

NAVISTAR, INC.		
Material, Parts, and Process Specifications (MPAPS)		NUMBER: MPAPS K-15-5014
		Former Designation: N/A
TITLE: EPDM Material For Molded Seals		CURRENT REV No.: 1508
		DATE: August 2015
WRITTEN/EDITED BY: G. Svidron	APPROVED BY: R. Goluch	SUPERSEDES: NEW
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: New Specification		

1.0 APPLICATION

This specification is for molded, elastomeric seals made of a terpolymer of ethylene propylene and a diene third monomer used for cross-linking. (EPDM).

2.0 SCOPE

This specification covers the physical properties and other requirements used to demonstrate specific EPDM compound numbers (formulations) are compatible with given fluids within a given temperature range. EPDM is typically used in cooling systems as it generally performs well in ELC, has excellent low temperature properties and good life characteristics in typical cooling system temperature ranges.

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

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August 2015



Documents

Page 1 of 9
Document Sharing Hub

NUMBER: MPAPS K-15-5014	TITLE: EPDM for Molded Seals	REVISION: 1508
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4.0 REQUIREMENTS

TYPE O-RING CROSS-SECTIONAL DIA. (NOM.)	1					2				
	0.070	0.103	0.139	≥0.210	0.25" Button	0.070	0.103	0.139	≥0.210	Button
ASTM D2000 Line Callout	M3DA710A26B36C32F19G11					M3DA710A26B36C32EA14F19G11				
Original Properties										
Hardness, Points Shore A	---	---	---	---	70+/-5	---	---	---	---	70+/-5
Tensile Strength, psi, min.	---	---	---	---	1450	---	---	---	---	1450
MPa, min.	---	---	---	---	10	---	---	---	---	10
Ultimate Elongation, % min.	---	---	---	---	200	---	---	---	---	200
Modulus @ 100% Elongation	---	---	---	---	---	---	---	---	---	---
psi, min.	---	---	---	---	---	---	---	---	---	---
MPa, min.	---	---	---	---	---	---	---	---	---	---
Specific Gravity	---	---	---	---	---	---	---	---	---	---
Compression Set 70 Hrs. @ 125°C (257° F), % max.	---	---	---	---	25 (22h@150C)	---	---	---	---	25 (22h@150C)
Air Age 70 hrs. @ 150° C (302° F) ASTM D573										
Hardness Change, Points Shore A, max.	---	---	---	---	+10	---	---	---	---	+10
Tensile Change, % max.	---	---	---	---	-20	---	---	---	---	-20
Elongation Change, %max.	---	---	---	---	-20	---	---	---	---	-20
Fluid Immersion, Water/Ethylene Glycol 50/50 - 70 Hrs. @ 100° C (212° F) per ASTM D471										
Hardness Change, Points Shore A	---	---	---	---	---	---	---	---	---	---
Tensile Change, % max.	---	---	---	---	---	---	---	---	---	---
Elongation Change, %, max.	---	---	---	---	---	---	---	---	---	---
Volume Change, %	---	---	---	---	---	---	---	---	---	---
Water Immersion, 70 Hrs. @ 125°C (257° F) per ASTM D471										
Hardness Change, Points Shore A	---	---	---	---	---	---	---	---	---	---
Tensile Change, % max.	---	---	---	---	---	---	---	---	---	---
Elongation Change, %, max.	---	---	---	---	---	---	---	---	---	---
Volume Change, %	---	---	---	---	---	---	---	---	---	---
Water/ Glycol and O.A.T and non O.A.T (Hybrid) Coolants Immersion (1:1 by Vol) 70 Hrs. @ 125° C (257° F) per ASTM D471					1:1 OAT:H2o (100°C)					1:1 OAT:H2o (100°C)
Hardness Change, Points Shore A	---	---	---	---		---	---	---	---	
Tensile Change, % max.	---	---	---	---		---	---	---	---	
Elongation Change, %, max.	---	---	---	---		---	---	---	---	
Volume Change, %	---	---	---	---	+/-10	---	---	---	---	+/-10

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August 2015

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TYPE O-RING CROSS- SECTIONAL DIA. (NOM.)	1					2				
	0.070	0.103	0.139	≥0.210	0.25" button	0.070	0.103	0.139	≥0.210	
TR-10, Low Temperature Retraction 10% Return, ASTM D-1329 (original parts only)	---	---	---	---		---	---	---	---	
Tear Strength ASTM D624, DIEB										
lbs/in, min	---	---	---	---	---	---	---	---	---	
KN/m, min	---	---	---	---	17.0	---	---	---	---	17.0
CSR										
Long life coolant concentrate, ethylene glycol base, MPAPS B-1, Type III										
@500 Hrs	---	---	---	---	53.1	---	---	---	---	60.2
@ 1000 Hrs	---	---	---	---	44.6	---	---	---	---	51.8
@ 1500 Hrs	---	---	---	---	47.7	---	---	---	---	48.3
@ 2000 Hrs	---	---	---	---	44.4	---	---	---	---	49.6
@ 2500 Hrs	---	---	---	---	40.5	---	---	---	---	49.1
@ 3000 Hrs	---	---	---	---	42.9	---	---	---	---	49.2
Long life coolant concentrate, ethylene glycol base, MPAPS B-1, Type IIIA										
@500 Hrs	---	---	---	---	---	---	---	---	---	---
@ 1000 Hrs	---	---	---	---	---	---	---	---	---	---
@ 1500 Hrs	---	---	---	---	---	---	---	---	---	---
@ 2000 Hrs	---	---	---	---	---	---	---	---	---	---
@ 2500 Hrs	---	---	---	---	---	---	---	---	---	---
@ 3000 Hrs	---	---	---	---	---	---	---	---	---	---

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