

Sheath Materials

Material	Recommended Temperature*		Melting Point**		Working Environment
	°C	°F	°C	°F	
Alumina	1900	3452	2015	3660	O, V, R, I
Aluminum	427	800	660	1220	I
Brass	371	700	1000	1832	I, V
Columbium (Niobium)	1981	3600	2468	4474	V
Copper	316	600	1083	1981	I, V
Graphite	3000	5425	3652	6606	I, V
Hastelloy x	1204	2200	1260-1354	2300-2470	O, I, V
Inconel 600	1149	2100	1395	2540	O, I
Inconel 601	1149	2100	1343	2450	O, I
Inconel 601 GC	1204	2200	1343	2450	O, I
Inconel 702	1204	2200	1390-1420	2530-2580	O, I
Molybdenum	2200	4000	2610	4730	I, V, R
Platinum	1677	3050	1760	3200	O, I, V
Platinum, 10% Rhodium	1760	3200	1850	3360	O, I, V
Platinum, 20% Rhodium	1805	3250	1875	3400	O, I, V
Silicon Nitride	1750	3182	1900	3452	I, V
Silicon Carbide	2200	3992	2700	4892	I, V
SS 304	899	1650	1399	2550	O, I, V
SS 309	1149	2100	1399	2550	O, I, V
SS 310	1149	2100	1399	2550	O, I, V
SS 316	927	1700	1371	2500	O, I, V
SS 321	899	1650	1399	2550	O, I, V
SS 347	871	1600	1399	2550	O, I, V
SS 430	1093	2000	1427	2600	O, I, V
SS 446	1093	2000	1427	2600	O, I, V
Tantalum	2843	4500	3000	5425	I, V
Titanium	850	1562	1675	3047	I, V
Tungsten	3000	5425	3315 +	6000 +	I, V, R

* Recommended temperatures indicated are for vertically supported installations, and may have to be reduced if used in an unsupported horizontal direction.

** The melting points listed may not always be accurate because some materials sublime before melting. V = Vacuum, I = Inert, O = Oxidizing, R = Reducing

Insulator Data

Insulator Material	Useful Temperature		Melting Point		Working Environment
	°C	°F	°C	°F	
Magnesium Oxide (MgO)	1370	2508	2800	5070	V
Magnesium Oxide (MgO) - High Purity	2300	4200	2800	5070	V
Aluminum Oxide (Al ₂ O ₃)	1900	3452	2050	3722	V, I, O
Hafnium Oxide (HfO)	2400	4352	2812	5894	V, I, O
Boron Nitride (BN)*	2000	3632	3000	5432	V, I, O

NOTE: Useful temperatures indicated are for vertically supported installations, and may have to be reduced if used in an unsupported horizontal direction.

* BN may be used to 850°C in an oxidizing atmosphere. V = Vacuum, I = Inert, O = Oxidizing, R = Reducing

Measuring Junction Selection



Grounded Wires are welded securely into the closure end of the sheath, becoming an integral part of the weld. Recommended in the presence of liquids, moisture, gas, or high pressure. The wire is adequately protected from corrosive or erosive conditions.



Ungrounded The ungrounded sensing junction is insulated from the sheath. Recommended where electrical apparatus would introduce stray EMFs and affect the reading.



Exposed The thermocouple wires are welded beyond the sheath, reducing mass and shortening response time. Recommended where fast response is desired and contaminating conditions are nonexistent.