

Tecnoflon®

VPL 85540

VPL 55540



Solvay
Solexis



Low temperature peroxide curable

GENERAL FEATURES

TECNOFLON VPL 85540 and 55540 belong to a brand new generation of very low temperature peroxide curable FKM. They have been designed to offer outstanding low temperature flexibility (i.e. $TR_{10} = -40^{\circ}C$). Like all other Tecnoflon peroxide curable grades, they exhibit excellent processability and superior mechanical properties and sealing ability; moreover they need very short post-curing cycles.

Some of the basic properties of Tecnoflon VPL 85540 and 55540 are:

- Outstanding low temperature behavior
- Very good chemical resistance
- Low post cure
- Superior mold flow
- Lack of mold fouling
- Excellent mold release
- Very good chemical resistance

Solvay Solexis offer medium (VPL 85540) and low viscosity (VPL 55540) versions in order to fulfil all customer's requirements. Accordingly to the curing technology, Tecnoflon VPL 85540 and VPL 55540 can be transformed by all the molding techniques, including injection, injection-compression, compression and transfer molding. Tecnoflon VPL 85540 and 55540 can be used with all typical peroxide curing system and the other fluoroelastomer compounding ingredients. Mixing can be accomplished with two-roll mills or internal mixers.

This material can be extruded into hoses or profiles or can be calendered to make sheet stocks or belting.

Basic characteristics of the raw polymers are as follows:

PROPERTIES	TYPICAL VALUES
ML (1+10') @ 121°C	25 MU (VPL 55540) 45 MU (VPL 85540)
Fluorine Content (%)	65
Specific Gravity (g/cc)	1.83
Colour	Translucent
Packaging / Form	Slabs
Solubility	Ketones and esters

HANDLING AND SAFETY

Normal care and precautions should be taken to avoid skin contact, eye contact and breathing of fumes. Smoking is prohibited in working areas. Wash hands before eating or smoking. For complete health and safety information, please refer to the material safety data sheet.

TYPICAL RHEOLOGICAL AND PHYSICAL PROPERTIES

TEST COMPOUND			
Tecnoflon VPL		VPL 55540	VPL 85540
Polymer		100	100
Luperox 101XL-45	phr	2	2
Drimix TAIC (75 %)	phr	5	5
ZnO	phr	5	5
N-990 MT Carbon Black	phr	30	30
Mooney Viscosity ML (1+10') @ 121°C		MU	
		28	43
MDR 12 min @ 160°C arc 0.5°			
Minimum Torque	lb*in	0.7	1.1
Maximum Torque	lb*in	28.4	27.2
t _{s2}	min	1.1	0.9
t' ₅₀	min	2.0	1.9
t' ₉₀	min	3.8	3.7
MECHANICAL PROPERTIES			
Post Cure: (1+4) h @ 230°C			
100 % Modulus	MPa	7.2	6.9
Tensile Strength	MPa	15.0	15.8
Elongation at Break	%	172	174
Hardness	Shore A	68	67
COMPRESSION SET (25 % Deformation, ASTM D395 Method B, 70 h @ 200 °C)			
#214 O-Ring	%	21	20
TEMPERATURE RETRACTION (ASTM D1329)			
TR ₁₀	°C	-40	-40

FUELS RESISTANCE

FUEL B		70h @ 24°C
Δ Tensile Strength	%	-15
Δ Elongation at Break	%	4
Δ Hardness	Shore A	-4
Δ Volume	%	+4

Fuel C	168h @	23 °C	40 °C
Δ Tensile Strength	%	-20	-31
Δ Elongation at Break	%	- 8	-21
Δ Hardness	Shore A	-4	-6
Δ Volume	%	+8	+12

M15		168h @ 23 °C
Δ Tensile Strength	%	-66
Δ Elongation at Break	%	- 34
Δ Hardness	Shore A	-9
Δ Volume	%	+16

Fuel CE 10		70h @ 60 °C
Δ Tensile Strength	%	-50
Δ Elongation at Break	%	-23
Δ Hardness	Shore A	-10
Δ Volume	%	+19

Fuel CE 22		70h @ 60 °C
Δ Tensile Strength	%	-47
Δ Elongation at Break	%	-23
Δ Hardness	Shore A	-10
Δ Volume	%	+21

Fuel CE 85		70h @ 60 °C
Δ Tensile Strength	%	-39
Δ Elongation at Break	%	-13
Δ Hardness	Shore A	-7
Δ Volume	%	+11

Ethanol		168h @ 40 °C
Δ Tensile Strength	%	-34
Δ Elongation at Break	%	-9
Δ Hardness	Shore A	-5
Δ Volume	%	+7

RME		336h @ 150 °C
Δ Tensile Strength	%	-16
Δ Elongation at Break	%	-2.4
Δ Hardness	Shore A	-3
Δ Volume	%	+1.5

B20 (Diesel + 20% RME)		1008h @ 150 °C
Δ Tensile Strength	%	-14
Δ Elongation at Break	%	+26
Δ Hardness	Shore A	-12
Δ Volume	%	+20

FAM B		72h @ 60 °C
Δ Tensile Strength	%	-39
Δ Elongation at Break	%	-31
Δ Hardness	Shore A	-7
Δ Volume	%	+21

PN 180		336h @ 60 °C
Δ Tensile Strength	%	-41
Δ Elongation at Break	%	-6
Δ Hardness	Shore A	-15
Δ Volume	%	+22

OILS RESISTANCE

Dexron VI ATF		1500h @ 150°C
Δ Tensile Strength	%	-19
Δ Elongation at Break	%	-13
Δ Hardness	Shore A	0
Δ Volume	%	+1

ATF-94		1500h @ 150 °C
Δ Tensile Strength	%	-16
Δ Elongation at Break	%	-11
Δ Hardness	Shore A	+1
Δ Volume	%	+1

ASTM 105G (SF 105)		500h @ 150°C
Δ Tensile Strength	%	-15
Δ Elongation at Break	%	-2
Δ Hardness	Shore A	-2
Δ Volume	%	+1

IRM 903		168h @ 150°C
Δ Tensile Strength	%	-10
Δ Elongation at Break	%	+2.6
Δ Hardness	Shore A	0
Δ Volume	%	+1.6

Reference oil 300		70h @ 200°C
Δ Tensile Strength	%	-8
Δ Elongation at Break	%	+6
Δ Hardness	Shore A	-6
Δ Volume	%	+7

VARIOUS FLUIDS RESISTANCE

Havoline XLC/Water 50:50		1000h @ 130°C
Δ Tensile Strength	%	-24
Δ Elongation at Break	%	-6.1
Δ Hardness	Shore A	0
Δ Volume	%	1.5

Diethanolamine 1% (water)		70h @ 140°C
Δ Tensile Strength	%	-12
Δ Elongation at Break	%	+5
Δ Hardness	Shore A	-1
Δ Volume	%	+4

Steam		168h @ 200°C
Δ Tensile Strength	%	-16
Δ Elongation at Break	%	+18
Δ Hardness	Shore A	0
Δ Volume	%	+0.2

MIL-H-83282		70h @ 135°C
Δ Tensile Strength	%	-13
Δ Elongation at Break	%	+12
Δ Hardness	Shore A	-3
Δ Volume	%	+2

For acid and base resistance, recipe without Zinc Oxide is recommended.

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