



## Tempilstik°

Tempil's industrial melting point standards are simple, reliable and guaranteed accurate within 1%. Tempilstik° technology was developed to meet the demand for measuring surface temperatures during preheat, interpass and postweld heat treatment temperatures. When the Tempilstik° mark melts...the temperature has been reached. Nothing could be simpler. Over 100 temperature ratings available between 100°F (38°C) and 2500°F (1371°C). Lot numbered for NIST traceability in accordance with ISO 10012-1.

### Applications

A few of the hundreds of uses for Tempilstik° temperature indicators include: Determining surface temperatures during welding and metal fabrication including preheat, interpass, postweld heat treatment, annealing and stress relieving.

Determining operating temperatures of bearings, transformers, steam traps, molds, PC board preheaters, motors, electronic components, hydraulic systems, commercial irons, hot plates & heat exchangers.

### How to Use

When working below 700°F (371°C) on relatively rough surfaces, where prolonged heating is not required, the simplest method is to mark the workpiece before heating begins. The dry opaque Tempilstik° mark will change to a distinct melted mark; this phase change will occur when the temperature rating of the selected Tempilstik° has been reached.

CAUTION - Disregard any color change that may occur during heating. This has no significance. It is only the melting of the Tempilstik° mark that indicates when the rated temperature has been reached.

At temperatures above 700°F (371°C) or under prolonged heating, the Tempilstik° mark may evaporate or be absorbed. Under these conditions, stroke the workpiece with the selected Tempilstik° from time to time during the heating operation. When the rated temperature has been reached, it will leave a liquid smear. This method should also be used if a smooth surface is involved, where the hard Tempilstik° chalk will not leave a mark. (If it is necessary to mark a smooth surface before heating, use Tempilaq°.)

### Cleaning

For temperature ratings of 650°F (343°C) or below, the Tempilstik° mark can be removed (if it has not been charred) with alcohol or water; for ratings above 650°F (343°C), use water only. If the mark has been heated well above the rated temperature and has become charred, an abrasive procedure may be required.

### Part Number System

**Tempilstik° Fahrenheit**  
Part No. TS and Degree

**Tempilstik° Celsius**  
Part No. TSC and Degree

**Tempilstik° Blister packs**  
Part No. TSB and Degree

### Standard Packaging

Tempilstik° temperature Indicators are 5" long and come in adjustable aluminum holders with pocket clip. 10 indicators per box. Bar-coded per NWSA guidelines. Approximate weight per box of 10: 1/2 lb.

## Fahrenheit Ratings

°F	°C	°F	°C	°F	°C	°F	°C
100	38	256	124	500	260	1500	816
103	39	263	128	525	274	1550	843
106	41	269	132	550	288	1600	871
109	43	275	135	575	302	1650	899
113	45	282	139	600	316	1700	927
119	48	288	142	650	343	1750	954
125	52	294	146	700	371	1800	982
131	55	300	149	750	399	1850	1010
138	59	306	152	800	427	1900	1038
144	62	313	156	850	454	1950	1066
150	66	319	159	900	482	2000	1093
156	69	325	163	932	500	2050	1121
163	73	331	166	950	510	2100	1149
169	76	338	170	977	525	2150	1177
175	79	344	173	1000	538	2200	1204
182	83	350	177	1022	550	2250	1232
188	87	363	184	1050	566	2300	1260
194	90	375	191	1100	593	2350	1288
200	93	388	198	1150	621	2400	1316
206	97	400	204	1200	649	2450	1343
213	101	413	212	1250	677	2500	1371
219	104	425	218	1300	704		
225	107	438	226	1350	732		
231	111	450	232	1400	760		
238	114	463	239	1425	774		
244	118	475	246	1450	788		
250	121	488	253	1480	804		

