

DE 350 Ablative Base Coat / Protective Top-Coat

Dyna Therm

Technical Bulletin

April 2013

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PRODUCT DESCRIPTION

Dyna Therm DE-350 is a room temperature curing, silicone modified, epoxy polyamide ablative coating, designed to protect metallic and reinforced plastic surfaces from the thermal effects of supersonic atmospheric exit and re-entry conditions. Having a process impurities specification of a maximum total of 25 ppm sodium, potassium and lithium, DE-350 ablates without developing a sheath of alkali metal ions, thereby permitting continuous radio communication with the object being protected.

DE-350, supplied as a three-component system at 94% solids, may be applied by transfer molding, or with additional thinning by spray using conventional paint spray equipment. Designed to cure overnight at room temperature, cure may be accelerated by heating the part to 140 dig. F.

DE-350, in addition to its use as an external ablative coating, may also be used in areas requiring protection from the impingement of solid propellant particles. Application for use in this environment has been made both in a trowel operation and by direct incorporation into a filament wound, integral part.

SURFACE PREPARATION

All surfaces to be coated should be free of dirt, grease, scale and other foreign matter. If possible, scuff sanding or sandblasting, followed by a prime coat of a suitable primer, should precede the application of DE-350.

MIXING INSTRUCTIONS

Dyna Therm DE-350 is supplied in three component one and two gallon kit sizes. Mixing is best accomplished by combining parts A and C and pouring this mixture into part B. Stirring is complete when the blend is uniform in color and consistency. To minimize the amount of air incorporated during mixing, stirring should be accomplished at a slow speed. For increased density the material may be evacuated for 30 minutes with stirring prior to casting or spraying.

Dyna Therm Products

Manufactured By The Flamemaster Corporation
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Supersedes January, 2010

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This commodity is a defense article, regulated by the International Traffic in Arms Regulations (ITAR) and requires a State Department License for transport outside of the USA per CFR Title 22 Section 121.1 paragraph a) defense articles, b) significant military equipment (SME), and c) Missile Technology Control Regime Annex (MTCR). This is an ablative material - Category IV (f) on the U. S. Munitions List (USML) and Item 2 - Category I (2.A.1.b) of the MTCR.

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Base Component 3 part Epoxy Silicone

Color	Amber
Viscosity	12,000 cps
Hardness	70-80 Shore A
Specific Gravity	1.1
Solids	94%
Tensile	240 psi
Adhesion	460 pli lap shear

Shelf Life and Storage Temperature
6 Months when stored as follows:

Part A 45F
Part B 85F
Part C 85F

DE-350 Top/ Coat 2 part epoxy

Color	FED-STD-595, color number 17875.
Viscosity fresh mix	35.0 ± 10.0 seconds.
Mix Ratio	Equal volume part A and Part B
Solids % (mixed)	Minimum 59 %
Pigment content (mixed)	30 % of the solids content
Pot Life @ 77F 4 hours	Viscosity less than 60 seconds
Storage Stability	6 Months when stored 60F

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APPLICATION

No induction period is required so that application may be started immediately following mixing. Transfer or injection molding may be performed in the conventional manner. Spray application is facilitated by the use of a heat exchanger, i.e. Devilbiss MH-4008, which heats the material to 140°F, making it more fluid and at the same time accelerating the initial cure rate. With proper care and instrumentation, film thicknesses of up to 60 mils of DE-350 may be applied to a slowly rotating cylindrical surface in one application.

CLEAN UP

Uncured DE-350 should be removed from all apparatus and equipment using methyl ethyl ketone or lacquer thinner. DE-350 should not be allowed to cure on or in any pieces of apparatus and equipment, since once cured it can only be removed through repeated applications of epoxy paint strippers, which in areas of close tolerance is a difficult task.

DE-350 Top / Coat

The epoxy top coat is primarily intended as a protective coating and sealer for silicone modified, epoxy polyamide ablatives. The color is FS-595 / 17875 inquire for other colors which may be available.

Top coat is a two-part epoxy system applied either brushed or sprayed. The mixing ratio is 50/50 of parts A and B by volume. The recommended spray consistency is 25 - 60 KU. No induction period is necessary before applying DE-350 Top Coat.

To insure proper adhesion of the top coat, apply as soon as the insulative coating is firm enough to support and withstand brush or spray applications. The top coat shall show no evidence of failure when subjected to the tape test.

SAFETY

Prior to use consult the MSDS for health, safety and disposal requirements.

Precautions should be taken to avoid contact with the skin. Rubber gloves or protective creams are normally used and hands should be thoroughly washed with soap and water after exposure.

We have obtained the information contained in our product MSDS's from sources that we believe to be reliable. However since much of this information has been received from sources outside of the company, it is provided without any warranty expressed or implied regarding its correctness or suitability for specific situations. The conditions of handling, storage, use and disposal are beyond our control and may be beyond our knowledge.

All recommendations, statements, and technical data contained herein are based on tests we believe to be reliable and correct, but accuracy and completeness of said test are not guaranteed and are not to be construed as a warranty, either expressed or implied. User shall rely on his own information and tests to determine suitability of the product for the intended use and user assumes all liability resulting from his use of the product. Sellers and manufacturers sole responsibility shall be to replace that portion of the product of this manufacturer which proves to be defective. Warranty returns accepted only in their original unopened containers no warranty claims accepted for goods repackaged or altered. Neither seller nor manufacturer shall be liable to the buyer or any third person for any injury, loss, or damage directly or indirectly resulting from use of, or inability to use, the product. Recommendations or statements other than those contained in a written agreement signed by an officer of the manufacturer shall not be binding upon the manufacturer or seller. Flamemaster does not warranty the performance of sealants and coatings subjected to fluids or fuel other than those specified by the applicable specification. It is the responsibility of the user to determine the suitability for use utilizing the information contained in the applicable specification.

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