



Accurate indication. Reliable results.™

Temperature Indicators and Industrial Coatings



Providing Confidence and Compliance Since 1938

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Accurate indication. Reliable results.[™]

Effective, Efficient Solutions for Accurate Surface Temperature Measurement

Since 1938, Tempil[®] has been a leader in the development of innovative and accurate temperature indication technology for multiple markets. Our cost-effective solutions can monitor your supply chain, check critical temperatures in the manufacturing process or ensure a products' performance in the field.

At Tempil, our products specifically answer industry concerns and application challenges that are faced on a daily basis. Our surface temperature indicators – Tempilstik[®] and Tempilaq[®] – are uniquely engineered for fast and accurate temperature measurement, while producing results you can trust. And our heat absorbing, rust-preventative compound and high temperature paint – Anti-Heat,[®] Bloxide[®] and Pyromark[®] – are designed to help eliminate heat damage and prevent the formation of corrosion during storage respectively.

With our Tempil products, we have utilized advanced and reliable indication and prevention technology, to produce a range of surface temperature products that allow for safe and versatile surface measurements. Cost-efficient, easy-to-use, and available in multiple formats to meet your specific application needs. Tempil is delivering the surface measurement solutions you can count on, when you need them most.



Over 1 Million Quality-Tested, Superior Welds.

The original temperature indicating stick. Tempilstik temperature indicators have led the industry in providing accurate and reliable results for over 75 years. An inexpensive alternative for surface temperature measurement, Tempilstiks are easy-to-use with no gauges or electronics and no calibration required. Available in over 100 temperature ratings from 100°F to 2000°F (38°C to 1093°C), each Tempilstik is supplied with a unique slip-resistant metal holder, specifically engineered for smooth operation and maximum user control. Tempilstiks are precise even for the most critical jobs and meet the preheat temperature requirements of AWS D1.1 and other welding code specifications. Made in the U.S.A., Tempilstiks are densely constructed to last longer than other brands, each delivering more than 11,000 6 in (15 cm) marks that are NIST traceable and certifiable for nuclear use.

Superior Quality Welds

- Exceeds industry standards delivering products free of sulfur, lead and halogen contaminants.
- Composed of high-quality materials that are advantageous to the welding process.
- 70 year track record meeting WPS, WPQR and WPQ requirements.

Increased Efficiency

- Stronger and lasts longer than other temperature indicators.
- Faster results reduce set up and downtime.
- Reliable in the most extreme welding environments.
- Unique slip-resistant aluminum holder secures stick and maximizes control.

Applications

- Preheating
- Annealing
- Stress relieving
- Interpass heat treatment
- Post heating
- And many more

How to Use

Touch the heated surface with Tempilstik and it will melt, making a distinct mark once the surface reaches the rated temperature.

Have Greater Confidence

- Secure supply chain and experienced distribution network.
- Prequalified - meets AWS D1.1, ASME Code Sec. I, III and VIII, ANSI/ASME Code B31.1 and B31.3.
- Consistent traceability - each Tempilstik is marked by temperature, lot number and is NIST traceable.
- Certifiable for nuclear use.

Know the Right Temperature

- Easy to understand visual melt identifies results +/- 1% of rated temperature.
- Reduce the danger of crack formation and shrinkage stress.
- Less likelihood of distortion and hard zones near the weld area.
- Promotes hydrogen diffusion from steel.

Tempstik® Test Kit



Provides all the information needed for determining the proper temperatures for welding, heat treating, soldering, brazing, and other operations involved in the fabrication of most metals. In addition, the kit provides information for measuring preheat, interpass and postweld heat treatment temperatures.

The kit contains: 20 temperature indicators systematically spaced between 125°F (52°C) and 800°F (427°C).

Available Temperatures — 125°F, 150°F, 175°F, 200°F, 225°F, 250°F, 275°F, 300°F, 325°F, 350°F, 400°F, 425°F, 450°F, 475°F, 500°F, 525°F, 550°F, 600°F, 700°F, 800°F



