

NAVISTAR, INC.		
Material, Parts, and Process Specifications (MPAPS)		NUMBER: MPAPS K15-5012
		Former Designation: <i>EMS D15-5012</i>
Silicone Rubber RTV		CURRENT REV No.: 1404
		DATE: April 2014
WRITTEN/EDITED BY: Materials Engineering	APPROVED BY: Materials Engineering	SUPERSEDES: EMS D15-5012 - April 2000
PRINTED COPIES OF THIS DOCUMENT MUST BE VERIFIED FOR CURRENT REVISION		
<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>		
Change Notice: Change to new MPAPS format; revised Type 3 material properties; editorial changes.		

1.0 APPLICATION

This specification covers silicone rubber RTV material intended for use with engine lubricants. This material is not recommended for sealing ethylene glycol and water applications. The material recommended operating range is - 54°C (-65°F) to 204°C (400°F).

2.0 SCOPE

This specification covers requirements for a room temperature vulcanizing (RTV), non-corrosive, one part silicone rubber for use with as “formed-in-place gaskets” (FIPG) in engines manufactured by Navistar.

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	ASTM D792
CFR Title 29, Part 1910	ASTM D2240
NAVISTAR Manufacturing Std. MS-D-13	ASTM D412
NAVISTAR Engineering Design Std A-16	ASTM D471
NAVISTAR MPAPS B-50	

4.0 MATERIAL REQUIREMENTS

4.1 Type I Material

4.1.1 Mechanical and Physical Properties

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4.1.1.1 Uncured Properties

<u>Properties</u>	<u>Spec.</u>	<u>Test Method (latest issue)</u>
Color	Lt. Gray	
Cure System	Amine	
Extrusion rate, g/minute	175	3.175mm (.125") nozzle @ 620 kPa (90 psi)
Skin over time, minutes @ 25°C (77° F) @ 50% R.H.	15	
Cure through time, hours	24	3.175mm (.125") dia. bead 25° C (77° F) and 50% R.H.

4.1.1.2 Cured Properties

<u>Properties</u>	<u>Spec.</u>	<u>Test Method (latest issue)</u>
Specific gravity @ 25° C (77° F)	1.36 ± .04	ASTM D792
Durometer hardness, Shore A	10 - 25	ASTM D2240
Tensile strength, min.	1240 kPa (180 psi)	ASTM D412 Die C
Elongation, % min.	600	ASTM D412 Die C
Rupture, (cohesive)	620.5 kPa (90 psi) 25 sec min. to rupture	Lap shear adhesion CRS coupon, clean 25.4mm (1") X 25.4mm (1") overlap with 1.524mm (.06") bondline, 14 day cure @ room temp. and 50% ± 20% R.H. 1.524mm (1") per minute with an instron or equiv.
Oil Immersion		
Change in hardness, points	± 5	ASTM D471, No. 1 oil 70h @ 150° C (302° F)
Change in tensile strength, max. %	- 20	
Change in ultimate elongation, max. %	- 25	
Change in volume, %	± 10	

4.2 Type II Material

4.2.1 Mechanical and Physical Properties

4.2.1.1 Uncured Properties

<u>Properties</u>	<u>Spec.</u>	<u>Test Method (latest issue)</u>
Color	Gray	
Cure System	Alkoxy	
Extrusion rate, g/minute @	48	3.175mm (.125") nozzle 620 kPa (90 psi)
Skin over time, minutes @ 25° C, 50% R.H.	5	
Cure through time, hours	24	6.35mm (.25") dia. bead 25° C (77° F) and 50% R.H.
Green strength		To be developed

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