

NAVISTAR, INC.		
Material, Parts, and Process Specifications (MPAPS)	NUMBER: MPAPS K-15-5009	
	Former Designation EMS D15-5009	
TITLE: Polytetrafluoroethylene (PTFE) Seal Material	CURRENT REV No.: 1510	DATE: Oct. 2015
WRITTEN/EDITED BY: G. Svidron	APPROVED BY: R. Goluch	SUPERSEDES: Rev. G- Dec. 2003
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: Convert to MPAPS system and miscellaneous editorial changes.		

1.0 APPLICATION

This specification covers materials intended for use with diesel engine lubricating oil, fuel and air.

2.0 SCOPE

This specification covers requirements for a polytetrafluoroethylene (PTFE) blended compound. This material can operate between -93° C to 260° C (-200° F to +500° F).

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 CEMS 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 CEMS B-50

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4.0 MATERIAL REQUIREMENTS (ASTM Standards, latest issue)

4.1 Type I - Main Seal Element:

Glass Fiber with Molybdenum disulfide Reinforced PTFE

Tensile Strength, Mpa (psi) Min.	17.9 (2,600)	ASTM D1457 ⁽¹⁾
Elongation, % Min.	200.0	ASTM D1457
Specific Gravity	2.16 - 2.28	ASTM D792
Glass Fiber, %	3.0 - 7.0	Method A ⁽²⁾
MoS ₂ , %	3.0 - 7.0	Method A ⁽²⁾
Color	Black	

4.2 Type II - Excluder Element:

Glass Fiber with Pigmentation Reinforced PTFE

Tensile Strength, Mpa (psi) Min.	13.8 (2,000)	ASTM D1457 ⁽¹⁾
Elongation, % Min.	160.0	ASTM D1457
Specific Gravity	2.14 - 2.26	ASTM D792
Glass Fiber + Pigmentation, %	10.0 - 20.0	Method B ⁽²⁾
Color	Yellow	

4.3 Type III - Excluder Element:

Ryton and Carbon Graphite Reinforced PTFE

Tensile Strength, Mpa (psi), Min.	15.8 (2,300)	ASTM D1414 ⁽³⁾
Elongation, % Min.	150	ASTM D1414
Specific Gravity	2.02 - 2.10	ASTM D792
%, Filler	7.13	Method B ⁽²⁾
Color	Black	

4.4 Type IV – Seal, Radial:

Tensile Strength, Mpa (psi) min.	17.2 (2500)	ASTM D4894
Elongation, % min.	200	ASTM D4849
Specific Gravity	2.14 - 2.26	ASTM D792
Glass Fiber & Pigmentation, %	12 – 20	
	Green	

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4.5 Type V – Seal, Radial:

Tensile Strength, Mpa (psi) min.	17.2 (2500)	ASTM D4894
Elongation, % min.	200	ASTM D4849
Specific Gravity	2.14 - 2.26	ASTM D792
Glass Fiber & Pigmentation	22 - 30	
Color	Blue	

4.6 Type VI - Excluder Element: (Main Seal Element/Special applications)

Tensile Strength, Mpa (psi) min.	15.2 (2200)	ASTM D1457 ⁽¹⁾
Elongation, % min.	200	ASTM D1457
Specific Gravity	2.12 - 2.22	ASTM D792
Glass Fiber, %	5.0 - 15.0	Method A ⁽²⁾
Graphite, %	0.0 – 10.0	Method A ⁽²⁾
Color	Black	

⁽¹⁾See 4.0 METHOD OF TEST - Modified Tensile Specimen.

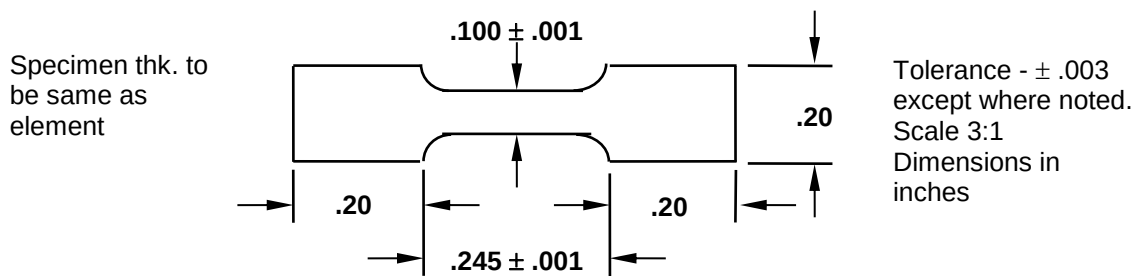
⁽²⁾See 4.0 METHOD OF TEST

⁽³⁾Test speed to be 50mm/minute.

5.0 METHOD OF TEST

All tests shall be performed to latest test designation, procedure and/or method as set forth by this specification.

MODIFIED TENSILE SPECIMEN:



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