



MS-440G – TECHNICAL BULLETIN #2036A

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PRODUCT DESCRIPTION

MS-440G is a high solid, two-part, general purpose non-skid deck coating designed to provide maximum wear and impact resistance for US Naval vessels.

Fire retardant in the cured state, **MS-440G** is formulated with epoxy resins to give maximum adhesion to steel, toughness and corrosion resistance. It is resistant to fire and jet blast, most acids, alkali's, solvents, grease, oil, salt water, detergents, alcohol, gasoline, jet fuels, cellulube and other hydraulic fluids. Because of its tenacious bond, rust will not creep under the coating if fractured.

In accordance with NAVSEA guidance to non-skid systems, **MS-440G** is designed to be used in conjunction with the following American Safety Technologies MIL-SPEC and NAVSEA approved products: MS-7CZ Primer and MS-200/MS-201 Color Topping.

SURFACE PREPARATION

MS-440G is recommended to any clean, dry surface. All rust, mill scale, paint, dirt, grease, oil, etc. must be completely removed. Recommended methods of cleaning worn out non-skid or delaminated steel surface are as follows.

MS-440G

HIGH SOLIDS NON-SKID DECK COATING
MIL-PRF-24667C TYPE I, II, IV/ COMP G / IMO APPROVED

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METAL DECKS – GRIT BLASTING

- a. Grit-blasting to a SA 2.5 (near white metal) or SSPC-SP10, is the preferred method of cleaning and results in the best surface for adhesion for MS-7CZ Metal Primer.
- b. Where grit-blasting is not feasible, power tool cleaning utilizing power sanders fitted with #16 grit aluminum oxide sanding discs can produce a sufficiently clean surface provided cleaning is carefully and intensively done.
- c. If there is oil or grease on the surface, it must be removed prior to cleaning. The preferred method is to scrub with a strong approved biodegradable detergent and flush area thoroughly with fresh water while detergent is still wet. An alternative method is to remove the grease or oil with an approved solvent. Solvents are flammable and must be handled with care, it is important that the solvent not be allowed to evaporate during the cleaning process and redeposit grease or oil on the deck.

It is recommended that the MS-7CZ Primer be applied on steel surfaces immediately after the surface has been cleaned and before rust or oxidation has had a chance to form or surface becomes dirty or contaminated in any way.

HIGH AND ULTRA HIGH-PRESSURE WATER JETTING

Note: UHP-WJ does not create an anchor tooth profile. The substrate may require abrasive blasting in order to produce an acceptable minimum or specified anchor tooth profile prior to application of primer.

All surfaces to be recoated shall be cleaned in accordance with NACE/SSPC WJ-/NV-2.

WJ-2: A WJ-2 surface shall be cleaned to a matte (dull, mottled) finish which, when viewed without magnification, is free of all visible oil, grease, dirt, and rust except for randomly dispersed stains of rust, tightly adherent thin coatings, and other tightly adherent foreign matter. The staining or tightly adherent matter is limited to a maximum of 5% of the surface.

NV-2: An NV-2 surface shall have less than 7mg/cm² chloride contaminants, less than 10 mg/cm² of soluble ferrous ion levels, and less than 17 mg/cm² of sulfate contaminants as verified by field or laboratory analysis using reliable, reproducible test equipment.

MIXING AND APPLICATION

MS-440G is designed to be applied over a primer.

1. **MS-440G** is a two-part coating consisting of a base material and a hardener.
2. Pre-mix base component, making sure all settlement is lifted off the bottom of the container and is uniformly dispersed in the material.
3. Pour entire contents of hardener bag into base material. Mix hardener and base material with a mechanical mixer for approximately 3-5 minutes or until mixed material assumes a uniform color and appearance. Material can be immediately applied since induction time is not required.
4. Working pot life is approximately 2 hours at 70°F (21°C). Pot life is increased at lower temperatures and decreased at higher temperatures.
5. **MS-440G** can be applied at ambient temperatures between 40°F and 100°F. At below 50°F surface temperature curing time will increase substantially. Application when surface temperature is above 120°F or below 50°F is not recommended. Avoid application during periods of high humidity.

