

## Introduction

ELIFLON-C60-M00 fluoroelastomer is a medium-high viscosity copolymer of hexafluoropropene and vinylidene fluoride, particularly suitable for injection moulding of sealing devices that must meet the most critical conditions of usage. Due to narrow molecular weight distribution and a low long chain branching content, despite a relative high Mooney viscosity, ELIFLON-C60-M00 fluoroelastomer offers significant processing ease that can be modified when blended with similar fluoroelastomers. ELIFLON-C60-M00 is especially suited to curing with bisphenol-phosphonium salt systems.

### ELIFLON-C60-M00 provides:

- Improved injection rate.
- Fast curing rate.
- Low mould fouling.
- Easy mould release.
- Good mould flow.
- Improved extrusion.
- Good compression set resistance.

### Application:

- Injection moulded goods.
- O-rings
- Bonded metal insets products.
- Gasket, seals and profiles.
- Extruded cords.

## Safety and handling

Despite the chemical inertness at ambient temperature, ELIFLON C types fluoroelastomers should be handled in such a way to avoid contact with skin and eyes. In case of contact, wash thoroughly with soap and water. Store in a well ventilated place away from any source of heat. Smoking is strictly forbidden in working and storage areas. In the event of fire, toxic gases are produced. Refer to MSDS for additional information. For the safe handling of other compound ingredients normally used in fluoroelastomers compounding, please refer to the respective manufacturers.

## Product description

<b>Chemical Composition</b>	Copolymer of hexafluoropropene, and vinylidene fluoride
<b>Physical form</b>	Slabs
<b>Colour</b>	Off-white
<b>Odour</b>	Odorless
<b>Specific Gravity</b>	1,81 ± 0,02 g/cm <sup>3</sup>
<b>Fluorine content</b>	66%
<b>Glass transition temperature (Tg)</b>	-18 ± 1°C
<b>Solubility</b>	Low molecular weight esters and ketones
<b>Storage stability<sup>1</sup></b>	Excellent
<b>Mooney viscosity - ML 1+10 at 121 °C (250°F)</b>	60 MU

1) At ambient temperature in a well-ventilated place

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## ELIFLON-C60-M00 typical compound

### TEST COMPOUND

<b>ELIFLON-C60-M00</b>	phr	91,8
<b>High activity magnesium oxide (MgO)</b>	phr	3
<b>Calcium Hydroxide (Ca(OH)<sub>2</sub>)</b>	phr	6
<b>Medium thermal carbon black (N990)</b>	phr	30
<b>ELIFLON-CURATIVE-1-C<sup>1</sup></b>	phr	7,2
<b>ELIFLON-CURATIVE-3-C<sup>2</sup></b>	phr	1
<b>Processing aids (wax)</b>	phr	1

1) Fluoroelastomer masterbatch 33% by weight of Bisphenol AF {4,4'-[trifluoro-1(tri-fluoromethyl)ethylidene]bisphenol} and Benzyltriphenylphosphonium salt with 4,4'-[2,2,2-tri-fluoro-1-(trifluoromethyl)ethylidene]bisphenol (1:1).

2) Fluoroelastomer masterbatch 33% by weight of Benzyltriphenylphosphonium chloride.

## Performance of ELIFLON-C60-M00 in typical compound

### STOCK PROPERTIES

MDR at 180°C, 6 min

<b>M<sub>L</sub></b>	1,73	dN*m
<b>T<sub>s2</sub></b>	38,4	s
<b>T<sub>c90</sub></b>	70,2	s
<b>M<sub>H</sub></b>	34,73	dN*m

### VULCANIZATE PROPERTIES

Slabs cured 10 min at 180°C, 110 kPa, post cured 3+18 hrs at 230°C

<b>100% modulus</b>	6,2	MPa
<b>Tensile strength</b>	13,3	MPa
<b>Elongation at break</b>	215	%
<b>Hardness</b>	74	ShoreA

