



XIAMETER[®] LS-70 Fluorosilicone Rubber

General-purpose 70 durometer rubber

FEATURES

- Excellent fluid resistance to most hydrocarbon and silicone fluids
- Serviceable over a very wide temperature range

APPLICATIONS

- XIAMETER[®] LS-70 Fluorosilicone Rubber is used for making molded, extruded, and calendered rubber goods.

TYPICAL PROPERTIES

Specification Writers: These values are not intended for use in preparing specifications. Please contact your local XIAMETER[®] sales representative prior to writing specifications on this product.

CTM ¹ /ASTM	Test	Unit	Value
CTM 0176	Appearance		Translucent
ASTM D 792	Specific Gravity ²		1.48
ASTM D 2240	Durometer Hardness, Shore A-2	points	70
ASTM D 412	Tensile Strength	MPa (psi)	7.58 (1100)
ASTM D 412	Elongation	percent	225
ASTM D 395	Compression Set, 22 hrs / 177°C (350°F)	percent	22
ASTM D 471	Volume Swell in ASTM Reference Fuel B, 24 hrs / 23°C (73°F)	percent	13
CTM 0157	Shrink	Percent	3.0
ASTM D 2137	Brittle Point	Degrees	-63°C (-81°F)

¹CTMs (Corporate Test Methods) are similar to standard ASTM tests in most instances.

Copies of CTMs are available upon request.

²Press cured only.

Properties obtained using 1.0 phr ST1-V on 0.075" thick (1.91mm) slabs press cured 10 min. at 171°C (340°F); slabs were not post cured.

DESCRIPTION

XIAMETER[®] LS-70 Fluorosilicone Rubber is a general-purpose, 70 durometer stock that exhibits excellent fluid resistance to most hydrocarbon and silicone fluids. Additionally, it is serviceable over a very wide temperature range. Other outstanding features and benefits include:

- Excellent swelling resistance to many commonly used fuels, oils, and solvents, for good performance in harsh environments
- Serviceable from -63 to 175°C (-81 to 347°F) under immersion conditions, and up to 225°C (437°F) in dry

heat, for good performance over a broad temperature range

- Low compression set
- Blendable with lower durometer fluorosilicone rubber stocks to achieve intermediate durometers and physical properties
- Blendable with conventional silicone rubber to produce compounds exhibiting intermediate fluid resistance at intermediate costs
- Pigmentable to most any color shade desired

Table I: Properties obtained with Typical Molding- and Extrusion-Type Vulcanization Agents
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Formulations/Vulcanizing Agents		STI-V	STI-T	
XIAMETER LS-70 Fluorosilicone Rubber		100	100	
XIAMETER® RBM-9002 Modifier		1	1	
STI-V		1	-	
STI-T		-	1.5	
Press Cured: minutes / °C (°F)		10/171 (340)	5/116 (250)	
Post Cured: hours /°C (°F)		4/200 (392)	4/20 (392)	
Test Methods/Physical Properties¹				
ASTM D 2240	Durometer Hardness, Shore A-2	points	71	63
ASTM D 412	Tensile Strength	MPa	8.13	7.85
		psi	1180	1140
ASTM D 412	Elongation	percent	220	330
ASTM D 395	Compression Set, after 22 hrs/177°C (350°F)	percent	22	57
ASTM D 471	Volume Swell in ASTM Reference Fuel B, after 70 hrs/23°C (73°F)	percent	17	17

¹Obtained on slabs 0.075" thick; formulated, press cured, and post cured as indicated.

- Suitable for making many general purpose fluorosilicone rubber goods using molding, extrusion, and calendering fabrication techniques

NOTE: Fluorosilicone elastomers are not recommended for use with ketones and phosphate esters. Dimethyl silicone elastomers exhibit excellent swelling resistance to these types of fluids.

HOW TO USE Compounding

XIAMETER LS-70 Fluorosilicone Rubber can be blended with lower durometer fluorosilicone rubber to produce Fluorosilicone rubber compounds with intermediate durometers and physical properties.

Fabricating

XIAMETER LS-70 Fluorosilicone Rubber can be molded, extruded, or calendered using conventional processing equipment.

Vulcanizing Agents

A variety of organic peroxides can be used to vulcanize XIAMETER LS-70 Fluorosilicone Rubber. Proper selection of vulcanizing agents should be based on safety considerations, fabrication methods, molding time and temperature considerations, desired physical properties, and costs. Physical properties obtained using typical molding- and extrusion-type vulcanizing agents are shown in Table 1. Other vulcanizing agents are discussed in the fabrication manual and in Table IV.

Blending

XIAMETER LS-70 Fluorosilicone Rubber can be blended with conventional silicone rubber to provide intermediate fluid resistance at intermediate costs.

Bonding

XIAMETER® RBM-9040 Primer should be used when bonding unvulcanized XIAMETER LS-70 Fluorosilicone Rubber to metals.

QUALITY CONTROL PROCEDURES

XIAMETER LS-70 Fluorosilicone rubber is routinely tested for physical properties using 1.0 phr STI-V vulcanizing agent- Test slabs are press cured 10 minutes at 171°C (340°F) using no post cure. Typical properties obtained using these vulcanization conditions are shown in the Typical Properties table. Sales specifications can be found on www.xiameter.com.

FLUID RESISTANCE

The effects of various fuels, oils, and solvents on the properties of XIAMETER LS-70 Fluorosilicone Rubber are shown in Table II.