APPLICATION TECHNIQUES ROLLER

1. Use a phenolic roller sleeve; it is important that the rolled profile expose the maximum amount of non-slip aggregate. If aggregate is not properly exposed, the coating may become slippery when wet.
2. Pour a "ribbon" of **MS-440G** series non-skid on the surface 2'-3' (0.61m-0.914m) long and approximately 4"-6" (.219m-.829m) wide. Roll material in one direction only, in straight strokes pulling material toward you with a moderate amount of pressure on roller handle.
Note: When the correct pressure is applied it should be possible to feel the grit under the roller core, this means that the coating is being applied at the correct film build. Do not over-roll too many times or press down too heavily. Be careful that material does not build up too thickly along welds (roll across welds, not along them). Material applied too thickly may not cure properly causing mud cracking and possible future delamination.
3. Higher temperatures will shorten drying time and conversely, lower temperatures and high relative humidity will lengthen drying time. Exterior applications must be protected from rain for 12-24 hours after application depending on temperature and humidity conditions encountered. Protect from heavy or extended exposure to water, oil and chemicals for 5-7 days during final cure.

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NOTCHED TROWEL

1. Use an approved NAVSEA notched trowel for military applications. Notches may be selected according to desired effect and texture intended.
2. Pour a “ribbon” of **MS-440G** non-skid on the surface 2'-3' (0.61m-0.91m) long and approximately 4"-6" (1.219m-1.829m) wide. Spread material by pushing trowel.
3. Using an even stroke, pull the non-skid toward the applicator at a 60° degree angle from the deck to the handle. Remove any excess skid build-up from the trowel prior to making a second pass by hitting rubber insert on deck. When pouring non-skid for continuation of ridge profile, pour non-skid on top of end trail to avoid gaps or low spots.
4. The supplier should obtain straight even strokes to give the area a uniform appearance.

CLEANING TECHNIQUES

To maintain the performance of MS-440G, we recommend periodic cleaning with an approved cleaner/degreaser in accordance with military directives. Scrub surface with a long handled, fiber-bristled brush or floor machine. Rinse with clean water and dry.

PRODUCT SPECIFICATIONS

GENERIC DESCRIPTION	2 Component Epoxy Polyamine Non-skid Coating
V.O.C	1.8 lbs per gallon (215 grams/ liter)
SOLIDS BY WEIGHT	90 ± 2%
WEIGHT PER GALLON	12.38 ± 0.2 lbs per gallon
ESTIMATE COVERAGE	20-30 sq. ft./ gal-Roller 18-22 sq. ft./ gal Notched trowel
AVAILABLE COLORS	Dark Gray (36076) Black (37038)
CUSTOM COLORS	Available subject to special requirements
SHELF LIFE	1 Year (MIL-PRF 24667) Requirement
FLASH POINT	≥ 102° F (39°C) mixed
PACKAGING	5 Gallon kit in a 6½ Gallon Pail

Further product specifications adhere to manufacturers ASTM F718

CAUTION: Read Material Safety Data Sheet before using this material. Use only with adequate cross ventilation. Keep away from extreme heat, sparks and open flame. Keep from freezing. Avoid prolonged breathing of vapors. For dizziness, seek fresh air. Avoid contact with skin. Use gloves, goggles and coveralls. In case of spillage on clothing, change clothing to prevent prolonged contact with skin. Wash contaminated clothing before reuse. In case of accidental contact with skin, wash immediately with soap and water. In case of eye contact, flush thoroughly with plenty of water and call physician. If swallowed accidentally, do not induce vomiting. Seek medical attention immediately. The user of this product is responsible for making its own evaluation and tests regarding the capabilities, safety, utility, suitability and application of the product, and assumes all risks and liabilities resulting from the use or application of the product, whether used alone or with other products. ITW Performance Polymers (herein referenced to as the COMPANY) warrants only that the product conforms to the specifications contained in product Technical Data Sheets published By the COMPANY, a copy of which is available to the user. If the product fails to conform to this warranty, the user shall return the product within 10 days of the purchase date with a note specifying the defect and the COMPANY will either replace the product or at its option, return the purchase price. EXCEPT AS EXPRESSLY PROVIDED IN THIS PARAGRAPH, THE COMPANY MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND, NATURE OR DESCRIPTION, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, AND HEREBY DISCLAIMS THE SAME. In no event shall the COMPANY be liable to the user of this product, whether in contract or in tort or any other legal theory (including, without limitation, negligence),for damages which exceed the purchase price of the product, or for any indirect, incidental, consequential or similar damages, arising out of sale, use or application of the product, or for any claim made against the user by any other party, even if ITW Performance Polymers has been advised of the possibility of such claim.