## Celsius Ratings

°C	°F	°C	°F	°C	°F	°C	°F
40	104	150	302	270	518	680	1256
45	113	155	311	280	536	700	1292
50	122	160	320	290	554	740	1364
55	131	165	329	300	572	760	1400
60	140	170	338	310	590	775	1427
65	149	175	347	320	608	800	1472
70	158	180	356	340	644	825	1517
75	167	185	365	350	662	850	1562
80	176	190	374	370	698	875	1607
85	185	195	383	380	716	900	1652
90	194	200	392	390	734	910	1670
95	203	205	401	400	752	950	1742
100	212	210	410	420	788	1010	1850
105	221	215	419	460	860	1075	1967
110	230	220	428	475	887	1100	2012
115	239	225	437	500	932	1125	2057
120	248	230	446	520	968	1150	2102
125	257	235	455	530	986	1175	2147
130	266	240	464	560	1040	1200	2192
135	275	245	473	600	1112		
140	284	250	482	625	1157		
145	293	260	500	650	1202		

## Tempil° Pellets & Paintpens



### Tempil° Pellets

Tempil° Pellets are available in the same 102 temperature ratings as Tempilstik°. The standard pellet is 7/16" dia. and 1/8" high and the miniature pellet is 1/8" dia. and 1/8" high. The same  $\pm 1\%$  accuracy is guaranteed and lot numbers on each tube of pellets allow them to be traced to the specific batch of raw material from which they were made. All standard pellets are sold 20/tube.

### Special Series "R" Tempil° Pellet

Many heat-treating processes require chemically reducing atmospheres such as hydrogen, cracked ammonia, water gas, producer gas or carbon monoxide. Special Series "R" Tempil° Pellets are designed specifically to function in reducing atmospheres involving temperature ratings above 650°F/343°C. (Regular Tempil° Pellets can be used for reducing atmospheres below 650°F/343°C) Series "R" pellets are normally placed in the small stainless steel cups provided with each shipment. The cup serves to contain the pellet after it has melted and avoids contamination of the metal being heat-treated.

### How to Use

Place the appropriate Tempil° Pellet on the surface of the workpiece before heating begins. At first signs of melting, temperature rating of the pellet has been attained. This will occur at the line of contact with the workpiece surface.

### Applications

Most widely used in industrial ovens and furnaces, and on large heavy objects requiring prolonged heating, where Tempilstik° or Tempilaq° marks would vaporize or be absorbed before melting. Because of their greater mass, Tempil° Pellets do not vaporize before melting, so their total disappearance is usually proof that their melting point has been reached.

Part No.	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
TPS0175	TPS0275	TPS0363	TPS0475	TPS0600	TPS0850	TPS1050	TPS1300	TPS1550
TPS0182	TPS0300	TPS0375	TPS0500	TPS0650	TPS0900	TPS1100	TPS1350	TPS1600
TPS0219	TPS0325	TPS0400	TPS0525	TPS0700	TPS0950	TPS1150	TPS1400	TPS1650
TPS0225	TPS0344	TPS0425	TPS0550	TPS0750	TPS0977	TPS1200	TPS1450	TPS1700
TPS0250	TPS0350	TPS0450	TPS0575	TPS0800	TPS1000	TPS1250	TPS1500	TPS1800

### Tempstik° Test Kit

Tempstik° Test Kit consists of twenty 2-1/2" temperature indicating crayons, each with its own holder, with ratings from 125°F/52°C to 800°F/427°C. For welders who frequently weld different types of heat treated alloy steels in various thicknesses, and need to know precise preheat and interpass temperatures.



Part No. TSTK

### Temprobe° Temperature Test Kit

Temprobe° Temperature Test Kits consist of twenty 3/4" temperature indicating crayons with ratings from 125°F/52°C to 600°F/316°C, and a special holder. They are intended for use by researchers, experimenters, technicians and people who do other heat-related operations.



Part No. TTTK

### Tempilstik° Welding Code Kit:

Includes welding code requirements, preheat and interpass temperature specifications and certified chemical analysis to MIL-SPEC. Also included are 10 temperature indicators spaced between 125°F (52°C) and 450°F (232°C). They include all preheat melting point temperatures needed to meet requirements of AWS D1.1 Structural Welding Code for Steel; ASME Code, Section 1, Power Boilers; Section III, Nuclear Components; and Section VIII, Unfired Pressure Vessels; ANSI/ASME Code B31.1, Power Piping; and B31.3, Chemical Plant and Petroleum Refinery Piping.



