



Technical Data Sheet

SILASTIC™ LS-40 Fluorosilicone Rubber

FEATURES & BENEFITS

- Excellent swelling resistance
- Pigmentable to most any color shade desired

General-purpose, 40 durometer grade fluorosilicone rubber base

APPLICATIONS

- SILASTIC™ LS-40 Fluorosilicone Rubber is especially suited for making general-purpose fluorosilicone rubber goods using molding, extrusion and calendaring fabrication techniques. In addition, higher durometer fluorosilicone rubber compounds can be made from SILASTIC LS-40 Fluorosilicone Rubber by adding reinforcing and/or extending fillers.

TYPICAL PROPERTIES

Specification Writers: These values are not intended for use in preparing specifications.

Test ¹	Property	Unit	Result
CTM 0176	Appearance		Translucent
ASTM D 792	Specific Gravity ²		1.40
ASTM D 2240	Durometer Hardness, Shore A-2	points	40
ASTM D 412	Tensile Strength	MPa (psi)	5.68 (825)
ASTM D 412	Elongation	percent	300
ASTM D 395	Compression Set, 22 hrs/177°C (350°F)	percent	11
ASTM D 471	Volume Swell in ASTM Reference Fuel B, 24 hrs/23°C (73°F)		20
CTM 0157	Shrink	percent	3.2
ASTM D 2137	Brittle Point	°C (°F)	-63 (-81)

¹CTMs (Corporate Test Methods) are similar to standard ASTM tests in most instances. Copies of CTMs available upon request. ASTM = American Society for Testing and Materials.

²Press cured only.

Properties obtained using 1.0 phr 2,5-Bis(tert-butylperoxy)-2,5-dimethylhexane, 45% masterbatch on 0.075 inch (1.91 mm) thick slabs, press cured 10 minutes at 171°C (340°F).

DESCRIPTION

SILASTIC LS-40 Fluorosilicone Rubber is a general-purpose, 40 durometer grade that exhibits excellent fluid resistance to hydrocarbon and silicone fluids. Additionally, it is serviceable over a very wide temperature range.

Some outstanding features and benefits of SILASTIC LS-40 Fluorosilicone Rubber include:

- Excellent swelling resistance to many 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

Table 1: Properties Obtained with Typical Molding-and Extrusion-Type Vulcanizing Agents

Formulations/Vulcanizing Agents		2,5-Bis(tert-butylperoxy)-2,5-dimethylhexane, 45% masterbatch	Di(2,4-dichlorobenzoyl) peroxide, 50% masterbatch
SILASTIC™ LS-40 Fluorosilicone Rubber		100	100
XIAMETER™ RBM-9002 Rubber Additive ¹		1	1
2,5-Bis(tert-butylperoxy)-2,5-dimethylhexane, 45% masterbatch		1	
Di(2,4-dichlorobenzoyl) peroxide, 50% masterbatch			1.5
Press Cured: minutes/°C (°F)		10/171 (340)	5/116 (240)
Post Cured: hours/°C (°F)		4/200 (392)	4/200 (392)
Test Methods/Physical Properties ²			
ASTM D 2240	Durometer Hardness, Shore A-2, points	40	33
ASTM D 412	Tensile Strength:		
	MPa	6.34	6.13
	psi	920	890
ASTM D 412	Elongation, percent	275	510
ASTM D 395	Compression Set, after 22 hrs/177°C (350°F), percent	11	37
ASTM D 471	Volume Swell, ASTM Reference Fuel B, after 70 hrs/23°C (73°F), percent	20	20

¹ XIAMETER RBM-9002 Rubber Additive is not an FDA-permitted ingredient. See data sheet for product information.

A variety of organic peroxides can be used to vulcanize SILASTIC LS-40 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.

² Obtained on slabs 0.075 inch thick; formulated, press cured, and post cured as indicated.

- Higher durometer fluorosilicone rubber compounds can be made from this product by adding reinforcing and/or extending fillers
- Pigmentable to most any color shade desired
- 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

SILASTIC LS-40 Fluorosilicone Rubber can be blended with high durometer rubber to produce fluorosilicone rubber compounds with intermediate durometers and physical properties. The effects of various

fillers added to SILASTIC LS-40 Fluorosilicone Rubber are shown in Table 4.

Fabricating

SILASTIC LS-40 Fluorosilicone Rubber can be molded, extruded, or calendered using conventional processing equipment.

Blending

SILASTIC LS-40 Fluorosilicone Rubber can be blended with conventional silicone rubber to provide intermediate fluid resistance at intermediate costs.

Bonding

XIAMETER™ RBM-9400 Primer should be used when bonding unvulcanized SILASTIC LS-40 Fluorosilicone Rubber to metals.

Heat Stability

Optimum heat stability with SILASTIC LS-40 Fluorosilicone Rubber can be achieved using 1.0 phr

XIAMETER RBM-9002 Rubber Additive.

SILASTIC LS-40 Fluorosilicone Rubber compounds containing XIAMETER RBM-9002 Rubber Additive can be pigmented to most any color shade required.

