

**D 7216 – Engine Oil Elastomer Compatibility (Annex A1 – Heavy-Duty Elastomers)
Form 1 – Validity Declaration**

Version:

Conducted For:

	V = Valid
	I = Invalid

Elastomer Type	Bath Number	Elastomer Batch	Oil Code	TESTKEY CMIR	SOT Date	SOT Time	EOT Date	EOT Time
Nitrile (NBR)								
Polyacrylate (ACM)								
Fluoroelastomer (FKM)								
Silicone (VMQ1)								
Ethylene Acrylate (AEM)								
Hydrogenated Nitrile (HBR)								

Alternative Codes:			
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In my opinion this test _____ been conducted in accordance with Test Method ASTM D 7216, Annex A1, and the appropriate amendments through the Information Letter System. The remarks on **Form 8** describe any anomalies associated with this test.

Submitted by: _____

Testing Laboratory

Signature

Typed Name

Title

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Form 2 – Candidate Data

Sample Code:	Test Method Version:	Lab:	SOT Date:	EOT Date:	Test Length:
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Elastomer Identification	TMC Identification	Parameter	Specification Limit	Candidate Acceptance Limits	Reference Result	Candidate Result
				Updated on:		
Type: NITRILE (NBR)	Industry Oil:	VOLUME CHANGE	+5% to -3%	to		
		HARDNESS	+7 pts to -5 pts	to		
Batch:	CMIR (TESTKEY):	TENSILE STRENGTH	+10% to -SL107	to		
		ELONGATION	+10% to -SL107	to		
Elastomer Identification	TMC Identification	Parameter	Specification Limit	Candidate Acceptance Limits	Reference Result	Candidate Result
				Updated on:		
Type: POLYACRYLATE (ACM)	Industry Oil:	VOLUME CHANGE	+5% to -3%	to		
		HARDNESS	+8 pts to -5 pts	to		
Batch:	CMIR (TESTKEY):	TENSILE STRENGTH	+18% to -15%	to		
		ELONGATION	+10% to -35%	to		
Elastomer Identification	TMC Identification	Parameter	Specification Limit	Candidate Acceptance Limits	Reference Result	Candidate Result
				Updated on:		
Type: FLUOROELASTOMER (FKM)	Industry Oil:	VOLUME CHANGE	+5% to -2%	to		
		HARDNESS	+7 pts to -5 pts	to		
Batch:	CMIR (TESTKEY):	TENSILE STRENGTH	+10% to -SL107	to		
		ELONGATION	+10% to -SL107	to		

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Form 3 – Candidate Data (continued)

Sample Code:	Test Method Version:	Lab:	SOT Date:	EOT Date:	Test Length:
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Elastomer Identification	TMC Identification	Parameter	Specification Limit	Candidate Acceptance Limits	Reference Result	Candidate Result
				Updated on:		
Type: ETHYLENE ACRYLATE (MAC)	Industry Oil:	VOLUME CHANGE	+SL107 to -3%	to		
		HARDNESS	+5 pts to -SL107	to		
Batch:	CMIR (TESTKEY):	TENSILE STRENGTH	+10% to -SL107	to		
		ELONGATION	+10% to -SL107	to		
Elastomer Identification	TMC Identification	Parameter	Specification Limit	Candidate Acceptance Limits	Reference Result	Candidate Result
Type: SILICONE (VQM1)	Industry Oil:	VOLUME CHANGE	+SL107 to -3%	to		
		HARDNESS	+5 pts to -SL107	to		
Batch:	CMIR (TESTKEY):	TENSILE STRENGTH	+10% to -45%	to		
		ELONGATION	+20% to -30%	to		
Elastomer Identification	TMC Identification	Parameter	Specification Limit	Candidate Acceptance Limits	Reference Result	Candidate Result
Type: HYDROGENATED NITRILE (HNBR)	Industry Oil:	VOLUME CHANGE	+TBD% to -TBD%	to		
		HARDNESS	+TBD pts to -TBD pts	to		
Batch:	CMIR (TESTKEY):	TENSILE STRENGTH	+TBD% to -TBD%	to		
		ELONGATION	+TBD% to -TBD%	to		

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Form 4 – Results Summary – Candidate (Non-Reference Oil)

Sample Code:	Lab Oil Code:	Lab:

Elastomer Type:		Elastomer Batch Code:			
		Bath Number:			
Test Temperature, °C	Test Duration, Hours	Volume Change, %	Hardness Change, Points	Tensile Strength Change, %	Elongation Change, %
Start of Test, Date / Time	End of Test, Date / Time				
VOL, HARD, TENSTR, ELON Change					
Average					
Correction Factor					
Corrected Average					
Standard Deviation					

Elastomer Type:		Elastomer Batch Code:			
		Bath Number:			
Test Temperature, °C	Test Duration, Hours	Volume Change, %	Hardness Change, Points	Tensile Strength Change, %	Elongation Change, %
Start of Test, Date / Time	End of Test, Date / Time				
VOL, HARD, TENSTR, ELON Change					
Average					
Correction Factor					
Corrected Average					
Standard Deviation					

Elastomer Type:		Elastomer Batch Code:			
		Bath Number:			
Test Temperature, °C	Test Duration, Hours	Volume Change, %	Hardness Change, Points	Tensile Strength Change, %	Elongation Change, %
Start of Test, Date / Time	End of Test, Date / Time				
VOL, HARD, TENSTR, ELON Change					
Average					
Correction Factor					
Corrected Average					
Standard Deviation					

