



# TEMPERKOTE® 999-SA

(Formerly Flame Control 999-SA)

**HIGH SOLIDS/LOW V.O.C.**

**LOW TEMPERATURE CURING**

**HIGH PERFORMANCE INDUSTRIAL HEAT RESISTANT COATING**

\*Maximum Service Temperature – No. 2 Silver 900°F (482°C)

\*All Other Colors Up to 700°F (371°C), [See \*Note Section]

## DESCRIPTION:

TemperKote No. 999-SA High Solids/Low V.O.C. is a low temperature curing, heat resistant coating, curable at temperatures as low as 300°F (149°C) in sixteen hours or at 400°F (204°C) in one hour. No. 999-SA is formulated from a specially modified silicone acrylic resin and pure high temperature pigments. Only the finest ingredients available are used to produce this unique coating. The cured film will withstand continuous operating temperatures up to 900°F (482°C), see "Heat Resistance of Standard Colors" section below for specific temperature capabilities of each color. TemperKote No. 999-SA contains no saponifiable resins and is, therefore, suitable for application over zinc rich primers; also suitable for use on stainless steel surfaces where stress corrosion cracking is a major concern. No. 999-SA is formulated with special ingredients to minimize contamination from chlorides, other halides, sulfides, nitrates and metals which are known to induce external stress corrosion cracking of stainless steel. It contains no free metallic zinc and, therefore, will not contribute to embrittlement of stainless steel welds.

## RECOMMENDED USES:

A protective and decorative coating for use on mufflers, furnaces, boilers, stacks, pipes, and other metal surfaces that will have service temperatures up to 900°F (482°C). Can be applied direct to any metal surface that has been sandblasted to a white metal finish, or can be applied over organic or inorganic zinc rich primers. Use wherever a low temperature curing, silicone-acrylic, heat resistant coating is desired. **Not recommended** for use on the **inside** of ovens, stacks, etc.

## PERFORMANCE INFORMATION:

No. 999-SA dries by solvent evaporation and by polymerization, however, the coating must be heat-cured for sixteen hours at 300°F (149°C) or one hour at 400°F (204°C) to obtain maximum film properties, resistance to chemicals and heat. Thoroughly cured, the coating shows remarkable ability to withstand prolonged exposure to temperatures up to 900°F (482°C) see "Heat Resistance of Standard Colors" section below for specific temperature capabilities of each color. No. 999-SA is suitable for application over "Zinc Clad Inorganic Primers". The coating possesses excellent adhesion to zinc rich primers

When applied over Zinc Clad No.1, the primer has a tendency to bleed into the No. 999-SA coating, causing the colors to appear slightly lighter. The heat resistance of No. 999-SA is affected by zinc rich primers, due to the lower temperature limits of zinc primers, see "Heat Resistance of Standard Colors" section below.

## CHARACTERISTICS:

**Finish** ..... (\*) Gloss  
**Resin Type** ..... Modified silicone acrylic  
**Type of Cure** ..... Solvent evaporation/  
 polymerization  
**Drying Time @ 77F (25C) & 50% R.H.** .....  
 To touch ..... 1 hour  
 To recoat ..... 1 ½ hours  
 Full cure ..... Heat cure required,  
 Begin full cure within 24 hours, see below  
**Curing Temperature & Time** .....  
 Minimum curing  
 temperature ..... 300°F (149°C)  
 Minimum curing  
 time ..... 16 hours  
 at 300°F (149°C)  
 or 1 hour at 400°F (204°C)

**Application Temperature** .....  
 50°F(10°C) to 150°F (66°C)

**Spreading Rate Per Coat** .....  
 For Temperatures up to 500°F (260°C)

No.2 Silver ..... 355 sq.ft./gal. (8.7 m<sup>2</sup>/L)  
 4.5 mils wet, 1.5 mils dry

All other colors .... 455 sq.ft./gal. (11.1 m<sup>2</sup>/L)  
 3.5 mils wet, 1.5 mils dry

For Temperatures above 500°F (260°C)

No.2 Silver ..... 533 sq.ft./gal. (13.1 m<sup>2</sup>/L)  
 3.0 mils wet, 1.0 mils dry

All other colors ... 700 sq.ft./gal. (17.15 m<sup>2</sup>/L)  
 2.3 mils wet, 1.0 mils dry

**V.O.C. Less Than** ..... 3.5 lbs./gal. (420 g/L)

**Solids by Weight** ..... Varies with color

**Solids by Volume (typical)**

No. 2 Silver ..... 33%

All Other Colors ..... 43%

**Weight per Gallon** ..... Varies with color

**Flash Point of**

**Liquid Coating** ..... -4°F (20°C)

(closed cup)

**Reducer/Cleaner** ..... Reducer 555

**Shelf Life** ..... 2 years (unopened)

**Packaging** ..... 1, 5, and 55 gal. containers

**Shipping Weight** ..... 4 gals. - 48 lbs.

5 gals. - 58 lbs.

