

Introduction

ELIFLON-C20-M00 fluoroelastomer is a medium-low viscosity copolymer of hexafluoropropene and vinylidene fluoride, particularly suitable for injection moulding of sealing devices that must meet the most critical conditions of usage. The polymer is also appropriate for compression molding and extrusion applications. Due to narrow molecular weight distribution and a low long chain branching content ELIFLON-C20-M00 fluoroelastomer offers significant processing ease that can be modified when blended with similar fluoroelastomer. ELIFLON-C20-M00 is especially suited to curing with bisphenol-phosphonium salt systems.

ELIFLON-C20-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

Chemical Composition	Copolymer of hexafluoropropene, and vinylidene fluoride
Physical form	Slabs
Colour	Off-white
Odour	Odorless
Specific Gravity	1,81 ± 0,02 g/cm ³
Fluorine content	66%
Glass transition temperature (Tg)	-18 ± 1°C
Solubility	Low molecular weight esters and ketones
Storage stability¹	Excellent
Mooney viscosity - ML 1+10 at 121 °C (250°F)	20 MU

1) At ambient temperature in a well-ventilated place

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ELIFLON-C20-M00 typical compound

TEST COMPOUND

ELIFLON-C20-M00	phr	91,8
High activity magnesium oxide (MgO)	phr	3
Calcium Hydroxide (Ca(OH)₂)	phr	6
Medium thermal carbon black (N990)	phr	30
ELIFLON-CURATIVE-1-C¹	phr	7,2
ELIFLON-CURATIVE-3-C²	phr	1
Processing aids (wax)	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-C20-M00 in typical compound

STOCK PROPERTIES

MDR at 180°C, 6 min

M_L	0,60	dN*m
T_{s2}	63	s
T_{c90}	112	s
M_H	28,51	dN*m

VULCANIZATE PROPERTIES

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

100% modulus	5,7	MPa
Tensile strength	12,3	MPa
Elongation at break	220	%
Hardness	73	ShoreA

Mechanical properties at 23°C, after aging in air

70 hrs at 250°C

100% modulus	4,8	MPa
Tensile strength	11,9	MPa
Elongation at break	190	%
Hardness	74	ShoreA

Swelling resistance in test fluids, Δ Volume %

Fuel C, 70 hrs at 23°C	+ 3,5	%
Methanol (99%), 70 hrs at 23°C	+ 75	%
IRM 903 Oil, 70 hrs at 150°C	+ 2,0	%

Compression set, Method B disks, 25% def.

Aged 70 hrs @ 200°C 19 %

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Effect of filler (carbon black) level on ELIFLON-C20-M00 properties

	A	B	C	
ELIFLON-C20-M00	91,8	91,8	91,8	phr
High activity magnesium oxide (MgO)	3	3	3	phr
Calcium Hydroxide (Ca(OH) ₂)	6	6	6	phr
Medium Thermal Carbon Black (N990)	45	30	10	phr
ELIFLON-CURATIVE-1-C ¹	7,1	7,1	7,1	phr
ELIFLON-CURATIVE-2-C ²	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 _L	0,75	0,60	0,38	dN*m
T ₅₂	55,80	63,60	71,40	s
T ₉₀	94,8	112,20	121,8	s
M _H	32,51	28,51	20,25	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	10,1	5,7	2,0	MPa
Tensile strength	13,1	12,3	8,9	MPa
Elongation at break	182	220	247	%
Hardness	85	73	59	ShoreA

Compression set, Method B disks, 25% def.

	A	B	C	
Aged 70 hrs @ 200°C	23	19	15	%

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Test procedures






Compression set	ASTM D 395, Method B
Compression set, O-ring	ASTM D 1414
Hardness	ASTM D 2240, Durometer A (ShoreA)
MDR (Moving Die Rheometer)	ASTM D 5289

Mooney viscosity	ASTM D 395, Method B
Property change	ASTM D 573
after oven heat aging	
Stress strain properties	ASTM D 412
Volume change in fluids	ASTM D 471

Packaging

ELIFLON-C20-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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