**D 7216 – Engine Oil Elastomer Compatibility (Annex A1 – Heavy-Duty Elastomers)
Form 5 – Results Summary – Candidate (Non-Reference Oil)**

Sample Code:	Lab Oil Code:	Lab:

Elastomer Type:		Elastomer Batch Code:			
		Bath Number:			
Test Temperature, °C	Test Duration, Hours	Volume Change, %	Hardness Change, Points	Tensile Strength Change, %	Elongation Change, %
Start of Test, Date / Time	End of Test, Date / Time				
VOL, HARD, TENSTR, ELON Change					
Average					
Correction Factor					
Corrected Average					
Standard Deviation					

Elastomer Type:		Elastomer Batch Code:			
		Bath Number:			
Test Temperature, °C	Test Duration, Hours	Volume Change, %	Hardness Change, Points	Tensile Strength Change, %	Elongation Change, %
Start of Test, Date / Time	End of Test, Date / Time				
VOL, HARD, TENSTR, ELON Change					
Average					
Correction Factor					
Corrected Average					
Standard Deviation					

Elastomer Type:		Elastomer Batch Code:			
		Bath Number:			
Test Temperature, °C	Test Duration, Hours	Volume Change, %	Hardness Change, Points	Tensile Strength Change, %	Elongation Change, %
Start of Test, Date / Time	End of Test, Date / Time				
VOL, HARD, TENSTR, ELON Change					
Average					
Correction Factor					
Corrected Average					
Standard Deviation					

**D 7216 – Engine Oil Elastomer Compatibility (Annex A1 – Heavy-Duty Elastomers)
Form 6 – Results Summary – Reference Oil**

Lab Oil Code:	Lab:

Elastomer Type: CMIR (TESTKEY): Bath Number:		TMC Industry Oil Code: Batch Code: Bath Type:			
Test Temperature, °C	Test Duration, Hours	Volume Change, %	Hardness Change, Points	Tensile Strength Change, %	Elongation Change, %
Start of Test, Date / Time	End of Test, Date / Time				
VOL, HARD, TENSTR, ELON Change					
Average					
Correction Factor					
Corrected Average					
Standard Deviation					

Elastomer Type: CMIR (TESTKEY): Bath Number:		TMC Industry Oil Code: Batch Code: Bath Type:			
Test Temperature, °C	Test Duration, Hours	Volume Change, %	Hardness Change, Points	Tensile Strength Change, %	Elongation Change, %
Start of Test, Date / Time	End of Test, Date / Time				
VOL, HARD, TENSTR, ELON Change					
Average					
Correction Factor					
Corrected Average					
Standard Deviation					

Elastomer Type: CMIR (TESTKEY): Bath Number:		TMC Industry Oil Code: Batch Code: Bath Type:			
Test Temperature, °C	Test Duration, Hours	Volume Change, %	Hardness Change, Points	Tensile Strength Change, %	Elongation Change, %
Start of Test, Date / Time	End of Test, Date / Time				
VOL, HARD, TENSTR, ELON Change					
Average					
Correction Factor					
Corrected Average					
Standard Deviation					

**D 7216 – Engine Oil Elastomer Compatibility (Annex A1 – Heavy-Duty Elastomers)
Form 7 – Results Summary – Reference Oil**

Lab Oil Code:	Lab:

Elastomer Type: CMIR (TESTKEY): Bath Number:		TMC Industry Oil Code: Batch Code: Bath Type:			
Test Temperature, °C	Test Duration, Hours	Volume Change, %	Hardness Change, Points	Tensile Strength Change, %	Elongation Change, %
Start of Test, Date / Time	End of Test, Date / Time				
VOL, HARD, TENSTR, ELON Change					
Average					
Correction Factor					
Corrected Average					
Standard Deviation					

Elastomer Type: CMIR (TESTKEY): Bath Number:		TMC Industry Oil Code: Batch Code: Bath Type:			
Test Temperature, °C	Test Duration, Hours	Volume Change, %	Hardness Change, Points	Tensile Strength Change, %	Elongation Change, %
Start of Test, Date / Time	End of Test, Date / Time				
VOL, HARD, TENSTR, ELON Change					
Average					
Correction Factor					
Corrected Average					
Standard Deviation					

Elastomer Type: CMIR (TESTKEY): Bath Number:		TMC Industry Oil Code: Batch Code: Bath Type:			
Test Temperature, °C	Test Duration, Hours	Volume Change, %	Hardness Change, Points	Tensile Strength Change, %	Elongation Change, %
Start of Test, Date / Time	End of Test, Date / Time				
VOL, HARD, TENSTR, ELON Change					
Average					
Correction Factor					
Corrected Average					
Standard Deviation					

D 7216 – Engine Oil Elastomer Compatibility (Annex A1 – Heavy-Duty Elastomers)
Form 9 – TMC Date and Acceptance Limits

Elastomer	Ethylene Acrylate	Fluoroelastomer	Nitrile Butyl Rubber
TMC Date			
Volume (Limit 1)			
Volume (Limit 2)			
Hardness (Limit 1)			
Hardness (Limit 2)			
Tensile Strength (Limit 1)			
Tensile Strength (Limit 2)			
Elongation (Limit 1)			
Elongation (Limit 2)			

Elastomer	Silicone	Polyacrylate	Hydrogenated Nitrile BR
TMC Date			
Volume (Limit 1)			
Volume (Limit 2)			
Hardness (Limit 1)			
Hardness (Limit 2)			
Tensile Strength (Limit 1)			
Tensile Strength (Limit 2)			
Elongation (Limit 1)			
Elongation (Limit 2)			