55 gals. - 650 lbs.

**Application** ..... Brush, conventional  
 and airless spray

(\*) Gloss diminishes at higher temperatures.

### \* Heat Resistance of Standard Colors No. 999-SA Direct to Metal

No. 1 Black ..... Up to 700°F (371°C)

No. 2 Silver ..... Up to 900°F (482°C)

\*No. 3 Lagoon ..... Up to 400°F (204°C)

\*No. 4 Topaz ..... Up to 450°F (232°C)

\*No. 5 Horizon ..... Up to 400°F (204°C)

\*No. 6 Newport ..... Up to 500°F (260°C)

\*No. 7 Mauve ..... Up to 450°F (232°C)

\*No. 8 Walnut ..... Up to 550°F (288°C)

\*No. 9 Fawn ..... Up to 400°F (204°C)

\*No.10 Russet ..... Up to 550°F (288°C)

\*No.11 Quarry ..... Up to 400°F (204°C)

\*No.12 Camouflage ... Up to 500°F (260°C)

\*No. 13 Dusty ..... Up to 400°F (204°C)

\*No. 14 Golden ..... Up to 500°F (260°C)

\*No. 15 Charcoal ..... Up to 600°F (454°C)

\*No. 16 Steel ..... Up to 500°F (315°C)

\*No. 17 Pewter ..... Up to 500°F (260°C)

\*No. 18 White ..... Up to 450°F (232°C)

\*No. 19 Safety Blue ... Up to 500°F (260°C)

\*No. 20 Safety Orange . Up to 500°F (260°C)

\*No. 21 Safety Green .. Up to 500°F (260°C)

\*No. 22 Safety Yellow. Up to 500°F (260°C)

\*No. 23 Safety Red ... Up to 500°F (260°C)

### †Heat Resistance of Standard Colors No. 999-SA Over Zinc Clad No. 1 Primer

No. 1 Black ..... Up to 700°F (371°C)

No. 2 Silver ..... Up to 700°F (371°C)

\*No. 3 Lagoon ..... Up to 500°F (260°C)

\*No. 4 Topaz ..... Up to 500°F (260°C)

\*No. 5 Horizon ..... Up to 500°F (260°C)

\*No. 6 Newport ..... Up to 500°F (260°C)

\*No. 7 Mauve ..... Up to 500°F (260°C)

\*No. 8 Walnut ..... Up to 500°F (260°C)

\*No. 9 Fawn ..... Up to 500°F (260°C)

\*No.10 Russet ..... Up to 500°F (260°C)

\*No.11 Quarry ..... Up to 500°F (260°C)

\*No.12 Camouflage ... Up to 500°F (260°C)

\*No. 13 Dusty ..... Up to 500°F (260°C)

\*No. 14 Golden ..... Up to 500°F (260°C)

\*No. 15 Charcoal .... Up to 500°F (260°C)

\*No. 16 Steel ..... Up to 500°F (260°C)

\*No. 17 Pewter ..... Up to 500°F (260°C)

\*No. 18 White ..... Up to 450°F (232°C)

\*No. 19 Safety Blue ... Up to 500°F (260°C)

No. 20 Safety Orange . Not recommended

\*No. 21 Safety Green .. Up to 500°F (260°C)

\*No. 22 Safety Yellow . Up to 500°F (260°C)

No. 23 Safety Red ... Not recommended

### † Heat Resistance of Standard Colors No. 999-SA Over Zinc Clad B69V1/B69DZ Primer

\*Colors No. 1

Thru No. 19, 21 & 22 Up to 500°F (260°C)

Except No. 18 ..... Up to 450°F (232°C)

### † Heat Resistance of Standard Colors No. 999-SA Over Zinc Clad No. 7 Primer

No. 1 Black ..... Up to 500°F (260°C)

No. 2 Silver ..... Up to 500°F (260°C)

\*Colors No. 3

Thru 19, 21 & 22 .... Up to 450°F (232°C)

\*NOTE: When applied direct to metal, all standard colors will withstand dry service temperatures up to 700°F (371°C), [No. 2 Silver up to 900°F (482°C)]. However, during the initial heating cycle, there will be a significant darkening of the asterisk colors, as the temperatures range from 450°F (232°C) to 650°F (343°C).



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As the temperature increases above 650°F (343°C), the color will lighten to more closely resemble the original color, and will not appreciably change on cooling and reheating. Should the surface temperature not exceed 650°F (343°C), the color will remain considerably off color.

† When applied over Zinc Clad Primers, the maximum service temperature is no greater than the Zinc Clad Primer used.

