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Coatings
Cements
Release Compounds
Dry Film Lubricants
Metallizing Compounds

SURFACE ENGINEERING BULLETIN

SermaBond 522-2

SUBJECT: SermaBond 522® High Temperature Cement

GENERAL DESCRIPTION:

SermaBond 522 is an inorganic ceramic-metallic compound. that matures to an insoluble, machineable, tenaciously bonded cement. After curing, the coating is unaffected by hot and cold water, mineral spirits, jet fuel, hydraulic oils, hot degreasing vapors and temperatures of up to 1000°F.

SermaBond 522 can be used as binder for bonding finely divided powders such as ceramic oxides or metallic pigments to other surfaces.

SURFACE PREPARATION

Parts shall be thoroughly cleaned and free from dirt, grit, oil and grease. Vapor degreasing is recommended. Superior results are obtained by abrasive blasting, either wet or dry. Coat parts as soon as possible after cleaning.

PREPARATION OF CEMENT

SermaBond 522 is shipped as a two part mix and has a six month shelf life. Some outgassing of the Part 1 material may be observed. To minimize pressure buildup in the containers the bottle should be well shaken and the cap released once every two weeks. To prepare the coating, thoroughly mix the contents of the Part 1 component by mechanical stirring. Adjust the stirring rate to provide proper mixing, but avoid air entrapment. Entrapped air will cause voids in the cured coating. After the Part 1 is thoroughly mixed, add the Part 2 powder slowly to the vortex made by the mechanical stirrer. Stir for one hour; then allow the compound to react for a period of 18-24 hours. After mixing the components, Part 1 and Part 2, shelf life is limited to two weeks.

To make less than full gallon quantities, mix 29 grams of Part 1 with 1.15 grams of Part 2. Mix in the same manner as described for gallon quantities.

SermaBond 522 can be used with other fillers to prepare new cements. For example, 2.0 - 2.5 parts by weight of mixed SermaBond 522 can be mixed with 1.0 (one) part by weight of MD101* aluminum powder to obtain a thick aluminum filled cement for turbine engine applications.

*MD101 Aluminum powder is manufactured by Alcan Metal Powders

CURING BAKING SCHEDULE

1. Allow the cement to air dry a minimum of twelve hours prior to curing in an electric oven.
2. Place cemented parts in a preheated oven and increase in increments as follows:
 - 2 hours @ 140°F ± 5
 - 1 hour @ 175°F ± 5
 - 1 hour @ 200°F ± 5
 - 1 hour @ 360°F ± 5
 - 1 hour @ 615°F ± 15
3. Curing cycle listed is typical, but is dependent on coating thickness. Thick coatings will require longer dwell times at 140°F and 175°F.
4. Curing baking schedule can be altered to suit substrate restrictions.

CURED CEMENT PROPERTIES

SermaBond 522 cement cured according to the baking schedule listed should develop the following properties on steel specimens:

Heat Resistance - Unaffected by prolonged heating to 1000°F.

Organic Solvents and oil Resistance Tests

Room temperature for 100 hours.....

MIL-J-5655F (JP4 Jet Fuel)	Unaffected
AMS 3160B (Mineral Spirits)	Unaffected
MIL-G6529 (Type III oil)	Unaffected
ASTM 101 (Andersol-L-774 oil)	Unaffected
Water alcohol solution	Unaffected
Tap Water	Unaffected
Tap Water 4 hours @ 170°F	Unaffected

At 250°F for 100 hours.....

ASTM 101 (Andersol-L-774 Oil)	Discoloration only
Hot degreasing (vapors)	Unaffected

CEMENT REMOVAL

Soak in a caustic solution to soften cement. A solution of 3-5 pounds of sodium hydroxide per gallon of water and heated to $180^{\circ}\text{F} \pm 5$ will remove the cement. Rinse in hot water and air dry. **CAUTION:** Protective clothing, gloves and goggles must be worn while exposed to sodium hydroxide solution. The bath must have exhaust venting.

NOTE: The information above is provided in good faith and is believed to be correct at the time of printing. Since the conditions of end use are beyond the control of SERMATECH INTERNATIONAL INC., characteristics, performance and suitability of the product cannot be guaranteed.

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