



An Illinois Tool Works Company

ITW- American Safety Technologies

Application Specification

Specification No – AST1312005-MS-660G

(Replaces AST22504-660G)

January 31, 2005

NON-SKID COATING SYSTEM

MS-7CZ Primer - MS-660G Non-skid – MS-200 Color Topping
Applied to steel, aluminum, GRP or
MS-1600 Flexible Epoxy Intermediate Membrane

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1. SCOPE

1.1 Scope. This specification covers the surface preparation, mixing, and application of non-skid coatings to steel, aluminum, GRP or MS-1600 flexible epoxy membrane substrates. See the MS-1600 technical data sheet for application over flexible epoxy intermediate membranes.

1.2 Classification. The coating system covered by this specification will be furnished by ITW - American Safety Technologies and will be comprised of the following products:

<u>Primer</u>	<u>Non-Skid</u>	<u>Solvent for clean up</u>	<u>Color Topping</u>
MS-7CZ Primer	MS-660G Non-Skid	S-31 or S-127	MS-200

MS-1600 Flexible Epoxy Membrane may be applied if increased flexibility is desired.

2. REQUIREMENTS

2.1 Composition. The coating system shall consist of a two component UV resistant, Low Solar Absorbing epoxy non-skid system formulated with Kevlar® aramid fibers as specified in paragraph 1.2. It must be fire retardant in the cured state, resistant to fire and jet blast (aviation applications), most acids, alkalis, solvents, grease, oil, salt water, detergents, alcohol, gasoline, jet fuels, cellulube and other hydraulic fluids. The proprietary system shall meet all Department of Defense Specifications including MIL-PRF-24667A-Type I/II/III and quality under MIL-I-45208, MIL-Standard 45662. Products listed in paragraph 1.2 have been specially formulated to meet all above specifications.

2.2 Appearance of dried coating. When applied in accordance with this specification, the primer will dry to a smooth, uniform film, free of spotting, streaking, mud cracking, wrinkling, cratering or blistering. When the non-skid is applied by phenolic roller, the non-skid topcoat will have a textured appearance of roughly parallel rows of raised coating, forming peaks or ridges. The aggregate will be uniformly distributed, and will have a coarse, rough appearance. Color will conform to Fed Std 36076 dark gray.

2.3 Condition in container. Individual components of the two-part coatings will not show skinning, livering, curdling, or separation of ingredients, nor will they show any hard settling of grit which cannot be dispersed to a uniform consistency by 5 minutes of stirring with a power mixer.

3. COVERAGE

3.1 System Coverage. The following coverage is required by this specification:

<u>Part Number</u>	<u>Coverage Rolled</u>
MS-7CZ	270 sq. ft./gal. (4 mils DFT/6.5 mils WFT)
MS-660G	25-30 sq./gal.
MS-200	320 sq. ft./gal. (5 mils WFT)

4. STORAGE

4.1 Long term storage. Material is to be stored at temperatures not less than 50° F and not more than 90° F.

4.2 24 hours before application. Material is to be stored at temperatures between 70° F and 80° F.

4.3 Shelf Life. The shelf life of all coating materials specified in paragraph 1.2 is 1 year from the date of manufacture.

5. SURFACE PREPARATION

5.1 Grit-blasting to 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 primer.

Where grit-blasting is not feasible, power tool cleaning utilizing power sanders fitted with #16 or #30 grit aluminum oxide sanding discs can produce a sufficiently clean surface provided cleaning is carefully and intensively done.

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 detergent and flush area thoroughly while still wet. An alternative method is to remove the grease or oil with a 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.

5.2 High and Ultra High Pressure water jetting: all surfaces to be coated shall be cleaned in accordance with: NACE5/SSPC SP12/WJ-2/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 of tightly adherent matter is limited to a maximum of 5% of the surface.

NV-2: An NV-2 surface shall have less than 7 mg/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.

5.3 GRP Decks: surface preparation of GRP decks is usually performed utilizing power tool cleaning. Once the old nonskid is removed, or if it is a new deck to be covered, the surface of the GRP shall be sanded lightly to roughen the surface. Dust, grease or oil spots that remain after power tool cleaning shall be removed with the solvent recommended by the nonskid manufacturer. After the solvent wipe has been performed, the deck shall be permitted to dry for at least 2 hours at ambient conditions before applying any primer where utilized.

6. PRIMER APPLICATION

6.1 Purpose. Primer is required to promote adhesion of the non-skid topcoat and enhance the total performance of the non-skid system. The use of any other primer than specified in paragraph 1.2 is strictly prohibited.

6.2 Surface Condition. As specified in paragraph 5 the surface must be free from all contaminants before application of the primer. If any contaminants are present, they must be removed using approved methods.

6.3 Temperature. As specified in 4.2 the primer should be stored between 70° F and 80° F for 24 hours before use. The substrate temperature must be between 40° F and 140° F.

