

NAVISTAR, INC.		
Material, Parts, and Process Specifications (MPAPS)		NUMBER: MPAPS- D-7121
		Former Designation: TMS-7121
TITLE: Soft Interior Trim and Seating Materials		CURRENT REV No.: 1801
		DATE: Jan. 2018
WRITTEN/EDITED BY: J. Jamison	APPROVED BY: R. Goluch	SUPERSEDES: Rev. 1606 – June 2016
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SOFT INTERIOR TRIM AND SEATING MATERIALS – PART 1

1.0 APPLICATION

This specification covers soft materials suitable for use in seat upholstery and trim.

2.0 SCOPE

This specification covers all TPO, vinyl coated trim and fabric products. Part 1 of the specification describes general and performance requirements, which pertain to all products. Qualification, quality control and source approval, and shipping and identification requirements, common to all products are also included in Part 1. Specific requirements for individual fabrics, such as finished weight, strength, abrasion resistance, etc., for each fabric type (Type A, Type B, etc.), are covered in Part 2 of this specification.

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 <i>ISO 9001 or TS-16949</i>	FMVSS 571.302	ASTM D 3884
NAVISTAR Supplier Packing and Shipping Std. D-13	AATCC Color Transf. Chart	SAE J323
CFR Title 29, Part 1910	AATCC Evaluation Proc. 1	SAE J855
NAVISTAR MPAPS B-50	ASTM D 123	SAE J860/861
NAVISTAR MPAPS D-7005	ASTM D 751	SAE J882
NAVISTAR MPAPS D-7028	ASTM D 1239	SAE J912
NAVISTAR MPAPS P-9543	ASTM D 2097	
NAVISTAR MPAPS P-9544	ASTM D 2136	
NAVISTAR MPAPS GT-31		
National School Transportation Specifications and Procedures *		

*** National School Transportation Specifications and Procedures is available from:**

Missouri Safety Center - Central Missouri State University
Humphreys Suite 201, Warrenburg, MO 64093
Phone: (660) 543-4830

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Part 1

3.1 Definitions

For definition of terms relating to textiles and fabric products see ASTM D 123.

4.0 REQUIREMENTS

All product supplied shall meet requirements shown in Part 1 and in addition shall meet the requirements for the specific product type (Type A, Type B, etc.) as shown in Part 2.

4.1 Reproducibility

Color, texture and finish of production material supplied must match master samples of the pre-production material originally approved and on file in the Master Fabric Book at the International TDTC, Industrial Design Department.

4.2 Material Lay (excluding hides)

Material must be fabricated in such a manner that wrinkles or fullness shall not occur between edges when material is rolled out on a flat surface and in a straight line for a minimum length of 17.4 m (19 yd). Material must be rolled with fabric side out.

4.3 Leather

The hides shall be dyed on both sides and tanned to retain the natural odor of the leather and shall be essentially free from defects or blemishes, such as brush marks or stops and bad flows which might affect its appearance.

4.4 Performance Requirements

Material shall be conditioned for test in accordance with ASTM D 751.

4.4.1 Low Temperature Bend Test: ASTM D 2136 or SAE J323, Method A

4.4.1.1 Procedure: Bend around a 3mm (1/8 in) diameter mandrel after 4 hours at -30° C (-22° F).

4.4.1.2 Required: The coating shall remain flexible and not crack or check.

4.4.2 Accelerated Weathering per MPAPS GT-31

All materials shall qualify to one of the two following tests:

4.4.2.1 Fluorescent UV: per Method F, 200 hours

4.4.2.2 Xenon Arc: per Method A *Note: Type A, B, R and S may be qualified only by Xenon Arc*

4.4.2.2.1 Procedure: Interior cycle, 1240 kJ/m² min for Type A, 640 kJ/m² for Type B and Type S; 1280kJ/ m² for Type R; and 600 kJ/m² for all other types.

4.4.2.3 Required (Either Method): There shall be no signs of color alteration greater than a ΔE of 3, plasticizer migration, decreased pliability or tackiness after exposure. Min. rating of 3.0 per AATCC Eval.-Procedure 1.

