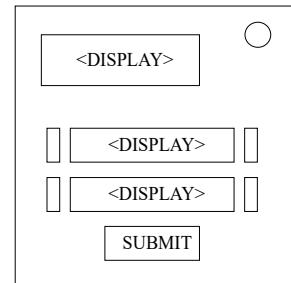


## On the Subject of State of Aggregation

I hope there is good chemistry between you and the bomb defuser..

- Align the current combination of chemical group and temperature to the given element.
- The color of the displayed element defines in which state this element currently is (solid, liquid, gas).
- Identify the element and use the periodic Table below to determine which chemical group to select.
- Search the element with its color in the table below and determine which temperature to select.



If the element shows a blue color, it is in a liquid state. If the color is white, the element is in a solid state. Otherwise the element is a gas.

$$1 \text{ Celsius } (^{\circ}\text{C}) = 1 - 273 \text{ Kelvin } (\text{K}) = 1 * (9/5) + 32 \text{ Fahrenheit } (^{\circ}\text{F})$$

All chemical Elements with their melting and boiling point:

Atomic Number	Element	Melting Point ( $^{\circ}\text{C}$ )	Boiling Point ( $^{\circ}\text{C}$ )
1	H	-259,1	-252,9
2	He	-272,2	-268,9
3	Li	180,5	1317
4	Be	1278	2970
5	B	2300	2550
6	C	3550	4827
7	N	-209,9	-195,8
8	O	-218,4	-182,9
9	F	-219,6	-188,1
10	Ne	-248,7	-246,1
11	Na	97,8	892
12	Mg	648,8	1107
13	Al	660,5	2467
14	Si	1410	2355
15	P	44	280

Atomic Number	Element	Melting Point (°C)	Boiling Point (°C)
16	S	113	444,7
17	Cl	-101	-34,6
18	Ar	-189,4	-185,9
19	K	63,7	774
20	Ca	839	1487
21	Sc	1539	2832
22	Ti	1660	3260
23	V	1890	3380
24	Cr	1847	2482
25	Mn	1244	2097
26	Fe	1535	2750
27	Co	1495	2870
28	Ni	1453	2732
29	Cu	1083,5	2495
30	Zn	419,6	907
31	Ga	29,8	2403
32	Ge	937,4	2830
33	As	613	-
34	Se	217	685
35	Br	-7,3	58,8
36	Kr	-156,6	-152,3
37	Rb	39	688
38	Sr	769	1384
39	Y	1523	3337
40	Zr	1852	4377
41	Nb	2468	4927
42	Mo	2617	5560
43	Tc	2172	5030
44	Ru	2310	3900

Atomic Number	Element	Melting Point (°C)	Boiling Point (°C)
45	Rh	1966	3727
46	Pd	1552	3140
47	Ag	961,9	2212
48	Cd	321	765
49	In	156,2	2080
50	Sn	232	2270
51	Sb	630,7	1750
52	Te	449,6	990
53	I	113,5	184,4
54	Xe	-111,9	-107
55	Cs	28,4	690
56	Ba	725	1640
57	La	920	3454
58	Ce	798	3257
59	Pr	931	3212
60	Nd	1010	3127
61	Pm	1080	2730
62	Sm	1072	1778
63	Eu	822	1597
64	Gd	1311	3233
65	Tb	1360	3041
66	Dy	1409	2335
67	Ho	1470	2720
68	Er	1522	2510
69	Tm	1545	1727
70	Yb	824	1193
71	Lu	1656	3315

Atomic Number	Element	Melting Point (°C)	Boiling Point (°C)
72	Hf	2150	5400
73	Ta	2996	5425
74	W	3407	5927
75	Re	3180	5627
76	Os	3045	5027
77	Ir	2410	4130
78	Pt	1772	3827
79	Au	1064,4	2940
80	Hg	-38,9	356,6
81	Tl	303,6	1457
82	Pb	327,5	1740
83	Bi	271,4	1560
84	Po	254	962
85	At	302	337
86	Rn	-71	-61,8
87	Fr	27	677
88	Ra	700	1140
89	Ac	1047	3197
90	Th	1750	4787
91	Pa	1554	4030
92	U	1132,4	3818
93	Np	640	3902
94	Pu	641	3327
95	Am	994	2607
96	Cm	1340	3110
97	Bk	986	-
98	Cf	900	-
99	Es	860	-

Atomic Number	Element	Melting Point (°C)	Boiling Point (°C)
100	Fm	-	-
101	Md	-	-
102	No	-	-
103	Lr	-	-
104	Rf	-	-
105	Db	-	-
106	Sg	-	-
107	Bh	-	-
108	Hs	-	-
109	Mt	-	-
110	Ds	-	-
111	Rg	-	-
112	Cn	-	-
113	Nh	-	-
114	Fl	-	-
115	Mc	-	-
116	Lv	-	-
117	Ts	-	-
118	Og	-	-

1 H																	2 He	
3 Li	4 Be																10 Ne	
11 Na	12 Mg																18 Ar	
19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr	
37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe	
55 Cs	56 Ba	57 La	*	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 Ac	*	104 Rf	105 Db	106 Sg	107 Bh	108 Hs	109 Mt	110 Ds	111 Rg	112 Cn	113 Nh	114 Fl	115 Mc	116 Lv	117 Ts	118 Og
*	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				
*	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr				

If the element is in two groups of the periodic table, use the one which is in the lowest position in the following table:

Color	Chemical group
RED	Alkali Metals
BLUE	Alkaline Earth Metals
ORANGE	Transition Metals
PURPLE	Lanthanide
GREEN	Actinide
GREY	Metal
BROWN	Semimetal
YELLOW	Nonmetal
CYAN	Noble Gas
WHITE	Unknown