



SHIPBUILDERS AND MARINE PAINTS AND COATINGS PRODUCT/PROCEDURE DATA SHEET

CONTINUATION SHEET USED:  YES  NO  
Date: 8 February 2018

<p>I. GENERIC TYPE AND DESCRIPTION: MS-440G LR Low Radar Signature Epoxy Nonskid Deck Coating Specification Number: MIL-PRF-24667 NOTE: For Type/Grade/Class/Application information see QPL-24667</p>
<p>II. MANUFACTURERS DATA:</p> <ul style="list-style-type: none"><li>(a) MANUFACTURER: ITW Engineered Polymers, American Safety Technologies (AST) 130 Commerce Drive, Montgomeryville, PA. 18936</li><li>(b) PRODUCT DESIGNATION: MS-440G LR Nonskid / Part A Dark Gray MS434R / Part B MS432H</li><li>(c) COLOR(S): Dark Gray</li><li>(d) USES: Abrasive Nonskid Deck Coating for Critical and Non-critical Decks</li><li>(e) TECHNICAL SERVICE REPRESENTATIVE (Include Telephone Number): 215-855-8450, Fax: 215-855-4668, Email: <a href="mailto:orders.na@itwep.com">orders.na@itwep.com</a> , web site: www.itwast.com</li><li>(f) NOT INTENDED FOR USE ON: Carrier Landing Areas</li></ul>
<p>III. PROPERTIES:</p> <ul style="list-style-type: none"><li>(a) % VOLUME SOLIDS (ASTM D2697): 78.4 ± 1%</li><li>(b) % WEIGHT SOLIDS (ASTM D2369): 92.8 ± 2%</li><li>(c) FLASH POINT (ASTM D3278): Part A &gt; 102°F (39°C) Part B &gt; 141°F (60.6°C)</li><li>(d) WEIGHT PER VOLUME (ASTM D1475): 17.6 ± 0.2 lbs. per gallon</li><li>(e) % EDGE RETENTION (IF REQUIRED BY APPLICABLE SPECIFICATION – LIST TEST METHOD USED): N/A</li><li>(f) SHELF LIFE: 1 Year</li><li>(g) VISCOSITY (ASTM D2196): PART A: 30,000 – 45,000 cps at 75°F (Brookfield viscosity / ASTM D2196) PART B: 650 – 750 cps at 75°F (Brookfield viscosity / ASTM D2196) MIXED: 18,000 - 24,000 cps at 75°F (Brookfield viscosity / ASTM D2196)</li><li>(h) PACKAGING: Part A: 4.56 gallons in a 6 ½ gallon pail, Part B: 0.55 gallons in a 1 gallon bag.</li><li>(i) NUMBER OF COMPONENTS: 2</li><li>(j) GLOSS (ASTM D523): N/A</li><li>(k) STORAGE MATERIAL REQUIREMENTS: TEMP. MIN. 40°F MAX. 100°F 24 HOURS PRIOR TO MIX: TEMP. MIN. 60°F MAX. 80°F</li><li>(l) VOLATILE ORGANIC COMPOUND (VOC- EPA TEST METHOD 24): 150 - 160 g/l (1.25 - 1.33 lbs./ gal)</li><li>(m) WEIGHT PER AREA OF DRY FILM PER SQ. FT. AT 1 MIL THICKNESS: 5.99 – 6.08 grams (0.0132 - 0.0134 lbs.).</li><li>(n) SPECIAL PROPERTIES: N/A</li></ul>

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IV. SURFACE PREPARATION MINIMUM REQUIREMENTS:

- (a) INITIAL: Remove grease, oil and dirt (SSPC-SP1) or other approved method.
- (b) TOUCH-UP: N/A
- (c) PROFILE (INCLUDE METHOD USED):                   MIN. N/A                   MAX. N/A
- (d) SPECIAL INSTRUCTIONS: NA
- (e) PRIMER REQUIREMENTS: AST MS-7CZ should be applied minimum 3 mils, DFT.
- (f) MAXIMUM ALLOWABLE CONDUCTIVITY : N/A
- (g) MAXIMUM DEGREE OF FLASH RUSTING ALLOWED: N/A

