

**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 <b>Form 8</b> describe any anomalies associated with this test.
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Submitted by: \_\_\_\_\_

Testing Laboratory

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Typed Name

\_\_\_\_\_  
Title

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

**Form 2 – Candidate Data**

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

**D 7216 – Engine Oil Elastomer Compatibility (Annex A1 – Heavy-Duty Elastomers)**  
**Form 3 – Candidate Data (continued)**

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

**D 7216 – Engine Oil Elastomer Compatibility (Annex A1 – Heavy-Duty Elastomers)  
Form 4 – Results Summary – Candidate (Non-Reference Oil)**

<b>Sample Code:</b>	<b>Lab Oil Code:</b>	<b>Lab:</b>

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)**

<b>Sample Code:</b>	<b>Lab Oil Code:</b>	<b>Lab:</b>

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**

<b>Lab Oil Code:</b>	<b>Lab:</b>

Elastomer Type:		TMC Industry Oil Code:			
CMIR (TESTKEY):		Batch Code:			
Bath Number:		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:		TMC Industry Oil Code:			
CMIR (TESTKEY):		Batch Code:			
Bath Number:		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:		TMC Industry Oil Code:			
CMIR (TESTKEY):		Batch Code:			
Bath Number:		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**

<b>Lab Oil Code:</b>	<b>Lab:</b>

Elastomer Type:		TMC Industry Oil Code:			
CMIR (TESTKEY):		Batch Code:			
Bath Number:		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:		TMC Industry Oil Code:			
CMIR (TESTKEY):		Batch Code:			
Bath Number:		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:		TMC Industry Oil Code:			
CMIR (TESTKEY):		Batch Code:			
Bath Number:		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**

<b>Elastomer</b>	<b>Ethylene Acrylate</b>	<b>Fluoroelastomer</b>	<b>Nitrile Butyl Rubber</b>
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)			

<b>Elastomer</b>	<b>Silicone</b>	<b>Polyacrylate</b>	<b>Hydrogenated Nitrile BR</b>
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)			