## SURFACE PREPARATION:

**METAL:** All metal surfaces must be sandblasted to a white metal finish, a low profile blast is preferred, as it will give best results. Coat immediately after blasting with desired Zinc Clad Primer or apply No. 999-SA direct to the blasted surface. All surfaces must be clean, dry and free of all contaminants or coating will not form a proper bond. When applied over Zinc Clad Primers, make sure primer is fully cured and dry.

## APPLICATION:

Mix thoroughly by boxing or slowly stirring, avoid incorporating air into the paint. Can be applied by brush or spray. Spray application is preferred, as a more uniform film is generally obtained. Thin only as necessary with Acetone. No other reducer should be used.

**Do not apply heavier films than specified, as the coating may blister.**

### METAL:

**Unprimed** sandblasted metal, apply two coats of No. 999-SA at the specified coverage rates, [Ref: Characteristics Section (Spreading Rate Per Coat)]. Allow at least 1 ½ hours drying time at ambient [77°F (25°C)] temperature. Longer drying time will be required at lower temperatures. Two coats are recommended for best results.

**Primed** metal. Be sure primer is fully cured. Allow adequate time at recommended temperature and humidity level for complete curing of Zinc Clad Inorganic Zinc Rich Primers. Primer surface must be clean and free of all contaminants. Apply only one coat of 999-SA  
**NOTE: Colors No. 20 and 23 are not recommended for use on galvanized steel or over zinc rich primers.**

**CURING:** TemperKote No. 999-SA **must** be heat cured to obtain maximum properties. After final coat has been applied, allow one hour (maximum 24 hours) before heating, then cure by gradually increasing the temperature to 300°F (149°C), hold for sixteen hours or 400°F (204°C) for one hour. For temperatures between 300°F (149°C) and 400°F (204°C), adjust time proportionately.

After curing, for best performance, it is essential that the temperature be taken up slowly, over a period of hours, to the normal operating temperature.

## APPLICATION EQUIPMENT:

### Conventional Spray

Air Supply ..... 12 CFM,  
50 psi at nozzle, fluid 15-20 psi  
Gun ..... Graco 217-800 to 217-816  
Type ..... External mix  
Reduction ..... Up to 10%

### Airless Spray

#### Titan 740 Impact (or Equivalent)

Pump  
Fluid Pressure ..... 2700-3100 psi  
Manifold Filter ..... 60 Mesh  
Gun Filter ..... 60 Mesh  
Fluid Hose ..... ¼" diameter  
Gun ..... LX-80 II  
Tip ..... .015 - .021

## PRECAUTIONS:

**DANGER! FLAMMABLE LIQUID & VAPOR: CONTAINS XYLENE & PETROLEUM DISTILLATES.**

VAPOR HARMFUL. MAY AFFECT THE BRAIN OR NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA. CAUSES EYE, SKIN, NOSE AND THROAT IRRITATION. NOTICE: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal. Keep away from heat, sparks and flame. VAPORS MAY CAUSE FLASH FIRE. Do not smoke. Extinguish all flames and pilot lights, and turn off stoves, heaters, electric motors and other sources of ignition during use and until all vapors are gone. Prevent build-up of vapors by opening all windows and doors to achieve cross-ventilation.

**USE ONLY WITH ADEQUATE VENTILATION.** Do not breathe vapors or spray mist. Ensure fresh air entry during application and drying. If you experience eye watering, headache or dizziness or if air monitoring demonstrates vapor/mist levels are above applicable limits, wear an appropriate, properly fitted respirator (NIOSH/MSHA approved) during and after application. Follow respirator manufacturer's directions for respirator use. Close container after each use. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

**FIRST AID:** If you experience difficulty in breathing, leave the area to obtain fresh air. If continued difficulty is experienced, get medical assistance immediately. In case of eye contact, flush immediately with plenty of water for at least 15 minutes and get medical attention; for skin, wash thoroughly with soap and water. If swallowed, get medical attention immediately. If spilled, contain spilled material and remove with inert absorbent. Dispose of contaminated absorbent container and unused contents in accordance with local, state and federal regulations.

## FOR INDUSTRIAL USE ONLY

**Read MSDS before opening containers.**

**KEEP OUT OF THE REACH OF CHILDREN**

As we cannot anticipate all conditions under which this information and our products, or the products of other manufacturers in combination with our products, may be used, we accept no responsibility for results obtained by the application of this information or the safety or suitability of our products, either alone or in combination with other products. Users are advised to make their own tests to determine the safety and suitability of each such product or product combination for their own purposes. We sell the products without warranty or guarantee, and buyers and users assume all responsibility and liability for loss or damage from the handling and use of our products, whether used alone or in combination with other products.