4.4.3 Blocking: SAE J912

4.4.3.1 Procedure: Expose samples for thirty minutes at 80° C (176° F) under 3kPa (0.44 psi).

4.4.3.2 Required: The coated surface shall show no evidence of adhering, exuding or permanent damage upon rapid separation.

4.4.4 Plasticizer Volatility (except hides)

4.4.4.1 Method: Heat material for 5 hours at 104° C (220° F) in a forced convection oven. Cool in desiccator.

4.4.4.2 Required: No appreciable change in material pliability, and weight loss shall not exceed 2%.

4.4.5 Flammability Resistance: FMVSS 571.302

Material supplied shall conform to and be certified by the supplier to meet Federal Motor Vehicle Safety Standard #302-Flammability of Interior Materials and requirements of MPAPS P-9544.

4.4.6 Colorfastness to Rubbing: SAE J861

4.4.6.1 Method: Perform crocking test dry, wet, and with 100% petroleum naphtha (Hides are excluded from the petroleum naphtha).

4.4.6.2 Required: Minimum AATCC Rating of 4.

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Part 1

4.4.7 School Bus Seat Upholstery Fire Block Test

School bus material supplied to this specification, specifically Types M, M-2, N, N-2 and P, shall conform to and be certified by the supplier to meet School Bus Seat Upholstery Fire Block Test described in the latest release of the National School Transportation Specifications and Procedures*, and will meet the requirements of MPAPS P-9544.

5.0 QUALITY

Material shall be free from objectionable odor, have flexibility necessary for good tailoring, be uniform in quality, and match the color and finish of preproduction approved samples.

5.1 Qualification

Materials and processes submitted for approval to this specification shall include the following:

5.1.1 Report: A detailed and signed report documenting testing to this specification prepared as per MPAPS P-9543. The report will include actual test data and not merely test summaries.

5.1.2 Failure Modes: Test samples or photographs showing failure modes for each destructive test.

5.1.3 Test Procedure: The procedures used for preparing and testing material.

5.1.4 Analysis: A detailed analysis of the test results including assumptions made, unexpected results and an explanation of any non-compliant results.

5.1.5 Material: Pre-production material sufficient for complete test and evaluation by International.

5.2 Receiving Inspection Tests

The following tests are recommended for receiving inspection; color, grain, finish, tensile strength, tear strength, weight, and low temperature resistance.

6.0 SOURCE APPROVAL AND QUALITY CONTROL

6.1 Supplier Requirements

All suppliers to NAVISTAR are subject to the requirements defined in ISQ-001-QM- *NAVISTAR Integrated Supplier Quality Requirements*. Suppliers must be compliant with ISO 9001 or TS 16949 and fulfill all AIAG PPAP (Production Part Approval Process) documentation and all approval requirements as indicated in NAVISTAR ISQ-001-QM.

6.2 Approval

Parts supplied against contracts or purchase orders citing this specification shall be equivalent in all respects to those samples which were approved by the purchaser. No changes in formulation or processing practices are permitted without approval. In the event that changes in material, properties, processing practices, construction, color, or labeling of the product are required, the supplier shall notify NAVISTAR Integrated Supplier Quality (ISQ) of the proposed change(s) by contacting their Navistar Supplier Quality representative or sending an email to ISQ@navistar.com. Test data indicating conformance to all requirements of this specification, test samples, and new or amended or updated SDS Safety Data Sheet(s) (formerly MSDS) in accordance with CFR Title 29, Part 1910, shall be submitted with the request for change.

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Part 1

6.3 Process Control

The supplier shall either perform and report results of tests on specific lots of parts produced using ISO 9001 or TS-16949 guidelines, or provide statistical evidence of the lot having been produced in a state of statistical control and with a process capable of providing all required properties. The part supplier and the plant metallurgist and/or the quality control manager of the using NAVISTAR plant may determine testing and reporting requirements on specific products.

7.0 SHIPPING, PACKING AND IDENTIFICATION

Loading, packing and identification shall be in accordance with Navistar Supplier Packing and Shipping Standard D-13. Parts shall be packaged so as to avoid any damage in shipment detrimental to the appearance of the part.

