

NAVISTAR, INC.		
Material, Parts, and Process Specifications (MPAPS)		NUMBER: MPAPS P-9522
		Former Designation: TMS-9522
TITLE: Glazing	CURRENT REV No.: 1701	DATE: Jan. 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 glazing materials used in NAVISTAR vehicles.

2.0 SCOPE

This specification covers general requirements, dimensional tolerances, KCC quality, quality control, source approval, compliance requirements, and designation on drawings.

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	ANSI Z26.1	SAE J674
NAVISTAR Supplier Packing and Shipping Std. D-13	MPAPS B-50	SAE J1796
NAVISTAR Eng. Design Std A-16	MPAPS D-28	SAE J1907
CFR Title 29, Part 1910	FMVSS 205	SAE J2081
Council Directive 92/22/EEC	SAE J100	MPAPS P-9543
United Nations ECE R43	SAE J216	MPAPS K-6927
ASTM C 1279	SAE J673	MPAPS K-6930
MPAPS GT-Paint Method 7F	MPAPS K-6929	MPAPS K-6045
CMVSS 205	MPAPS GT-31	

4.0 GENERAL REQUIREMENTS

4.1 Glazing

4.1.1 Legislative Compliance

Glazing shall comply with Federal Motor Vehicle Safety Standard 205 (FMVSS 205) and Canadian Motor Vehicle Safety Standard 205 (CMVSS 205) - Glazing Materials, and such other Federal requirements as may be applicable. It shall also comply with the applicable glazing codes of each state or Canadian province.

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4.1.2 Export Compliance

All glazing designated for export, either as individual parts or on an assembled vehicle, shall conform to the safety standards of the country for which the sale is intended and the requirements of United Nations ECE R43 or COUNCIL DIRECTIVE 92/22/EEC, where applicable. Glazing shall comply with the applicable laws, regulations, codes, and practices of each state or province in effect at the time the safety glass is manufactured.

4.1.3 Performance Requirements

Glazing materials shall meet all applicable requirements of American National Standard Z26.1 (ANSI Z26.1), SAE J100, SAE J216, SAE J673, and SAE J674, and test procedures in SAE J1796, SAE J1907, and SAE J2081.

4.1.3.1 Stress Requirements

4.1.3.1.1 Method: Analyze stress per ASTM C 1279.

4.1.3.1.2 Required: The edge stress in laminated products shall be between 8 to 33 MPa as read at the edge using methods of ASTM C 1279 for extrapolation. Samples of 15 points evenly spaced around the perimeter are generally acceptable although other methods of sampling shall be by agreement between the manufacturer and Materials Engineering. The remainder of the glass shall have a maximum tensile stress of 7 MPa with a smooth transition of stress throughout the part. Sampling shall follow the same pattern as above measured inward until the peak tensile value is found.

4.1.3.2 Chip Resistance

4.1.3.2.1 Method: Front windshields supplied to this specification shall meet the following minimum chip resistance when tested on the exterior surface of a production part. A 27 mm smooth steel ball with a mass of 85 grams shall be dropped freely from rest from a minimum of 8 meters perpendicular to the surface of the glass. The ball shall only be allowed to hit the glass once. Multiple tests may be performed different areas of the same glass so long as the impact is not in the same effected zone of another impact. The number of test specimens, impacts and sample rate shall follow good statistical practice and process control.

4.1.3.2.2 Required: There shall be no cracking, crazing or chipping the glass. Any mark or scratch shall be only superficial and not be noticeable or objectionable to a user.

4.1.4 Rigid and Flexible Plastic Glazing

4.1.4.1 Legislative Compliance

Rigid and flexible plastics used on standee windows in busses shall comply with FMVSS 205 and CMVSS 205 as applicable, and with the applicable glazing codes of each state or Canadian province.

4.1.4.2 Performance Requirements

Plastic shall meet all applicable performance requirements according to ANSI Z26.1 and SAE J2081.

4.2 Ceramic Coating

When specified on the engineering print, the glazing shall be supplied with a ceramic coating (frit) applied to the inside surface of the glass to trademark, to provide a decorative appearance, and to prevent light transmittance.

4.2.1 Color

The color shall be NAV0004N Low Gloss Black. The color and luster shall match the master sample retained and approved by NAVISTAR.

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4.2.1.1 Weather Resistance

4.2.1.1.1 Method: Exposed material for 12 months at 5° south in either south Florida or Arizona per MPAPS GT- Paint Method 7F as modified for this material. An alternate, interim test method while the previous testing is in progress shall be 1200kJ per MPAPS GT-31 Method B.

4.2.1.1.1 Required: There shall be no objectionable color or gloss change.

4.2.2 Light Transmittance

The maximum light transmittance (spectral %) of solid band of ceramic frit shall be 2.0% when measured within the spectrum of 400-700 nm per SAE J1976. Use illuminant c (daylight), standard observant angle CIE 2° and report the tristimulus value y.

4.2.3 Adhesion

The adhesion of the coating to the glass shall be sufficient to insure the coating does not fail during vehicle performance tests. Vehicle performance tests shall be specified by NAVISTAR. Adhesion of primers and adhesives to the ceramic coating shall comply with MPAPS K-6927. Pre-primed assemblies shall comply with the packaging and handling requirements of MPAPS K-6927.

4.2.4 Acid Resistance

4.2.4.1 Method: Allow a 3.5% by weight hydrochloric acid solution to sit on clean frit for 5 minutes at standard lab conditions. Remove with a clean white, lint-free paper cloth.

4.2.4.2 Required: There shall be no visible transference to the paper cloth and the frit shall remain unchanged.

4.2.5 Location

The solid band area shall be as shown on the drawing. A clear border shall be 1.5 mm ± 1.5 mm from edge of glass and is not shown on the engineering print.

4.3 Pre-Primed Glass

Glass intended for production bonding applications may be designated as having an adhesion primer applied in the areas indicated on the engineering print. This primer shall meet the requirements of MPAPS K-6927. Once the glass primers have been pre-applied to the fritted glass, it must be kept contamination free throughout all application, packaging, shipping, and NAVISTAR processes.

4.3.1 Shelf-Life

Pre-primed glass has a shelf-life/open-time of 90 days. It is expected that glass received at International facilities shall have a minimum of 60 days remaining shelf life unless other arrangements are made with the receiving facility. If this material has expired, the glass may be re-primed once per 4.3.2.

4.3.2 Re-Prime

A maximum of one re-prime is allowed and only re-prime with black-out. An approved solvent wipe followed by a re-prime of black-out primer is recommended if gross contamination is seen on the primed surface, see MPAPS K-6927.

4.3.3 Labeling

Pre-primed glass shall be supplied with a label containing the glass priming date, the shipment date, and the expiration date.

4.3.4 Material Storage

Pre-primed glass shall be stored at ambient temperature below 35° C (95° F) away from all sources of heat, direct sunlight, and ultraviolet light. The primer exhibits a marked decrease in storage life when not stored under stated conditions. Materials stored at temperatures below 21° C (70° F) shall be conditioned at ambient temperatures prior to adhesive or primer application. Due to storage life limitations, inventory must be rotated continually (first-in, first-out) and kept to a minimum. If a partial

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