Product Data Sheet

SUPRENE® 553

SK global chemical

Product Data Sheet

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SUPRENE® 553

SUPRENE EPDM 553 is a non-oil extended grade with very high Mooney viscosity.

SUPRENE EPDM 553 shows excellent extrusion processability and physical properties with high loading fillers.
Its moderate ethylene content gives this grade a better flexibility under low temperature, compared with high ethylene grades.
Its good green strength can give better shape retention and higher extrudability.

SUPRENE EPDM 553 is mainly used in automotive exterior parts such as window seal and used in other various applications.

Raw Polymer Properties

	Test Method	Unit	Min.	Max.	Typical Value
Mooney Viscosity, (ML 1+4, 150℃ unmilled)	ASTM D1646	-	67	77	72
Ethylene Content *	ASTM D3900	wt%	59	65	62
ENB Content	ASTM D6047	wt%	3.5	5.5	4.5
Oil Content	-	phr	-	-	-
Specific Gravity	ASTM D792	-	-	-	0.86
Volatile Matter	ASTM D5668	wt%	-	0.8	0.2
Ash	ASTM D5667	wt%	-	0.15	0.01
Physical Form, (kg/bale)	-	-	-	-	Friable Bale (25kg/bale)

* Ethylene Content + Propylene Content = 100%

SUPRENE® 553

Typical Properties

Properties	Test Method	S553
Mooney Viscosity ML 1+4 @ 150℃	ASTM D1646	72.0
Ethylene Content, wt%	ASTM D3900	62.0
ENB Content, wt%	ASTM D6047	4.5

Guide Formulation

Formulation 1 & 2

	Formulation 1	Formulation 2
S553	100.0	100.0
FEF	80.0	200.0
Talc	-	75.0
PEG-4000	-	2.0
P-6	50.0	160.0
CaO	-	3.0
ZnO	5.0	5.0
Stearic Acid	1.0	1.0
MBT(M)	0.5	1.2
#22(ETU)	-	0.8
TMTD(TT)	1.0	0.6
ZnBDC(BZ)	-	1.5
Sulfur	1.5	1.7
Total	**239.0**	**551.8**

** Unit: phr*

Properties	Test Method	Formulation 1	Formulation 2
Compound Mooney Viscosity ML 1+4 @ 100℃	ASTM D1646	85.8	45.5
Pre-vulcanization characteristics Large Rotor at 125℃	ASTM D1646		
Minimum Viscosity (Vm)		54.8	32.4
t'5 (min)		14.57	6.98
t'35 (min)		23.91	9.63
Δt30		9.34	2.65
Rotorless Cure Meter (MDR, 160℃/30min)	ASTM D5289		
M_L (lb·in)		3.1	1.4
M_H (lb·in)		24.4	12.6
t_S2 (min)		2.09	1.45
t_C50 (min)		3.58	2.59
t_C90 (min)		6.97	12.39

Cured at 160℃ for 20 min

Properties	Test Method	Formulation 1	Formulation 2
Specific Gravity	ASTM D792	1.09	1.25
Hardness (shore A)	ASTM D2240	67	73
Tensile Strength (kgf/cm^2)	ASTM D412	190	102
Elongation (%)	ASTM D412	405	280
100% Modulus (kgf/cm^2)	ASTM D412	39.0	44.3

Heat Resistance

Properties	Test Method	Formulation 1	Formulation 2
Hardness (Change Point)	ASTM D2240	+1	+7
Tensile Strength (Change %)	ASTM D412	-7	+10
Elongation (Change %)	ASTM D412	-31	-40

** After 72 hours oven aging at 120 ℃ per ASTM D573*

Compression Set

Properties	Test Method	Formulation 1	Formulation 2
Compression Set (%)	ASTM D395 (Method B)	32.2	42.0

** After 70 hours at 100 ℃*

Formulation 3

	Formulation 3
S553	100.0
FEF	165.0
CaCO3	30.0
PEG-4000	1.0
P-6	100.0
ZnO	5.0
Stearic Acid	1.0
TMTD(TT)	0.6
DPTT(TRA)	0.4
ZnBDC(BZ)	2.0
CBS(CZ)	3.0
Sulfur	0.5
Total	**408.5**

** Unit: phr*

Properties	Test Method	Formulation 3
Compound Mooney Viscosity ML 1+4 @ 100℃	ASTM D1646	84.4
Pre-vulcanization characteristics	ASTM D1646	
Large Rotor at 125℃		
Minimum Viscosity (Vm)		52.1
t'5 (min)		8.70
t'35 (min)		13.03
Δt30		4.33
Rotorless Cure Meter (MDR, 160℃/30min)	ASTM D5289	
M_L (lb·in)		2.9
M_H (lb·in)		16.0
t_s2 (min)		2.03
t_c50 (min)		2.80
t_c90 (min)		3.83

Cured at 160℃ for 10 min

Properties	Test Method	Formulation 3
Specific Gravity	ASTM D792	1.21
Hardness (shore A)	ASTM D2240	75
Tensile Strength (kgf/cm^2)	ASTM D412	113
Elongation (%)	ASTM D412	342
100% Modulus (kgf/cm^2)	ASTM D412	38.3
Tear Strength (kgf/cm)	ASTM D624	39.8

Heat Resistance

Properties	Test Method	Formulation 3
Hardness (Change Point)	ASTM D2240	+4
Tensile Strength (Change %)	ASTM D412	0
Elongation (Change %)	ASTM D412	-35

** After 72 hours oven aging at 135℃ per ASTM D573*

Oil Resistance

Properties	Test Method	Formulation 3
Hardness (Change Point)	ASTM D2240	-31
Tensile Strength (Change %)	ASTM D412	-18
Elongation (Change %)	ASTM D412	-17
Volume Change (%)	ASTM D471	+58

** After 70 hours immersion in IRM903 oil at 100 ℃*

Compression Set

Properties	Test Method	Formulation 1
Compression Set (%)	ASTM D395 (Method B)	48.2

** After 72 hours at 120 ℃*

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