Part No. TWCK



### Tempil Paintpen™

Tempil Paintpen™ is a new valve action felt tip marker. Paintpen™ waterborne acrylic paint formulations are in compliance with CONEG regulations, Clean Air Act, SARA legislation and California VOC regulations. Contains NO solvents and NO ODC's. Tip is washable, can't dry out.

- Simply shake well; gently depress tip until saturated with paint. There is no ball point to freeze.
- Permanently marks metals, plastic, wood, cardboard, glass, and most other surfaces - even wet or oily. It is non-hazardous, non-flammable and environmentally safe. It is waterproof and quick drying.
- Available in 4 bright lead-free colors (black, red, white, yellow).
- 12 markers per box/144 per case

Part No.	Description
TPPBLK	Paintpen Black
TPPRED	Paintpen Red
TPPWHT	Paintpen White
TPPYEL	Paintpen Yellow

## Pyromarker°

Pyromarker° is the Tempil° metal marker with high temperature resistant paint formulated to meet the stringent requirements of the nuclear fabrication industry.

- The paint formula is free of lead, sulfur, zinc, cadmium, mercury, chlorine or other halogens that might contaminate the process or become "crack starters."
- Pyromarker° paint will stay legible on red-hot surfaces (approximately 1100°F/593°C) right through forming and annealing or other processing.
- Colors: White and yellow
- Two ball sizes: 5/64" and 1/8" for fine or broad marks



Part No.	Description
PKR18WHT	1/8 White
PKR18YEL	1/8 Yellow
PKR564WHT	5/64 White
PKR564YEL	5/64 Yellow

## Pyromark° Paints

Pyromark° High Temperature Paints are specially formulated for protecting, decorating or color identifying metal surfaces that will be subjected to high temperatures. There are three systems of Pyromark° Protective Coatings, each classified by its maximum performance temperature. The maximum temperature rating varies by substrate from 2500°F on Inconel to 1200°F on mild steel. The silicone-base coatings provide long-lasting protection against oxidation and corrosion. Pyromark° coatings have excellent covering characteristics and will not blister, chip, crack or peel at their rated temperature. Pyromark° paints improve heat transfer in infrared heating applications due to their high emissivity properties.

**Series 800** - 9 colors available. Temperature range from 600°F to 800°F, depending on the specific color.

**Series 1200** - 4 colors - able to withstand 1200°F

**Series 2500** - 6 colors available, each able to withstand 2500°F after heat cure and vitrification procedures. The air dried finish on all colors is semi-gloss. This finish will become flat after heating. Black is also available flat.

### How to Use

Surface must be clean, dry and between 60°F and 125°F, at the time of application. Mild Steel; sand blast to near white metal (SSPC-SP10). Stainless, aluminum, Inconel: steam clean or solvent clean to remove all soil, grease, and oil. See product technical data sheet for details. Apply by spray or brush. Heat curing of Series 2500 is necessary to obtain maximum thermal properties. Series 800 and Series 1200 will air dry.

Color Code	800	1200	2500
Black, Flat	FBLK	FBLK	FBLK
Black, Semi-Gloss	SBLK		SBLK
Black, Satin Sheen		SBLK	
Blue	BLU	BLU	BLU
Gray	GRY		
Green	GRN		GRN
Metallic, Aluminum	MAL		
Metallic, Charcoal		CHM	
Tan	TAN		
White	WHT		WHT
Yellow	YEL		YEL



### Typical Applications

Infrared space heaters, boilers, breechings, stoves, furnaces, steampipes, fireplaces, stacks, kilns or any other metal surfaces that are subjected to high temperature service.

Ordering example: Pyromark Series 1200 Flat Black, 5 Gallon pail...PK12FBLK5GL

## Bloxide°

Bloxide° is a weldable rust preventative that insures x-ray quality welds. The aluminized coating acts as an oxygen barrier that protects against rust. It also forms aluminum oxide in the weld puddle which reduces porosity and pinholing.

The use of Bloxide° eliminates recleaning of sub assemblies prepared for welding even after they have been in outside storage for several months. It is an excellent weldable primer paint, and leaves no objectional residue or slag. Bloxide° is free of lead, sulfur, zinc, cadmium, mercury, chlorine or other halogens which makes it safe for the nuclear fabrication industry. It will also withstand temperatures up to 800°F.