Mechanical properties at 23°C, after aging in air

70 hrs at 250°C

<b>100% modulus</b>	5,4	MPa
<b>Tensile strength</b>	13,7	MPa
<b>Elongation at break</b>	200	%
<b>Hardness</b>	75	ShoreA

Swelling resistance in test fluids, Δ Volume %

<b>Fuel C, 70 hrs at 23°C</b>	+ 3,2	%
<b>Methanol (99%), 70 hrs at 23°C</b>	+ 73	%
<b>IRM 903 Oil, 70 hrs at 150°C</b>	+ 1,9	%

**Compression set, Method B disks, 25% def.**

Aged 70 hrs @ 200°C    17    %

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## Effect of filler (carbon black) level on ELIFLON-C60-M00 properties

	A	B	C	
ELIFLON-C60-M00	91,8	91,8	91,8	phr
High activity magnesium oxide (MgO)	3	3	3	phr
Calcium Hydroxide (Ca(OH) <sub>2</sub> )	6	6	6	phr
Medium Thermal Carbon Black (N990)	45	30	10	phr
ELIFLON-CURATIVE-1-C <sup>1</sup>	7,1	7,1	7,1	phr
ELIFLON-CURATIVE-2-C <sup>2</sup>	1	1	1	phr
Processing aids (wax)	1	1	1	phr

1) Fluoroelastomer masterbatch 33% by weight of Bisphenol AF {4,4'-[trifluoro-1-(tri-fluoromethyl)ethylidene]bisphenol} and Benzyltriphenylphosphonium salt with 4,4'-[2,2,2-tri-fluoro-1-(trifluoromethyl)ethylidene]bisphenol (1:1).

2) Fluoroelastomer masterbatch 33% by weight of Benzyltriphenylphosphonium chloride.

## STOCK PROPERTIES

MDR at 180°C, 6 min

	A	B	C	
M <sub>L</sub>	2,07	1,73	1,16	dN*m
T <sub>s2</sub>	34,2	38,4	78,0	s
T <sub>c90</sub>	65,4	70,2	114,0	s
M <sub>H</sub>	38,40	34,73	27,20	dN*m

## VULCANIZATE PROPERTIES

Slabs cured 10 min at 180°C, 110 kPa, post cured 3+18 hrs at 230°C

	A	B	C	
100% modulus	10,4	6,2	2,8	MPa
Tensile strength	14,1	13,7	11,6	MPa
Elongation at break	174	215	248	%
Hardness	84	74	60	ShoreA

Compression set, Method B disks, 25% def. Aged 70 hrs @ 200°C	A	B	C	
	21	16	12	%

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## Test procedures

<b>Compression set</b>	ASTM D 395, Method B	<b>Mooney viscosity</b>	ASTM D 1646
<b>Compression set, O-ring</b>	ASTM D 1414	<b>Property change</b>	ASTM D 573
<b>Hardness</b>	ASTM D 2240, Durometer A (ShoreA)	<b>after oven heat aging</b>	
<b>MDR (Moving Die Rheometer)</b>	ASTM D 5289	<b>Stress strain properties</b>	ASTM D 412
		<b>Volume change in fluids</b>	ASTM D 471

## Packaging

ELIFLON-C60-M00 is packaged in boxes on 900 kg/pallet with base measures 120 cm x 110 cm and height 150 cm.

Packaging recycling instructions:

- pallet: 
- cardboard: 
- straps: 
- labels: 
- bags: 

The information contained in these specifications is based on the technical data of Sersar Srl and is provided free of charge. It is to be used solely by skilled individuals who use the material described, alone or in a mixture with other materials, shall ensure that the particular conditions or the particular formulations adopted present no health or safety hazard. Because conditions of product use or disposal are beyond our control, Sersar Srl issues no warranty, express or implied, and assumes no liability in connection with use of the information provided. The information contained herein is intended only as a guideline. An appropriate evaluation of any mixture of the material described above with other materials is absolutely necessary. The material described herein is not suitable for any implantation into the human body.

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