

NAVISTAR, INC.		
Material, Parts, and Process Specifications (MPAPS)		NUMBER: MPAPS- G-9008
		Former Designation: <i>TMS-9008</i>
TITLE: Painting Plastic - Interior and Exterior		CURRENT REV No.: 1706
		DATE: June 2017
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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 applies to plastic materials used in NAVISTAR trucks with painted surfaces. The specification covers painted (topcoated) parts both primed and unprimed. All topcoated parts shall meet the MPAPS G-5 requirements as appropriate for the specified paint grade. Typical parts are pillar covers, trim panels, instrument cover pads, instrument panels, fenders, roofs, hoods and grilles. The specification also covers the second surface painting used on decorative parts (MPAPS G-7085).

2.0 SCOPE

This specification covers the qualification and processing, quality, quality control and source approval, and packaging requirements of painted plastic parts.

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 herein.

Quality System Standard <i>ISO 9001 or TS-16949</i>	MPAPS GT-Paint	ASTM D3359
CFR Title 29, Part 1910	ASTM D523	ASTM D 79
NAVISTAR Packing and Shipping Std. D-13	MPAPS GT-31	ASTM D 638
NAVISTAR Eng. Design Std A-16	MPAPS B-50	ASTM G 154
MPAPS G-5	MPAPS G-7085	SAE J400
MPAPS DT-4		

4.0 REQUIREMENTS

This specification is not intended to limit or to specify the exact processes and/or materials to be used in providing plastic parts that are topcoated or primed, ready for topcoating. The control of the primer quality and its application are the responsibility of the plastic supplier. All topcoated plastic parts shall be compatible with all subsequent NAVISTAR paint finishing operations.

4.1 Qualification of Paint/Primers

4.1.1 Material/Process Approvals

The primers used by the supplier must be approved by Materials Engineering to meet the dry film requirements of MPAPS G-5 and/or MPAPS G-9009, prior to their first use in production. In addition,

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parts primed with the materials and applications processes/methods to be used by the supplier shall be approved by Materials Engineering and, after approval, no deviation in materials and/or manufacturing processes are permitted without approval by Materials Engineering.

4.2 Qualification of Paint

4.2.1 Material

The initial qualification tests of paint shall be performed on parts molded from the same material and by the same molding process in which the finished parts are specified. These panels shall be coated with the paint to be tested using the procedure listed below. In cases where a primer is specified in addition to the topcoat, the panels shall contain both coatings applied by the intended production process. These panels shall be submitted to Materials Engineering for approval with the vendor's test results. Final qualification shall be performed on the finished part prior to production release.

4.2.2 Sample Preparation

4.2.2.1 A minimum two (2) parts shall be submitted for qualification for each test.

4.2.2.2 Prior to painting, the samples shall be cleaned with solvents or cleaners as necessary. This operation shall simulate production procedure.

4.2.2.3 The paint/primer shall be applied to a minimum dry film thickness to provide black/grey hiding (Morass chart) per the manufacturer's recommended process.

4.2.2.4 The painted samples shall be cured by means which simulate production procedures. Baking cycles shall not be detrimental to the base plastic.

4.3 Testing

Finish painted parts, primed or unprimed, when topcoated with approved materials will meet the applicable requirements listed in the Table below.

Test	Test Method	Requirements
Adhesion	ASTM D3359, Method B	95% Min.
Accelerated Adhesion*	GT-Paint, Method 5C	95% Min.
Initial Gloss	ASTM D523	Topcoat* – see Section 4.5
Intercoat Adhesion	GT-Paint, 5B	95% Min.
Color Topcoat	GT-Paint, 32	Standard: $\Delta E_{94} \leq 0.5$ Metallic: $\Delta E_{94} \leq 1.0$
Mar Resistance	GT-Paint, 12	No Nail Marks Visible To The Unaided Eye
Gravelometer *	SAE J400	2A as per GT-Paint, Method 7A
Humidity	GT-Paint, 7E (Interior 100 Hours, Exterior 500 Hours)	No Blistering At Conclusion Of Specified Time

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Test	Test Method	Requirements
Accelerated Weathering (Applies to Topcoated Parts Only)	GT-31 QUV Cyclic Ultraviolet Weathering Tester Exterior exposure: Xenon Arc per Method B Method C or D or Interior exposure: Xenon Arc per Method A Method E or F	No Deterioration Or Color Change greater than a ΔE of 3.
Conductivity (Applies to primed parts only.)	GT-Paint, 18	110

* Exterior Parts Only Unless Otherwise Specified

4.4 Processing

Finished painted production parts shall be produced by the same methods used on the qualification samples. Changes in processing must be approved by Materials Engineering.

4.5 Gloss Requirement

Minimum gloss requirements are indicated by suffix letters to the color number in the appearance designation. No suffix will be used when full gloss is required (90 minimum) or when specifying primers and casting sealers. Suffix letters and their respective gloss levels are as follows:

Suffix	60° Gloss	Suffix	60° Gloss	Suffix	60° Gloss	Suffix	60° Gloss	Suffix	60° Gloss
A	85 ± 5	D	55 ± 5	G	25 ± 5	K	15 - 20	N	2 - 5
B	75 ± 5	E	45 ± 5	H	15 ± 5	L	10 - 15		
C	65 ± 5	F	35 ± 5	J	10 ± 5	M	5 - 10		

5.0 QUALITY

Painted parts shall be adherent and uniform in color and texture, with no thin spots, runs, wrinkles, porosity, pits, blisters or nodules.

5.1 Porosity

In instances where porosity is not detectable until after the primed substrate has been painted, isolated cases of porosity as defined in Table 1 shall not be cause for rejection. Porosity that is chronic and requires significant amounts of rework shall be cause for rejection and it is the responsibility of the supplier to correct this condition. The supplier has the responsibility to provide quality primed parts which will not cause delayed defects after finishing in the using plant. This condition will require close cooperation with the paint facility and with Materials Engineering.

5.2 Appearance Requirements

Specific appearance requirements are given in Table 1. Appearance requirements are specified for the following zones or locations on the vehicle:

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