SPECIAL SAFETY PRECAUTIONS:

CAUTIONS TO BE TAKEN IN HANDLING AND STORING: WARNING! IRRITANT, **Read MSDS before use.** Do not get in eyes, avoid contact with skin and clothing, and avoid inhalation vapor or mist. Use with adequate ventilation, wash thoroughly after handling and before eating, drinking or smoking. Remove contaminated clothing and wash before use. OTHER PRECAUTIONS: Avoid extreme heat – **keep away from flame or other ignition source.**

V. MIXING PROCEDURES: Improperly mixed material will not cure properly

- (a) MIXING RATIOS BY WEIGHT: 20:1 (Part A to Part B)  
BY VOLUME: 8.3:1 (Part A to Part B)
- (b) INDUCTION TIME: N/A
- (c) RECOMMENDED SOLVENT – NO THINNING ALLOWED / ONLY CLEAN UP: S-31 Solvent, S-426 Solvent, Isopropyl Alcohol, Aromatic Naphtha, MAK
- (d) POT LIFE: MATERIAL TEMPERATURE
 

1 Hr. (s) @	90°F (32°C)
2 Hr. (s) @	70°F (21°C)
3 Hr. (s) @	50°F (10°C)
- (e) SPECIAL INSTRUCTIONS: **Improperly mixed material will not cure properly.** A Double Box Vortex Mixing blade may be used to perform both the base (Part A) pre-mix and combined components (Part A and B) with the same paddle. Perform a pre-mix of the base material for at least 1 minute. Following pre-mix of base material (Part A) add hardener (Part B) to the base material (Part A). Once the hardener is introduced, continue mixing the combined contents of the kit for an additional 2-5 minutes or until a homogenous blend of both components is achieved and mixture presents a uniform color and appearance. **Proper mixing techniques should include the movement within the kit with an up and down, side to side motion.**

VI. APPLICATION:

- (a) ENVIRONMENTAL LIMITATIONS:
 

SUBSTRATE SURFACE TEMPERATURE:	MIN. 50°F	MAX. 120°F
AMBIENT TEMPERATURE:	MIN. 50°F	MAX. 100°F
MINIMUM SUBSTRATE TEMPERATURE DIFFERENCE ABOVE THE DEW POINT: 5°F		
MAXIMUM PERCENT RELATIVE HUMIDITY: 85%		
- (b) FILM THICKNESS (SSPC PA2-73T) - PER COAT:
 

WET MIN. N/A	WET MAX. N/A
DRY MIN. N/A	DRY MAX. N/A
SPREAD RATE: <u>For spray 45 – 50 ft<sup>2</sup> / gal.</u>	

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(c) DRY TIMES (ASTM D 1640):

Surface Temperature	50°F	70°F (21.1°C)	90°F (32.2°C)	110°F (43.3°C)
Dry to Touch	20 - 24 Hrs	10 - 12 Hrs	5 - 6 Hrs	3 - 4 Hrs
Dry to Handle*	72 Hrs	24 - 30 Hrs	12 - 15 Hrs	6 - 8 Hrs
Overcoat – Mir**	N/A	N/A	N/A	N/A
Overcoat - Max**	N/A	N/A	N/A	N/A
Cure to Full Service	14 Days	7 Days	5 Days	3 Days
Color Topping - Max***	30 Days	30 Days	30 Days	30 Days

\* Minimum dry time before color top coat application of visual landing aid markings.

\*\* Except for seam overlap – over coating nonskid with nonskid for shipboard application is not authorized.