Original Aluminum Holder Standard For All Temperatures

Fahrenheit/Centigrade Ratings for Tempilstik®

Part No.	°F	°C	Part No.	°F	°C	Part No.	°F	°C
TS0100/TSC0038	100	38	TS0302/TSC0150	302	150	TS0600/TSC0316	600	316
TS0104/TSC0040	104	40	TS0306/TSC0152	306	152	TS0608/TSC0320	608	320
TS0109/TSC0043	109	43	TS0311/TSC0155	311	155	TS0650/TSC0343	650	343
TS0119/TSC0048	119	48	TS0313/TSC0156	313	156	TS0662/TSC0350	662	350
TS0122/TSC0050	122	50	TS0320/TSC0160	320	160	TS0700/TSC0371	700	371
TS0125/TSC0052	125	52	TS0325/TSC0163	325	163	TS0750/TSC0399	750	399
TS0131/TSC0055	131	55	TS0329/TSC0165	329	165	TS0752/TSC0400	752	400
TS0140/TSC0060	140	60	TS0338/TSC0170	338	170	TS0800/TSC0427	800	427
TS0150/TSC0066	150	66	TS0344/TSC0173	344	173	TS0850/TSC0454	850	454
TS0158/TSC0070	158	70	TS0347/TSC0175	347	175	TS0860/TSC0460	860	460
TS0163/TSC0073	163	73	TS0350/TSC0177	350	177	TS0900/TSC0482	900	482
TS0167/TSC0075	167	75	TS0356/TSC0180	356	180	TS0932/TSC0500	932	500
TS0169/TSC0076	169	76	TS0363/TSC0184	363	184	TS0950/TSC0510	950	510
TS0175/TSC0079	175	79	TS0374/TSC0190	374	190	TS1000/TSC0538	1000	538
TS0176/TSC0080	176	80	TS0375/TSC0191	375	191	TS1022/TSC0550	1022	550
TS0182/TSC0083	182	83	TS0383/TSC0195	383	195	TS1040/TSC0560	1040	560
TS0185/TSC0085	185	85	TS0388/TSC0198	388	198	TS1050/TSC0566	1050	566
TS0188/TSC0087	188	87	TS0392/TSC0200	392	200	TS1100/TSC0593	1100	593
TS0194/TSC0090	194	90	TS0400/TSC0204	400	204	TS1112/TSC0600	1112	600
TS0200/TSC0093	200	93	TS0410/TSC0210	410	210	TS1150/TSC0621	1150	621
TS0203/TSC0095	203	95	TS0413/TSC0212	413	212	TS1157/TSC0625	1157	625
TS0206/TSC0097	206	97	TS0419/TSC0215	419	215	TS1200/TSC0649	1200	649
TS0212/TSC0100	212	100	TS0425/TSC0218	425	218	TS1250/TSC0677	1250	677
TS0213/TSC0101	213	101	TS0428/TSC0220	428	220	TS1292/TSC0700	1292	700
TS0219/TSC0104	219	104	TS0437/TSC0225	437	225	TS1300/TSC0704	1300	704
TS0225/TSC0107	225	107	TS0446/TSC0230	446	230	TS1400/TSC0760	1400	760
TS0230/TSC0110	230	110	TS0450/TSC0232	450	232	TS1450/TSC0788	1450	788
TS0239/TSC0115	239	115	TS0455/TSC0235	455	235	TS1500/TSC0816	1500	816
TS0248/TSC0120	248	120	TS0463/TSC0239	463	239	TS1550/TSC0843	1550	843
TS0250/TSC0121	250	121	TS0475/TSC0246	475	246	TS1600/TSC0871	1600	871
TS0256/TSC0124	256	124	TS0482/TSC0250	482	250	TS1650/TSC0899	1650	899
TS0257/TSC0125	257	125	TS0488/TSC0253	488	253	TS1700/TSC0927	1700	927
TS0263/TSC0128	263	128	TS0500/TSC0260	500	260	TS1800/TSC0982	1800	982
TS0266/TSC0130	266	130	TS0518/TSC0270	518	270	TS1900/TSC1038	1900	1038
TS0269/TSC0132	269	132	TS0525/TSC0274	525	274	TS1950/TSC1066	1950	1066
TS0275/TSC0135	275	135	TS0536/TSC0280	536	280	TS2000/TSC1093	2000	1093
TS0284/TSC0140	284	140	TS0550/TSC0288	550	288			
TS0288/TSC0142	288	142	TS0554/TSC0290	554	290			
TS0294/TSC0146	294	146	TS0572/TSC0300	572	300			
TS0300/TSC0149	300	149	TS0575/TSC0302	575	302			



