

DEPARTMENT OF COMMERCE

BUREAU OF STANDARDS

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CIRCULAR OF THE BUREAU OF STANDARDS NO. 35, 3d EDITION

Revised, July 15, 1918

MELTING POINTS OF CHEMICAL ELEMENTS, AND OTHER
STANDARD TEMPERATURES

This table of melting points of the chemical elements is issued in answer to numerous requests for this information.

The values of the melting points used by the Bureau of Standards as standard temperatures for the calibration of thermometers and pyrometers are indicated in capitals. The other values have been assigned after a careful survey of all the available data.

As nearly as may be, all values, in particular the standard points, have been reduced to a common scale, the thermodynamic scale. For high temperatures, and for use with optical pyrometers, this scale is satisfied very exactly by taking $c_2 = 14\,350$ in the formula for Wien's law¹ connecting I_λ , monochromatic luminous intensity of wave length λ , and T , absolute temperature: $I_\lambda = c_1 \lambda^{-5} e^{-\frac{c_2}{\lambda T}}$. For all purposes, except the most accurate investigations, the thermodynamic scale is identical with any of the gas scales.

At high temperatures some of the values are quite uncertain; thus, while the melting point of platinum may be considered accurately known to 10° , C that of tungsten is possibly uncertain by 50° C or more. Temperatures centigrade are rounded off, and the exact Fahrenheit equivalents are usually given.

¹ See Bureau of Standards Circular No. 7 or Scientific Paper No. 11.

MELTING POINTS OF THE CHEMICAL ELEMENTS

Element	C	F	Element	C	F	Element	C	F
Helium.....	<-271	<-456	CADMIUM...	320.9	609.6	Cobalt.....	1480	2696
Hydrogen.....	-259	-434	LEAD.....	327.4	621.3	Yttrium.....	1490	2714
Neon.....	-253?	-423	ZINC.....	419.4	786.9	IRON.....	1530	2786
Fluorine.....	-223	-369	Tellurium....	452	846	PALLADIUM	1549	2820
Oxygen.....	-218	-360	ANTIMONY..	630.0	1166.0	Chromium....	1615	2939
Nitrogen.....	-210	-346	Cerium.....	640	1184	Zirconium....	1700?	3090
Argon.....	-188	-306	Magnesium...	651	1204	C o l u m b i u m		
Krypton.....	-169	-272	ALUMINIUM	658.7	1217.7	(Niobium)...	1700?	3090
Xenon.....	-140	-220	Radium.....	700	1292	Thorium.....	{ >1700	>3090
Chlorine.....	-101.5	-150.7	Calcium.....	810	1490		{ <Mo.	<Mo.
MERCURY...-	- 38.87	- 37.97	Lanthanum....	810?	1490	Vanadium....	1720	3128
Bromine.....	- 7.3	+ 18.9	Strontium.....	>Ca<Ba?		PLATINUM..	1755	3191
Caesium.....	+ 26	79	Neodymium...	840?	1544	Ytterbium....	?	
Gallium.....	30	86	Arsenic.....	850	1562	Titanium.....	1800	3272
Rubidium....	38	100	Barium.....	850	1562	Uranium.....	<1850	<3360
Phosphorus...	44	111	Praseodymium	940	1724	Rhodium.....	1950	3542
Potassium....	62.3	144.1	Germanium...	958	1756	Boron.....	2200-2500?	4000-4500
Sodium.....	97.5	207.5	SILVER.....	960.5	1760.9	Iridium.....	2350?	4260
Iodine.....	113.5	236.3	GOLD.....	1063.0	1945.5	Ruthenium...	2450?	4440
Sulphur.....	{ S ₁ 112.8	235.0	COPPER.....	1083.0	1981.4	Molybdenum..	2550	4620
	{ S ₂ 119.2	246.6	Manganese....	1230	2246	Osmium.....	2700?	4890
	{ S ₃ 106.8	224.2	B e r y l l i u m			Tantalum.....	2900	5250
		(Glucium) .	1280	2336	TUNGSTEN .	3400	6152	
Indium.....	155	311	Samarium.....	1300-1400	{ 2370-	Carbon.....	>2600	>6500
Lithium.....	185	367			{ 2550			
Selenium....	217-220	423-428	Scandium.....	?				
TIN.....	231.9	449.4	Silicon.....	1420	2588			
Bismuth.....	271	520	NICKEL.....	1452	2646			
Thallium....	302	576						

OTHER STANDARD TEMPERATURES

Substance	Phenomenon	C	F	Variation with pressure (pressure in mm of Hg)
OXYGEN.....	Boiling.....	-183.0	-297.4	$C^{\circ} = -183.0 + 0.01258(p-760) - 0.0000079(p-760)^2$
CARBON DIOX- IDE	Sublimation.....	- 78.5	-109.3	$C^{\circ} = -78.5 + 0.01595(p-760) - 0.0000111(p-760)^2$
SODIUM SUL- PHATE Na ₂ SO ₄ + 10H ₂ O	Transformation in- to anhydrous salt	32.384	90.291	
WATER.....	Boiling.....	100	212	$C^{\circ} = 100 + 0.03670(p-760) - 0.00002046(p-760)^2$
NAPHTHALENE ..	do.....	217.96	424.33	$C^{\circ} = 217.96 + 0.058(p-760)$
BENZOPHENONE	do.....	305.9	582.6	$C^{\circ} = 305.9 + 0.063(p-760)$
SULPHUR.....	do.....	444.6	832.3	$C^{\circ} = 444.6 + 0.0908(p-760) - 0.000047(p-760)^2$
3Ag2Cu.....	Eutectic freezing..	779	1434	
SODIUM CHLO- RIDE	Freezing.....	801	1474	

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