\*\*\* Applying color topping (Visual Landing Aid markings) prior to placing newly applied nonskid into service. Color topping may be used to overcoat itself or non-skid in excess of the 30 day window provided the surface is thoroughly cleaned to remove all containments, salts, petroleum products or lubricants to assure proper adhesion.

Temperatures below 50°F should not be considered in the cure time calculations for MS-440G LR. **Note:** Changes in environmental conditions (post application) are affected by day/night cure temperatures and exposure to sun light. Recorded temperature data will assist in determining an approximate creditable cure time within a 24 hour period. If the applied nonskid system is subjected to relative humidity 85% and greater during initial curing period (within 72 hours) at 50°F or below, this may cause whitening / amine blush that does not affect the integrity or performance of the coating and is limited entirely on the surface of coating.

(d) EQUIPMENT REQUIREMENTS: For spray :Bottom feed agitated pump with spray gun, ¾ HP, 450 RPM power mixer or industry equivalent capable of mixing heavy mastic materials.

(e) SUGGESTED EQUIPMENT (OR EQUAL) FOR SPRAYING MS-440G LR NON-SKID

Item	Part Number	Description	Qty	Comments
Paint tank	Binks 183G-1023	10 gallon tank with two regulators and air driven agitator	1	Bottom outlet will be used for this product
Kit	Binks 183-3001	1" Bottom outlet kit with ball valve	1	Remove plug from tank and install kit
Spray gun	Binks 7E2, Box Number 6102-3525-9	Spray gun with .312" fluid nozzle and internal mix air cap	1	Standard internal mix w/SS (391) air cap. Replace air cap with carbide (191)
Air Cap Insert	Binks 46-2191	Carbide insert (fan pattern) to replace standard SS air cap	1	Replace standard air cap insert with this one for longevity
Adapter	Binks 72-55	¾" NPSF X ¼" NPSM	1	For gun inlet air
Hose, Air	Binks 71-1355	¾" ID X 25 ft air hose to gun	1	Heavy duty air hose from tank to gun
Hose, material	Binks 71-284	¾" ID X 25 ft	1	Material hose to gun
Fitting, hose	Binks 72-417	¾" NPSF Punch-Lok	2	Attach to material hose

(f) SPECIAL INSTRUCTIONS: N/A

REPAIR PROCEDURES:

IF THE OVERCOAT WINDOW AS BEEN EXCEEDED FOR CRITICAL APPLICATIONS: Please refer to NAVSEA Standard Item 009-32 and NSTM Chapter 634 Guidelines for secondary surface preparation after 36 hours.

REPAIR PROCEDURES IF OVERCOAT WINDOW HAS BEEN EXCEEDED FOR NON-CRITICAL APPLICATIONS: If less than 7 days has elapsed since the application of the primer, a proprietary nonskid or color topping may be applied after visual inspection to confirm the absence of grease, dirt, salts, or other surface contaminants. If surface contamination is suspected as a result of visual inspection or for other reasons, the entire surface shall be cleaned in accordance with SSPC-SP 1. Apply the proprietary nonskid or color topping after surfaces have completely dried and or solvent has completely evaporated.

ADDITIONAL DATA/INSTRUCTIONS:

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II. MANUFACTURERS DATA: N/A

III. PROPERTIES: N/A

IV. SURFACE PREPARATION MINIMUM REQUIREMENTS: N/A

V. MIXING PROCEDURES: N/A

VI. APPLICATION REQUIREMENTS:

ADD ADDITIONAL COMMENTS FROM PART VI HERE: MS-440G LR is formulated to be applied within the parameters listed on this document. NAVSEA Standard Item 009-32 applications may adjust the environmental and application procedures recommended by this ASTM F718.

WARRANTY DISCLAIMER: The technical data supplied herein has been compiled for the applicator's assistance and guidance and based on experience and knowledge. However, as a manufacturer, we have no control over the use to which this information is put, no warranty, expressed or implied, is intended or given.