6.4 Mixing. When working with any epoxy system, it is important to remember that an epoxy system is a balanced system. For complete cross-linking to be achieved, exact proportions of each component must be completely and thoroughly mixed. Components come in kit form consisting of a Part A base component epoxy resin and a Part B amine hardener. The proportions are measured to exact weights for each product. It is essential that all of part B material be added to the part A material when mixing a kit. **At no time should a portion of a kit be mixed.** The ratio of the base component and hardener component is very specific. Improper cure will result if the ratio is changed. Pre-mix the base component. Make sure all settlement is lifted off the bottom of the container and is uniformly dispersed in the material. This may take as much as three minutes depending on the material temperature. Pour entire contents of hardener can into base material. Mix hardener and base material with a mechanical mixer for approximately 3-5 minutes.

WARNING: Inadequate mixing will result in soft spots in the application.

6.5 Thinning. Not allowed.

6.6 Spray Application. Airless, air assisted or conventional paint spray equipment may be used.

6.7 Roller Application. Use a short nap mohair paint type roller. Apply uniformly.

6.8 Brush Application. Use a 4" wide thin stock brush.

6.9 Primer Film Thickness. Apply at least two mils DFT above the surface anchor profile.

6.10 Pot Life.

MS-7CZ - 4 Hrs @ 70° F

6.11 Induction Time. No induction time is required.

6.12 Cure. The primer must be tack free before over coating. Allow 12 hours @ 70° F before applying the MS-660G topcoat. The amount of time for curing will decrease with warmer conditions and increase in colder conditions. The non-skid topcoat should be applied within 36 hours of primer application for best results. If top coating is delayed more than 7 days, the area, after cleaning in accordance with paragraph 6.2, should be brush blasted and MS-7CZ reapplied.

Optional – Stripe coating is intended for filling voids, spots and porous metal on deck edges, edges of deck protrusions, and weld beads. Use a brush or roller to apply the stripe coat. The stripe coat may be applied to the prepared metal surface or applied over a full primer coat. The primer may coat the stripe coat while wet, dry or dry to touch. Dry to touch is defined when a fingertip pressed lightly against the coating leaves a slight impression in the coating and no coating is visible on the fingertip.

Important – When using two-coats of primer for additional corrosion resistance, use twice the drying times on the first coat to ensure a full dry. The two-coat primer process is not recommended for CV/CVN tail hook impact areas.

6.13 Humidity. Maximum of 85%.

6.14 Dew Point. Surface temperature must be a minimum of 5° F above the dew point.

7. MS-1600 Flexible Epoxy Membrane

7.1 MS-1600 Flexible Epoxy Membrane is available if the substrate requires leveling or flexibility. Refer to ITW-American Safety Technologies technical data sheets for MS-1600 characteristics and application instructions.

8. NON-SKID APPLICATION

8.1 Substrate. As specified in paragraph 6.2, the primed surface must be free from all contaminants before the non-skid application.

8.2 Temperature. As specified in paragraph 4.2 the non-skid coating should have been stored between 70° F and 80° F for 24 hours before use. The substrate temperature must be between 50° F and 140° F.

8.3 Mixing. Premix the base component. Make sure all settlement is lifted off the bottom of the container and is uniformly dispersed in the material. Pour the entire contents of hardener can/bag into base material. Mix hardener and base material with a mechanical mixer for 3-5 minutes. The material will assume a uniform color and appearance.

Note: The proper blending of the two components is critical to the performance of the coating. Material not thoroughly mixed will not cure properly.

8.4 Thinning. Not allowed.

8.5 Roller Application. In order to achieve the correct profile, the non-skid material must be applied with a napless phenolic roller with a 5' roller handle. Pour a "ribbon" of non-skid material 2' to 3' long and approximately 1' to 2' wide. Roll material in one direction only, in a slow straight stroke pulling material towards you with a moderate amount of pressure on the roller handle.

Borders and other areas where non-skid need not be applied should be taped or masked. The tape is pulled after the non-skid has cured revealing a clean straight line. Borders may then be painted with a proprietary epoxy color topping available from the non-skid manufacturer.

8.6 Pot Life.

MS-660G 4 hours @ 70° F

Pot life is increased at lower temperatures and decreased with higher temperatures.

8.7 Induction Time. No induction time is required.

- 8.8** Cure. Foot traffic: 12 Hrs @ 70° F – Heavy vehicles: 96 Hrs @ 70° F
- 8.9** Humidity. Maximum of 85%.
- 8.10** Dew Point. Surface temperature must be a minimum of 5° F above the dew point.

9. Visual Landing Aids (VLA) and other safety markings.

9.1 MS-200 Acrylic Epoxy Color Topping: Color topping is available in various colors; it is used as a top coat for borders or areas that will not receive non-skid. It is also used for marking safety lines and visual landing aids for aviation applications. As specified in paragraph 5.1 ensure the surface is clean, dry and free of contaminants before application.

9.2 Mixing. Premix the base component in the pail provided. Make sure all the settlement is lifted off the bottom of the container and is uniformly dispersed in the material. Pour the entire contents of hardener can/bag into base material. Mix hardener and base material with a mechanical mixer for 3-5 minutes. The material will assume a uniform color and appearance.

9.3 Induction Time. 30 minutes

9.4 Humidity. Maximum of 85%.

9.5 Dew Point. Surface temperature must be a minimum of 5° F above the dew point.

9.6 Application. Use a short nap mohair roller; apply uniformly. Brush Application; use a 4" wide thin stock brush. Spray Application; conventional, air spray, or airless spray equipment can be used. For additional information refer to the MS-200 technical data sheet.

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