PRODUCT SAFETY INFORMATION

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND MATERIAL SAFETY

Table II: Fluid Resistance of XIAMETER LS-70 Fluorosilicone Rubber¹
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Fluids	Immersion Conditions	Durometer, Points Change	Tensile Strength, Percent Change	Elongation, Percent Change	Volume Swell, Percent Change
ASTM Reference Fuel B	1 day/23°C (73°F)	-12	-12	-10	+17
	1 week/23°C (73°F)	-12	-13	-10	+17
	4 weeks/23°C (73°F)	-10	-16	-14	+18
ASTM Reference Fuel C	1 day/23°C (73°F)	-10	-16	-14	+17
	1 week/23°C (73°F)	-13	-16	-14	+19
	4 weeks/23°C (73°F)	-15	-20	-19	+20
	1 day/Reflux	-10	-29	-33	+27
10% Methanol/90% No-Lead Gas	1 day/23°C (73°F)	-19	-42	-33	+22
	1 week/23°C (73°F)	-17	-41	-19	+21
10% Ethanol/90% No-Lead Gas	1 day/23°C (73°F)	-16	-37	-19	+18
	1 week/23°C (73°F)	-15	-35	-14	+17
Jet Fuel, JP-8	1 day/23°C (73°F)	-5	-4	-0	+3
	1 week/23°C (73°F)	-4	-2	+10	+5

¹Obtained by adding 1.0 phr STI-V to XIAMETER LS-70 Fluorosilicone Rubber. Slabs 0.075" thick were press cured 10 min. at 171°C (340°F); and post-cured 4 hrs. at 200°C (392°F) prior to testing.

Table III: Heat Resistance of XIAMETER LS-70 Fluorosilicone Rubber¹
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Heat-Aging Conditions	Durometer, Points Change	Tensile Strength, Percent Change	Elongation, Percent Change
1 day/260°C (500°F)	+5	-58	-57
14 days/210°C (410°F)	+7	-27	-38
28 days/210°C (410°F)	+8	-37	-43
60 days/210°C (410°F)	+8	-35	-48

¹Obtained by adding 1.0 phr STI-V to XIAMETER LS-70 Fluorosilicone Rubber. Slabs 0.075" thick were press cured 10 min. at 171°C (340°F) and post-cured 4 hrs. at 200°C (392°F) prior to testing

DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL, ENVIRONMENTAL, AND HEALTH HAZARD INFORMATION. THE MATERIAL SAFETY DATA SHEET IS AVAILABLE ON THE XIAMETER WEB SITE AT WWW.XIAMETER.COM.

During vulcanization and oven curing, vapors are given off which may be harmful: Inhalation of vapors should be avoided. Vulcanization should be conducted in an area that is properly ventilated. Ovens used for post curing should also be

properly ventilated. The following precautionary statement will be displayed on the product container:

CAUTION! TOXIC VAPORS MAY BE EVOLVED IF MATERIAL BURNS.

Trace amounts of highly toxic vapors, trifluoropropion-aldehyde (TPFA), may evolve if material is heated in air above 149°C (300°F). Exposure limits have not been established. Consult an industrial hygienist, consult material safety data sheet. If material is used above 149°C (300°F), provide

adequate ventilation. In case of overheating or fire, evacuate the area.

NOTE: If further safety or product information is required, please contact a XIAMETER[®] technical representative.

STORAGE

Product should be stored at or below 50°C (120°F) in original, unopened containers. The most up-to-date shelf life information can be found on the XIAMETER Web site in the Product Detail page under Sales Specification.

Table IV: typical Vulcanizing Agents for XIAMETER LS-70 Fluorosilicone Rubber
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Organic Peroxides	Trade Names	Percent Active	Physical Form	Recommended Concentrations, phr	Molding Conditions	Fabrication Methods
2,4 dichloro benzoyl peroxide	STI-T or	50	Paste	1.5	5 min/ 116 +/- 11°C (240 +/- 20°F)	Hot Air Vulcanization
	Cadox TS-50	50	Paste	1.5		
Benzoyl peroxide	STI-BP	50	Paste	1.6	5 min/ 127 +/- 11°C (260 +/- 20°F)	Steam Vulcanization
	Cadox BS	50	Paste	1.6		
	Luperco AST	50	Paste	1.6		
Dicumyl peroxide	DiCup® R	96	Crystal	1.0	10 min/ 166 +/- 16°C (330 +/- 30°F)	Molding Steam Vulcanization
	STI-DC40C	40	Powder	2.5		
	DiCup® 40KE	40	Powder	2.5		
2,5 bis (tert-butyl peroxy)	STI-V or	50	Powder	1.0	10 min/ 171 +/- 6°C (340 +/- 10°F)	Molding. Steam
	Luperco 101XL	50	Powder	1.0		

Luperco is a trademark of Arkema, Inc.
 Di-Cup is a registered trademark of Geo Specialty Chemicals, Inc.

LIMITATIONS

This product is neither tested nor represented as suitable for medical or pharmaceutical uses. Not intended for human injection. Not intended for food use.

customer's tests to ensure that our products are safe, effective, and fully satisfactory for the intended end use. Suggestions of use shall not be taken as inducements to infringe any patent.

DOW CORNING SPECIFICALLY DISCLAIMS ANY OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY.

SHIPPING LIMITATIONS

None.

Dow Corning's sole warranty is that our products will meet the sales specifications in effect at the time of shipment.

DOW CORNING DISCLAIMS LIABILITY FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

LIMITED WARRANTY INFORMATION – PLEASE READ CAREFULLY

The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for

Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted.