thulium	174.97	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
38	Lu	lutetium	174.97	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
39	La	lanthanum	138.91	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
40	Ce	cerium	140.12	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
41	Pr	praseodymium	140.91	2.8	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Scandium	44.956	1807	1798	Sc	Sc	Sc	Sc	Sc	Sc	Ge	He
42	Nd	neodymium	144.24	2.8	1807	1798	Sc	Sc	Sc																							

\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	1	2												18
2	He	helium	4.0026															
3	Li	lithium	6.94	1755	1811	2	Be	boron	9.012	1790	1807	1808	1809	1810	1811	1812	1813	
4	Be	boron	9.012	1790	1811	2	Ca	calcium	40.078	1791	1792	1793	1794	1795	1796	1797	1798	
5	Na	sodium	22.99	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
6	Mg	magnesium	24.31	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	1821	
7	K	potassium	39.098	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
8	Ca	calcium	40.078	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
9	Sc	scandium	44.956	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
10	V	vandium	50.942	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
11	Cr	chromium	51.996	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
12	Mn	manganese	54.94	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
13	Fe	iron	55.845	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
14	Co	cobalt	56.933	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
15	Ni	nickel	58.693	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
16	Cu	copper	63.546	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
17	Zn	zinc	65.38	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
18	Pd	palladium	69.723	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
19	Ru	rhodium	70.25	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
20	Tc	technetium	101.07	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
21	Ru	rhodium	192.22	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
22	Pt	platinum	195.97	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
23	Ir	iridium	196.57	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
24	Pd	palladium	200.59	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
25	Ag	silver	204.38	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
26	Cd	cadmium	212.41	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
27	In	indium	214.52	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
28	Tl	thallium	207.2	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
29	Pt	platinum	208.98	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
30	Bi	bismuth	210.2	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
31	Po	polonium	210.2	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
32	At	astatine	211.0	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
33	Rn	radon	222.2	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
34	I	iodine	226.0	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
35	Xe	xenon	228.0	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
36	He	helium	4.0026	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
37	La	lanthanum	136.91	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
38	Ce	cerium	140.12	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
39	Pr	praseodymium	140.91	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
40	Nd	neodymium	144.24	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
41	Pm	promethium	146.91	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
42	Sm	samarium	150.36	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
43	Eu	europeum	151.96	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
44	Gd	gadolinium	157.25	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
45	Tb	terbium	168.93	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
46	Dy	dysprosium	168.53	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
47	Ho	holmium	168.93	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
48	Er	erbium	173.05	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
49	Tm	thulium	174.97	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
50	Yb	ytterbium	175.05	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
51	Lu	lutetium	174.97	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
52	Ac	actinium	188.95	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
53	Th	thorium	188.95	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
54	Ra	rutherfordium	267.0	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
55	Fr	francium	223.0	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
56	Ac	actinium	188.95	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
57	La	lanthanum	140.12	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
58	Ce	cerium	140.91	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
59	Pr	praseodymium	144.24	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
60	Nd	neodymium	144.24	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
61	Pm	promethium	146.91	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
62	Sm	samarium	150.36	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
63	Eu	europeum	151.96	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
64	Gd	gadolinium	157.25	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
65	Tb	terbium	168.93	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
66	Dy	dysprosium	168.53	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	
67																		

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	Fl

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 block s.
5. identify the elements of block p.
6. identify the elements of block d.
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, empty 10x10 grid consisting of 100 small squares, designed for drawing or writing practice.

For the source of this example please see the file pgf-PeriodicTableManual_Examples.tex

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