

NAVISTAR, INC.		
Material, Parts, and Process Specifications (MPAPS)		NUMBER: MPAPS K-6928
		Former Designation: TMS-6928
TITLE: Sealant, Preformed Patches		CURRENT REV No.: 1610
		DATE: Oct. 2016
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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 outlines the requirements of three types of preformed sealant patches. All types will be supplied in precut shapes and sizes as described on the engineering drawing. When applicable, mass per unit area* (See Section 3.1), will also be specified on the engineering drawing.

2.0 SCOPE

This specification covers the general requirements, property and performance requirements, quality, source approval and quality control.

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	SAE J243
CFR-Title 29, Section 1910	SAE J912
NAVISTAR Supplier Packing and Shipping Std. D-13	SAE J1679
NAVISTAR Eng. Design Std. A-16	ASTM B117
NAVISTAR MPAPS B-50	ASTM D5
NAVISTAR MPAPS P-9543	ASTM D792
NAVISTAR MPAPS B-6815	ASTM D2247
NAVISTAR MPAPS G-9013	ASTM G53

3.1 Description of types

3.1.1 Type I: This is an extrudable EPDM based sealer to be used in conjunction with mechanical fastening devices such as bolts, studs, rivets, stamped nuts, etc., and is intended to serve as a sealant against moisture, dust and air intrusion.

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3.1.2 Type II: This is a constrained layer, elastomeric-based sealant patch used on body panels or drain hole cover plates to bridge and seal openings in cab construction. This type possesses a minimum, mass per unit area*, sufficient to prevent noise, moisture, dust and air intrusion through cab openings.

3.1.3 Type III: This type is an extrudable, pressure sensitive, mastic used as a noise and vibration dampening constraining layer. It also possesses a minimum, mass per unit area*, sufficient to provide noise and vibration dampening.

3.1.4 Type IV: Same as Type I, but having a mastic/pressure-sensitive-adhesive (PSA) backing.

3.1.5 * Definition: as used herein the term, Mass per Unit Area*, is defined as the product of, the material density and (part) thickness and is numerically equal to the weight or mass of the part divided by its surface area. It is intended to provide a minimum and consistent level of sound attenuation for each part or sealant patch.

4.0 GENERAL REQUIREMENTS

The materials shall be smooth and homogenous mixtures, free of air, lumps, unmixed particles and foreign materials. They will be compatible with all NAVISTAR paint shop operations. In all cases, the bonded adhesive strength shall exceed the cohesive strength of the sealant.

4.0.1 Type I & IV materials shall provide a clean, smooth seal. When torque loss is of concern, it is necessary that all mechanical fasteners be sufficiently torqued to provide metal-to-metal contact of the fastener components, as the sealant does not maintain torque when subjected to heat, humidity and pressure.

4.0.2 Type II & III materials shall produce a tough, rubbery seal that retains both adhesion and flexibility throughout its service life. They may be extruded on a suitable polyethylene, polyester or aluminum film or cover plate for ease of application and can be supplied with or without a suitable release paper.

4.1 PROPERTY AND PERFORMANCE REQUIREMENTS

Unless otherwise specified, requirements described herein are applicable to all types.

4.1.1 Solids

4.1.1.1 Method: SAE J243 Procedure ADS-7

4.1.1.2 Required: 98% minimum.

4.1.2 Specific Gravity

4.1.2.1 Method: ASTM D792

4.1.2.2 Required: Types I & IV: 1.0-2.0

4.1.2.3 Required Type II & III: 0.9-1.5 typical; however these values may be adjusted to meet mass requirements 4.1.3.

4.1.3 Mass per Unit Area* (Types II & III only)

The mass per unit area* will be specified on the engineering drawing. Mass per unit area* must be reported by the supplier at time of initial material submission for approval and shall thereafter be maintained within $\pm 10\%$ of approved sample value.

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4.1.4 Odor

It shall be the supplier's responsibility to determine that the constituent materials and finished product are deemed to be non-objectionable and meet all safety standards.

4.1.5 Compatibility With Sheet Metal Processing Lubricants (Type II & III only)

4.1.5.1 Method: Prepare panels for adhesion testing as per MPAPS B-6815 using approved lubricants. After coated panel has dried for 24 hours, apply a 15 cm long section of the extrusion to the panel. Age the panel for 30 minutes at 204° C and let cool.

4.1.5.2 Required: The adhesion shall be greater than the cohesive strength of the material when an attempt is made to peel or strip the extrusion from the prepared panel.

4.1.6 Penetration

4.1.6.1 Method: ASTM D5 Penetration Method, 100g T.M.L., 5 sec, 25 ± 1° C

4.1.6.2 Required: 2.0 – 15.0 mm

4.1.7. High Temperature Stability

4.1.7.1 Method: Prepare five production representative samples and age as described in Table 1 for body, paint shop or trim line applications. Heat age samples in a mechanical convection oven for 336 hr at 70 ± 2° C.

4.1.7.2 Required: Material shall not flow, crack, and show loss of flexibility or other indications of degradation. Additionally, material shall not shrink greater than 5%.

4.1.8 Low Temperature Stability

4.1.8.1 Method: Prepare five production representative samples and age as described in Table 1 for body shop, paint shop or trim line applications. Age samples for 336 hr at -29 ± 2° C.

4.1.8.2 Required: Material shall not crack or show other indications of degradation.

4.1.9 Environmental Aging (Type I & IV only)

4.1.9.1 Method: Perform 250 hours QUV-B (FS40 bulbs) test as per ASTM G53.

Cycle = 8 h UV @ 60 ± 2° C
4 h dark condensing humidity @ 50 ± 2° C
repeat cycle for test duration.

4.1.9.2 Required: Material shall not flow, crack, show loss of flexibility, show loss of sealing capabilities, or other indications of degradation. Additionally, sealant shall cause no discoloration to painted surfaces and compare favorably with the adjoining painted metal surface where no sealant has been applied.

4.1.10 Corrosion (Type I & II only)

4.1.10.1 Method: Prepare five production representative samples and age as described in Table 1 for body shop, paint shop or trim line applications. Test per ASTM B117 salt spray test for 240 hours.

4.1.10.2 Required: Material shall not flow, crack, show loss of flexibility, show loss of sealing capabilities, or other indications of degradation.

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