Fahrenheit/Centigrade Ratings for Tempilaq G®

Part No.	°F	°C	Part No.	°F	°C	Part No.	°F	°C	Part No.	°F	°C
TL0175	175	79	TL0400	400	204	TL0700	700	371	TL1200	1200	649
TL0200	200	93	TL0425	425	218	TL0750	750	399	TL1250	1250	677
TL0225	225	107	TL0450	450	232	TL0800	800	427	TL1300	1300	704
TL0250	250	121	TL0475	475	246	TL0850	850	454	TL1400	1400	760
TL0275	275	135	TL0488	488	253	TL0900	900	482	TL1450	1450	788
TL0300	300	149	TL0500	500	260	TL0950	950	510	TL1500	1500	816
TL0313	313	156	TL0525	525	274	TL1000	1000	538	TL1600	1600	871
TL0325	325	163	TL0550	550	288	TL1022	1022	550	TL1700	1700	927
TL0350	350	177	TL0575	575	302	TL1050	1050	566	TL1800	1800	982
TL0363	363	184	TL0600	600	316	TL1100	1100	593	TL1900	1900	1038
TL0375	375	191	TL0650	650	343	TL1150	1150	621			

Tempilaq G® Indicating Liquids

Optimal for cold and/or smooth surfaces, Tempilaq G® is a quick, easy and cost-effective method to verifying the achievement of a specific temperature on a wide range of surfaces under dynamic conditions.

Quick application. Accurate results. When applied to a surface, Tempilaq quickly dries forming a dull, opaque film. Then, when heat is applied to that surface and the rated temperature is reached, the film liquefies. As the surface cools, the liquefied Tempilaq re-solidifies to leave a distinctly different mark, confirming that the target temperature has indeed been achieved.

- 44 different temperature ratings from 175°F to 1900°F (79°C to 1038°C)
- Reliably accurate - melts within ±1 percent of rated temperature
- Easy to apply quick-drying fluid
- Non-flammable for maximum safety and unrestricted shipment
- Standard packaging: 2oz bottles
- Certification available upon request
- Numbered production lot for traceability

Note: The color of Tempilaq G® is for identification purposes only, and has no relation to its performance as a temperature indicator.

Bloxide®

A versatile primer, Bloxide® is a unique formula that can be applied to a wide range of metals preventing the formation of rust and corrosion during extended periods of storage. With enhanced corrosion preventative features, Bloxide eliminates the need to clean metal surfaces before welding, saving time and labor costs during fabrication. And, Bloxide is completely weldable, also improving the weld quality after application.

Quick application. Accurate results. Simply apply Bloxide by brush, dip or spray with no special equipment or training. Coverage is up to approximately 800 square feet per gallon. Industry-safe and free from lead, sulfur, zinc and other halogens, Bloxide is an excellent primer for a wide range of applications.

- Ideal for extended periods of outside steel storage
- Ability to strike welding arc without removal
- Temperature resistant to 800°F (427°C)
- Aluminized finish
- Dry time: around 77°F and 50% relative Humidity/tack free - 6 hours
- Recommended film thickness: Wet 3.0 mil, Dry 0.75 mil
- Standard packaging: 12oz aerosol cans, gallons, 5 gallon pails and 55 gallon drums

Pyromark®

Delivering multiple benefits to metal products, Pyromark®, a silicone-based coating, is specifically formulated for protecting, decorating, or color identifying metal surfaces that will be subjected to high temperatures. Pyromark provides long-lasting protection against oxidation and corrosion, and has excellent coverage characteristics - no blistering, chipping, cracking or peeling at rated temperatures.

- Improves heat transfer in infra-red heating applications due to high-emission properties
- Solar absorption rate of 0.95 makes it an almost perfect black box absorber
- Standard packaging: gallons, 5 gallon pails, 55 gallon drums

Anti-Heat®

Anti-Heat®, an exceptional heat-absorbing compound, is specially formulated to eliminate heat damage and discoloration, which often occurs on light gauge metals during fabrication. Once applied, Anti-Heat draws excess heat away from the surface being welded, brazed or soldered, creating a protective barrier that prevents buckling, cracking, warping or other metal distortions from occurring.

Easy to use application. Anti-Heat applies quickly and easily to applications. Simply spread it on from the can, or apply directly from the 12oz tube that fits in a standard caulking gun. Anti-Heat wipes up easily with water.

- Non-toxic
- Harmless to the skin
- Asbestos-free and odorless
- Adheres to horizontal, vertical and overhead surface
- Standard packaging: 12oz tubes, gallons, 5 gallon pails



Each Sold Separately

Applications:

Thermal mapping on multiple surfaces
Calibrating brake calipers
Wave soldering PC boards
Dielectric heat sealing
Post-forming plastic laminate
Annealing polished metal surfaces
Calculating glass temperatures at various heating stages
Calibrating industrial ovens
And many more...