### How to Use

Bloxide° can be applied by brush or spray. It requires no special training, equipment, or precautions for effective application. Bloxide° is quick drying, forming a tack-free, tenacious film in minutes. Coverage is approx. 800-1,000 sq. ft. per gallon.

### Typical Applications

Bloxide° can be advantageously used on all steels, and is compatible with most welding processes. It should definitely be considered for x-ray quality work.



Part No.	Description	UM
BLAR	Bloxide	13 oz. Aerosol
BLGL	Bloxide	1 gal
BLQT	Bloxide	1 qt
BL5GL	Bloxide	5 gal

## Anti-Heat & Tempilaq

### Anti-Heat°

Anti-Heat° is a protective heat-sink compound that confines heat to the welding, brazing or soldering zone, protecting adjacent areas from undesirable heat build-up. It minimizes risk of heat damage, prevents discoloration, warping, buckling or other distortion of light-gauge metals.

#### How to Use

Anti-Heat° is easy to apply. Simply spread it on right from the can. Tube will fit standard caulking gun. It is harmless to the skin, odorless, non-toxic and will not stain the base metal. To clean, just wipe off excess and wash with water.

#### Typical 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.

Part No.	Description	UM
AHTB	Anti-Heat	12 oz. tube
AHQT	Anti-Heat	1 qt
AHGL	Anti-Heat	1 gal
AH5GL	Anti-Heat	5 gal



### 2 oz Tempilaq°

Part No.	°F	°C	Part No.	°F	°C
TL0200	200	93	TL0850	850	454
TL0225	225	107	TL0900	900	482
TL0231	231	111	TL0950	950	510
TL0238	238	114	TL1000	1000	538
TL0250	250	121	TL1050	1050	566
TL0275	275	135	TL1100	1100	593
TL0300	300	149	TL1150	1150	621
TL0313	313	156	TL1200	1200	1121
TL0325	325	163	TL1250	1250	649
TL0350	350	177	TL1300	1300	704
TL0375	375	191	TL1350	1350	732
TL0400	400	204	TL1400	1400	760
TL0425	425	218	TL1500	1500	816
TL0450	450	232	TL1550	1550	843
TL0500	500	260	TL1600	1600	871
TL0550	550	288	TL1650	1650	899
TL0600	600	316	TL1800	1800	982
TL0650	650	343	TL2000	2000	1093
TL0700	700	371	TL2200	2200	1204
TL0750	750	399	TL2500	2500	1371
TL0800	800	427			



Tempilaq° is made of the same materials as Tempilstik°. This material is suspended in a quick-drying, inert vehicle. Most are non-flammable. Tempilaq° is available in the same 102 temperature ratings as Tempilstik° and carries the same  $\pm 1\%$  accuracy. Lot numbers on each bottle allow it to be traced to the specific batch of raw material from which it was made.

Apply a thin coating of the appropriate Tempilaq° by brush to the workpiece before heating begins. It dries almost instantly to a dull opaque mark. When its specified temperature is reached, the Tempilaq° mark liquifies (melts) sharply.

**CAUTION** - Disregard any color change that may occur during heating. This has no significance. It is only the melting of the Tempilaq° mark that indicates when the rated temperature has been reached. Upon cooling, the melted Tempilaq° mark will solidify to a glossy-transparent appearance.

Tempilaq° can be diluted to any desired consistency without changing its melting point. The thinner the coating used, the quicker the reaction time will be when temperature has been reached. Use only Tempilaq° thinner, and only the thinner recommended for the specific temperature rating being used.

Cleaning: Same procedures as for Tempilstik

#### Applications

Tempilaq° should be used on surfaces which cannot be easily marked with a Tempilstik°, such as polished metal, glass, plastics, rubber, fabrics or electronic components. It should also be used for making larger marks than can conveniently be made with Tempilstik° (for viewing at a distance). It is widely used for monitoring critical temperatures in the electronics field, such as preheat temperatures for wave soldering. Other applications include dielectric heatsealing, postforming plastic laminate, and annealing polished metal surfaces.

### Tempilaq°

Part No.	°F	°C	UM
TL0175QT	175	79	1 qt
TL0275PT	275	135	1 pt
TL0950PT	950	510	1 pt