

NAVISTAR, INC.		
Material, Parts, and Process Specifications (MPAPS)		NUMBER: MPAPS G-9015
		Former Designation: TMS-9015
TITLE: Painted Metal Parts for High-Heat Resistance		CURRENT REV No.: 1611
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<i>This specification may involve hazardous materials, equipment, and procedures. This specification does not purport to address all of the safety issues associated with its use. The user is responsible to consult appropriate safety and health practices and to determine the applicability of regulatory limits prior to use.</i>		

1.0 APPLICATION

This specification covers performance and quality requirements for paint finish on metallic components exposed to high operating temperatures up to and including worst-case exhaust aftertreatment regeneration conditions (650°C /1200°F). Specific examples include painted, fabricated steel stanchions, brackets and mount structures which may or may not be designed to carry exhaust gas, that act as support structures for exhaust pipes and aftertreatment devices, ferrous castings with cosmetic requirements that come into contact with exhaust pipes and/or aftertreatment components (excluding engine manifolds), and welds on aluminized steel and aluminized stainless exhaust pipes.

2.0 SCOPE

This specification covers finish classification, pre-paint preparation, dry film properties, test methods, heat and corrosion resistance evaluation, quality requirements, source approval, designation on drawings, and shipping requirements.

2.1 Restricted Chemical Substances

Effective January 1, 2007, all product supplied to the requirements of this specification must comply with the requirements of the MPAPS B-50 specification.

3.0 REFERENCE DOCUMENTS

Unless otherwise specified, the latest issue of all referenced standards shall apply. The following Specifications, Standards, and Regulations are referenced in this specification.

Quality System Standard ISO 9001 or TS-16949	NAVISTAR MPAPS B-50	MIL-P-14105E
CFR Title 29, Part 1910	NAVISTAR MPAPS GT-Paint	SSPC -VIS-2
NAVISTAR Supplier Packing and Shipping Std. D-13	NAVISTAR MPAPS GT-31	
NAVISTAR Engineering Design Std A-16	ASTM B117	

4.0 REQUIREMENTS

4.1 Pre-paint Preparation

All surfaces to be painted, including weld metal and surrounding heat-affected zones (HAZ), shall be free of dirt, oil, grease, rust or other contaminants which may inhibit proper adherence of the high temperature paint. Whenever possible, surfaces to be painted should exhibit “water-break free” characteristics, indicating a clean surface free of oil and other contaminants. An effective post-weld cleaning procedure is to be utilized and should include either an abrasive (e.g., bead blasting or needle

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descaler) or chemical acid etch of the welded areas prior to painting. Additional care should be taken if the welded material is stainless steel to assure that any mechanical means of post-weld cleanup does not contaminate the weld and surrounding areas with iron or other elements which could negatively affect paint adhesion and/or underlying base metal corrosion resistance. The requirement for as-painted parts and assemblies, their weld metal and HAZ is a uniform, continuous paint film with no cracking, peeling, areas of major color change, or other major defects.

4.2 Paint Requirements

4.2.1 Dry Film Properties

4.2.1.1 Thickness

Painted parts and assemblies supplied to this specification must maintain a minimum dry film paint thickness per the paint manufacturer's recommendation, unless otherwise noted and approved by NAVISTAR Materials Engineering.

4.2.1.2 Color

Paint color will typically be black, unless otherwise specified on the engineering drawing.

4.2.1.3 South Florida Exposure

Paint must pass a 6-month South Florida Exposure test per the latest version of MPAPS GT-Paint Method 7F.

4.2.1.4 Water Resistance

Immerse as-painted parts in distilled water at $25 \pm 5^\circ\text{C}$ for 18 hours. At the end of the immersion time, remove the panel from the distilled water and examine the paint film. Parts shall show no wrinkling, blistering, softening, or loss of adhesion. Disregard any change in color.

4.2.1.5 Accelerated Weathering

Accelerated weathering testing per the latest version of MPAPS GT-31 (Method B for 600 kJ) will be carried out and color change evaluated. After testing, a $\Delta E \leq 4$ must be obtained.

4.2.1.6 Humidity

As-painted parts must pass 250-hours humidity testing per the latest version of MPAPS GT-Paint, method 7E (commencing on the fourth step).

4.2.1.7 Corrosion Resistance

Painted parts and assemblies supplied to this specification must pass initial as-painted corrosion resistance requirements. Expose to salt spray for 100 hours in accordance with ASTM B117. Panels must pass with a Rust Grade 7 (S, G, and/or P types) or better per SSPC-VIS-2.

4.3 High Temperature Resistance

4.3.1 Heat Exposure Cycle

Six coated test panels shall be used in this test: four for further testing and one for use as a comparative standard. Three as-received painted parts and assemblies will be subjected to a heat exposure cycle consisting of heating for 8 hours at 400°F , cooling for 16 hours at room temperature; heating for 8 hours at 800°F , cooling for 16 hours at room temperature. Two as-received part/assembly will be subjected to the above heat exposure cycle with the addition of heating for 8 hours at 1200°F , and cooling for 16 hours. Examine the panels at the end of each temperature variation. There shall be no cracking, flaking, or chipping.

4.3.2 Salt Spray

Subject two 800°F heat-exposed panel to 100 hours of salt spray in accordance with ASTM B117. At the conclusion of 100 hours, all major surfaces (excluding tube ends, interior assembly surfaces, and sheared or cut edges) shall exhibit a Rust Grade 6 (S, G, and/or P types) or better per SSPC-VIS-2.

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