Applications:

Marine and off-shore fabrication
All steel, including high tensile, carbon moly and chrome moly
Primer for paint and coatings



Applications:

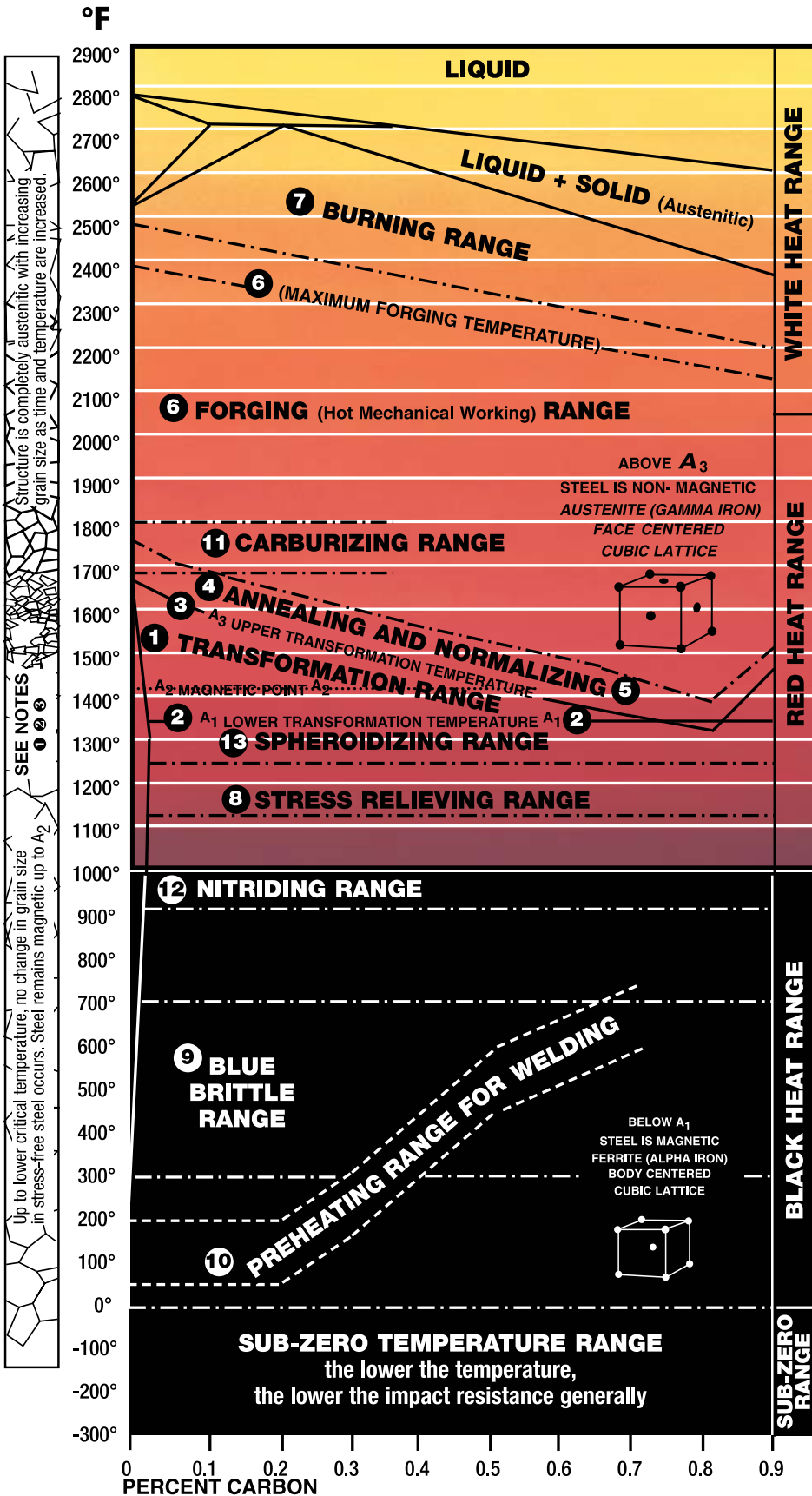
Infra-red heaters | Boilers | Furnaces
Ovens | Fireplace Accessories
Solar Absorbers | Mufflers
Radiators | Stoves
Boat and Auto Engines



Applications:

Anti-Heat can be used effectively to protect thin-gauge metals from objectionable heat inflow due to welding, brazing, soldering or other heat sources.