7.1 Identification

7.1.1 Roll Goods for Seat and Trim

Back of material shall bear manufacturer's initials or trademark in letters a minimum of 12.7 mm (1/2 in) in height, with the month and year of fabrication, with an approved marking to indicate flame retardance, equally spaced a minimum of four times across the width with linear spacing of not more than 30 cm (12 in). Marking compound must be permanent, clearly legible and of such composition that it shall not transfer to the face of the material when rolled.

7.1.2 Hides, Veneer, and Back Printed Fabric

Each roll or hide shall be suitably tagged or identified with the manufacturer's initials or trademark, month and year of fabrication, and an approved marking to indicate flame retardance.

8.0 DESIGNATION ON DRAWINGS

Trim Material per MPAPS D-7121, Type A (or other Type as applicable)

9.0 APPROVED SOURCES

See Master Fabric Book in Navistar IPD Industrial Design Department for approved sources.

10.0 TECHNICAL INFORMATION

For further information related to the technical content of this specification, contact:	Suppliers may purchase controlled copies of this specification by contacting:
Materials Engineering and Technology Dept. 10400 W. North Avenue Melrose Park, IL 60160 E-mail: MaterialsEngineering@Navistar.com	IHS Markit Inc. 15 Inverness Way East Englewood CO 80112-5776 Phone: 1-800-854-7179 E-mail: Automotive@IHS.com Website: http://global.ihs.com

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Part 2

11.0 INDIVIDUAL MATERIAL REQUIREMENTS

All materials supplied shall meet requirements of Part 1 and in addition shall meet the individual requirements for the type as shown in Part 2. Any material used in a bonded, laminated or dielectric application shall, in addition, meet the composite requirements of MPAPS D-7028.

11.1 Test Methods

The following test methods are used to define individual properties of each material Type. Unless otherwise indicated, values listed in Part 2 are minimum requirements.

11.1.1 Tensile Strength:

11.1.1.1 For Type L: ASTM D 882

11.1.1.2 All other types: ASTM D 751, Grab Method

11.1.2 Tear Strength: ASTM D 751, Tongue Method or ASTM D 751, Trapezoid Method

11.1.3 Finished Weight: SAE J860

11.1.4 Thickness: SAE J882

11.1.5 Flex Testing of Finish: ASTM D 2097

11.1.6 Stretch and Set: SAE J855

11.1.7 Colorfastness to Perspiration: AATCC Test Method 15

11.1.8 Hexane Extractables: ASTM D 1239

11.1.9 Staining Resistance, Hydrogen Sulfide Gas: SAE J322

11.1.10 Seam Strength:

11.1.10.1 For Type L: ASTM D 882

11.1.10.2 All other types: ASTM D 751, Using thread per MPAPS D-7005, 2 stitches/cm with a lock stitch under 26.5 N (6 lb) tension.

11.1.11 Abrasion: ASTM D 3884, Rotary Platform, Double Head Method (Taber Abrader). Method 1, 2, or 3 will be indicated in individual requirements for each fabric type.

11.1.11.1 Method 1: 1000 grams, 1000 cycles, CS-17 wheel.

11.1.11.2 Method 2: 500 grams, 500 cycles, H-18 wheel

11.1.11.3 Method 3: 500 grams, 100 cycles, CS-10 wheel.

11.1.11.4 Method 4: 250 grams, 500 cycles, CS-17 wheel

11.1.11.5 Required: There will be no appreciable color change of the abraded surface and appearance will be comparable to the approved master samples. Weight loss in Method 2 will not exceed 0.07 grams.

INDIVIDUAL MATERIAL REQUIREMENTS

12.0 TYPES A & B

12.1 Application

12.1.1. Type A - Dash Cover

An expanded, polyvinyl chloride resin or polyvinyl chloride/ABS blend, compounded and plasticized to be flexible and tack free, used in automotive style dash pads. This film is usually thermal formed with structural foam injected behind it.

12.1.2 Type B - Vacuum Formable

A solid, polyvinyl chloride resin or polyvinyl chloride/ABS blend, compounded and plasticized to be flexible and tack free used in trim applications. Suitable for vacuum forming.

12.1.2.1 Type B-1 – Vacuum Formable

Similar to Type B only lighter in weight, vacuum formed and used for door interiors.

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