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SILASTIC™ LS-40 Fluorosilicone Rubber

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FLUID RESISTANCE

The effects of various fuels, oils, and solvents on the properties of SILASTIC LS-40 Fluorosilicone Rubber are shown in Table 1.

QUALITY CONTROL PROCEDURES

SILASTIC LS-40 Fluorosilicone Rubber is routinely tested for physical properties using 1.0 phr 2,5-Bis(tert-butylperoxy)-2,5-dimethylhexane, 45% masterbatch 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. Copies of the sales specifications on this product are available upon request.

HANDLING

PRECAUTIONS

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION.

Table 2: Fluid Resistance of SILASTIC LS-40 Fluorosilicone Rubber¹

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)	-7	-45	-39	+21
	1 week/23°C (73°F)	-6	-43	-29	+19
	4 weeks/23°C (73°F)	-8	-45	-42	+20
ASTM Reference Fuel C	1 day/23°C (73°F)	-8	-51	-45	+22
	1 week/23°C (73°F)	-8	-51	-39	+22
	4 weeks/23°C (73°F)	-6	-51	-42	+22
	1 day/Reflux	-7	-53	-45	+27
10% Methanol/90% No-Lead G	1 day/23°C (73°F)	-12	-61	-48	+25
	1 week/23°C (73°F)	-12	-61	-42	+23
10% Ethanol/90% No-Lead Gas	1 day/23°C (73°F)	-11	-55	-39	+21
	1 week/23°C (73°F)	-10	-52	-39	+20
Jet Fuel, JP-8	1 day/23°C (73°F)	-5	-18	-13	+4
	1 week/23°C (73°F)	-6	-24	-16	+6

¹Obtained by adding 1.0 phr 2,5-Bis(tert-butylperoxy)-2,5-dimethylhexane, 45% masterbatch to SILASTIC LS-40 Fluorosilicone Rubber. Slabs 0.075-inch-thick were press cured 10 min/171°C (340°F) and post cured 4 hrs/200°C (392°F) prior to testing.

Table 3: Heat Resistance of SILASTIC LS-40 Fluorosilicone Rubber¹

Heat-Aging Conditions	Durometer, Points Change	Tensile Strength, Percent Change	Elongation, Percent Change
1 day/260°C (500°F)	+2	-65	-29
14 days/210°C (410°F)	+2	-23	-16
28 days/210°C (410°F)	+1	-32	-32
60 days/210°C (410°F)	+2	-51	-32

¹Obtained by adding 1.0 phr 2,5-Bis(tert-butylperoxy)-2,5-dimethylhexane, 45% masterbatch and 1.0 phr XIAMETER RBM-9002 Rubber Additive to SILASTIC LS-40 Fluorosilicone Rubber. Slabs 0.075-inch-thick were press cured 10 min/171°C (340°F) and post cured 4 hrs/200°C (392°F) prior to testing.

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THE SAFETY DATA SHEET IS AVAILABLE ON THE DOW WEBSITE AT WWW.CONSUMER.DOW.COM, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

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, trifluoropropionaldehyde, may evolve if material is heated in air above 149°C (300°F). Exposure limits have not been established. Consult an industrial hygienist, and 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, contact Dow.

USABLE LIFE AND STORAGE

When stored at 50°C (120°F) in the original unopened container, this product has a usable life of 36 months from the date of production.

LIMITATIONS

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

HEALTH AND ENVIRONMENTAL INFORMATION

To support customers in their product safety needs, Dow has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area.

For further information, please see our website, www.consumer.dow.com or consult your local Dow representative.

Table 4: Typical Vulcanizing Agents for SILASTIC LS-40 Fluorosilicone Rubber

Organic Peroxides	Trade Names	Percent Active	Physical Form	Recommended Concentrations, phr	Molding Conditions, minutes/degrees	Fabrication Methods
2,4 dichloro benzoyl peroxide	Di(2,4-dichlorobenzoyl) peroxide, 50% masterbatch	50	Paste	1.5	5 min/	Hot Air
	or CADOX ¹ TS-50	50	Paste	1.5	116 +/- 11°C (240 +/- 20°F)	Vulcanization
Benzoyl peroxide	STI-BP	50	Paste	1.6	5 min/	Steam
	CADOX BS	50	Paste	1.6	127 +/- 11°C (260 +/- 20°F)	Vulcanization
	Luperco ² AST	50	Paste	1.6		
Dicumyl peroxide	DiCup ³ R	96	Crystal	1.0	10 min/	Molding, Steam
	STI-DC40C	40	Powder	2.5	166 +/- 16°C (330 +/- 30°F)	Vulcanization
	DiCup 40KE	40	Powder	2.5		
2,5 bis (tert-butyl peroxy)	2,5-Bis(tert-butylperoxy)-2,5-dimethylhexane, 45% masterbatch	50	Powder	1.0	10 min/	Molding, Steam, Vulcanization
2,5 dimethyl hexane	Luperco 101XL	50	Powder	1.0	171 +/- 6°C (340 +/- 10°F)	

¹CADOX[®] is a registered trademark of Akzo Nobel Chemicals B.V.

²Luperco is a trademark of Arkema, Inc.

³Di-Cup is a registered trademark of Geo Specialty Chemicals, Inc.

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

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.

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