50th Anniversary Commemorative Edition



- TRANSFORMATION RANGE** In this range steels undergo internal atomic changes which radically affect the properties of the material.
- LOWER TRANSFORMATION TEMPERATURE (A₁)**, T_l. T_l on heating, A₁ on cooling. Below A₁ structure ordinarily consists of FERRITE and PEARLITE (see below). On heating through A₁ these constituents begin to dissolve in each other to form AUSTENITE (see below) which is non-magnetic. This dissolving action continues on heating through the TRANSFORMATION RANGE until the solid solution is complete at the upper transformation temperature.
- UPPER TRANSFORMATION TEMPERATURE (A₃)**, T_u. T_u on heating, A₃ on cooling. Above this temperature the structure consists wholly of AUSTENITE which coarsens with increasing time and temperature. Upper transformation temperature is lowered as carbon increases to 0.85% (eutectoid point).
 - FERRITE is practically pure iron (in plain carbon steels) existing below the lower transformation temperature. It is magnetic and has very slight solid solubility for carbon.
 - PEARLITE is a mechanical mixture of FERRITE and CEMENTITE.
 - CEMENTITE or IRON CARBIDE is a compound of iron and carbon, Fe₃C.
 - AUSTENITE is the non-magnetic form of iron and has the power to dissolve carbon and alloying elements.
- ANNEALING**, frequently referred to as FULL ANNEALING, consists of heating steels to slightly above A₃, holding for AUSTENITE to form, then slowly cooling in order to produce small grain size, softness, good ductility and other desirable properties. On cooling slowly the AUSTENITE transforms to FERRITE and PEARLITE.
- NORMALIZING** consists of heating steels to slightly above A₃, holding for AUSTENITE to form, then followed by cooling (in still air). On cooling, AUSTENITE transforms giving somewhat higher strength and hardness and slightly less ductility than in annealing.
- FORGING RANGE** extends to several hundred degrees above the UPPER TRANSFORMATION TEMPERATURE.
- BURNING RANGE** is above the FORGING RANGE. Burned steel is ruined and cannot be cured except by remelting.
- STRESS RELIEVING** consists of heating to a point below the LOWER TRANSFORMATION TEMPERATURE, A₁, holding for a sufficiently long period to relieve locked-up stresses, then slowly cooling. This process is sometimes called PROCESS ANNEALING.
- BLUE BRITTLE RANGE** occurs approximately from 300° to 700°F. Peening or working of steels should not be done between these temperatures, since they are more brittle in this range than above or below it.
- PREHEATING FOR WELDING** is carried out to prevent crack formation. See TEMPIL® PREHEATING CHART for recommended temperature for various steels and non-ferrous metals.
- CARBURIZING** consists of dissolving carbon into surface of steel by heating to above transformation range in presence of carburizing compounds.
- NITRIDING** consists of heating certain special steels to about 1000°F for long periods in the presence of ammonia gas. Nitrogen is absorbed into the surface to produce extremely hard "skins".
- SPHEROIDIZING** consists of heating to just below the lower transformation temperature, A₁, for a sufficient length of time to put the CEMENTITE constituent of PEARLITE into popular form. This produces softness and in many cases good machinability.
 - MARTENSITE is the hardest of the transformation products of AUSTENITE and is formed only on cooling below a certain temperature known as the M_s temperature (about 400° to 600°F for carbon steels). Cooling to this temperature must be sufficiently rapid to prevent AUSTENITE from transforming to softer constituents at higher temperatures.
 - EUTECTOID STEEL contains approximately 0.85% carbon.
 - FLAKING occurs in many alloy steels and is a defect characterized by localized micro-cracking and "flake-like" fracturing. It is usually attributed to hydrogen bursts. Cure consists of cooling to at least 600°F before air-cooling.
 - OPEN OR RIMMING STEEL has not been completely deoxidized and the ingot solidifies with a sound surface ("rim") and a core portion containing blowholes which are welded in subsequent hot rolling.
 - KILLED STEEL has been deoxidized at least sufficiently to solidify without appreciable gas evolution.
 - SEMI-KILLED STEEL has been partially deoxidized to reduce solidification shrinkage in the ingot.
 - A SIMPLE RULE: Brinell Hardness divided by two, times 1000, equals approximate Tensile Strength in pounds per square inch. (200 Brinell ÷ 2 x 1000 = approx. 100,000 Tensile Strength, p.s.i.)