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| <b>NAVISTAR, INC.</b>                                                                                                                                                                                                                                                                                                                   |                                  |                                             |
| <b>Material, Parts, and Process Specifications<br/>(MPAPS)</b>                                                                                                                                                                                                                                                                          |                                  | NUMBER:<br><b>MPAPS G-9017</b>              |
|                                                                                                                                                                                                                                                                                                                                         |                                  | Former Designation: <b>TMS-9017</b>         |
| TITLE:<br><br><b>Gel Coat Properties for Exterior Panels</b>                                                                                                                                                                                                                                                                            |                                  | CURRENT REV No.:<br><b>1802</b>             |
|                                                                                                                                                                                                                                                                                                                                         |                                  | DATE:<br><b>Feb. 2018</b>                   |
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| <b>PRINTED COPIES OF THIS DOCUMENT MUST BE VERIFIED FOR CURRENT REVISION</b>                                                                                                                                                                                                                                                            |                                  |                                             |
| <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 the gel coating process and requirements for fiberglass reinforced plastic (FRP) exterior body panels that will not be finish painted. Typical parts are body side panels, cab rear, fascia, roofs and similar exterior parts.

## 2.0 SCOPE

This specification covers surface appearance and dry film properties of gel coat, inspection, quality control and source approval for coated FRP parts prior to shipment to Navistar. It also includes repair of gel coated surfaces and handling of gel coated 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 in this specification.

ISO 9001/TS 16949 – Quality Management Systems-- Requirements  
 CFR Title 29, Part 1910 – Occupational Health and Safety Standards  
 NAVISTAR ISQ-001-QM – Integrated Supplier Quality Requirements  
 NAVISTAR D-13 – Supplier Packing and Shipping Standard.  
 NAVISTAR MPAPS B-50 – Restricted Chemical Substances  
 NAVISTAR MPAPS G-9012 - IMC Properties for SMC Parts  
 NAVISTAR MPAPS GT-Paint-5A - Adhesion of Paint  
 NAVISTAR MPAPS GT-Paint-5C - Accelerated Adhesion of Paint  
 NAVISTAR MPAPS GT-Paint-7G - Distilled Water Immersion Test For Paint  
 NAVISTAR MPAPS GT-Paint-4D - Hardness of Paint  
 NAVISTAR MPAPS GT-Paint-6B - Initial Gloss of Paint  
 NAVISTAR MPAPS GT-Paint-7E - Humidity Test For Paint  
 NAVISTAR MPAPS GT-Paint-14A - Solvent Rubbing Test

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|--------------------------------|-----------------------------------------------------------------|--------------------------|

NAVISTAR CEMS GT- Paint-28 - Maximum Allowable Paint Chipping Damage  
NAVISTAR MPAPS D-22 - Fiber Glass Reinforced Polymer Materials  
NAVISTAR MPAPS G-9008 - Painting Plastic - Interior and Exterior  
ASTM D 4138 - Standard Practices for Measurement of Dry Film Thickness of Protective Coating Systems by Destructive, Cross-Sectioning Means  
SAE J400 - Test for Chip Resistance of Surface Coatings

#### **4.0 GENERAL REQUIREMENTS**

This specification is not intended to limit or specify the exact process and materials to be used in providing FRP parts ready for installation at Navistar assembly operations. The control of the gel coat quality and its application shall be the responsibility of the FRP part supplier. All gel coated parts supplied must be compatible with the assembly operations employed by the using Navistar facility.

#### **4.1 Acceptance Criteria for Gel Coated Parts**

It is the responsibility of the supplier to ensure, prior to shipment to the using Navistar facility, that all gel coated parts are completely free of visible porosity and other defects, which would cause significant in-house rework. This will require close cooperation between the supplier and the using facility and Materials Engineering. Very minor instances of porosity or fiber read through shall not be considered rejectable. Chronic cases of these defects shall be considered a reject condition. Consult Table I for breakdown of acceptable and unacceptable conditions. It will be the responsibility of the supplier to correct any of these conditions.

#### **4.2 Performance Requirements**

##### **4.2.1 Appearance**

Parts requiring gel coat as its primary exterior coating shall be classified as Zone A, B or C. Zone A shall mean the part is a primary, exterior, glamour surface, which requires the highest cosmetic standards and fewest defects. Examples of such parts are roof exteriors, cab rear doors and cab rear panels. Zone B is a moderately visible surface which can have some defects not permitted in Zone A but still requires high cosmetic standards. Examples of these parts are fender lower surfaces, bumper vertical lips, roof top rear, and underside of steps and air takes. Zone C is the lowest visible part that can have certain defects in defined quantities. Examples are body panels that are hidden, floor undersides. See Table I for breakdown of Zone requirements.

##### **4.2.2 Dry Film Requirements**

Dry film properties are given in Table II. The requirements apply to the gel coat as processed in the mold after cure and part cool down.

##### **4.2.3 Inspection**

Parts shall be inspected as follows: Zone A at eye level, 12-24" distance from 2-foot height to roof sides and rear panels; Zone B at 24-48" distance below 2-foot height for sides and rear; Zone C at 48-96".

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