Product Data Sheet

SUPRENE® 5890F

SK global chemical

Product Data Sheet

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SUPRENE® 5890F

SUPRENE EPDM 5890F is a non-oil extended grade with very high Mooney viscosity and high ethylene content.

SUPRENE EPDM 5890F is well balanced in processability and physical properties with high loading fillers.
Its good green strength can give better shape retention and higher extrudability.

SUPRENE EPDM 5890F is mainly used solid extrudate for automotive parts such as window seal, hose 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	-	60	68	64
Ethylene Content *	ASTM D3900	wt%	65	71	68
ENB Content	ASTM D6047	wt%	4.5	6.5	5.5
Oil Content	-	phr	-	-	-
Specific Gravity	ASTM D792	-	-	-	0.86
Volatile Matter	ASTM D5668	wt%	-	0.8	-
Ash	ASTM D5667	wt%	-	0.15	-
Physical Form, (kg/bale)	-	-	-	-	25kg (Friable Bale)

* Ethylene Content + Propylene Content = 100%

SUPRENE® 5890F

Typical Properties

Properties	Test Method	S5890F
Mooney Viscosity ML 1+4 @ 150℃	ASTM D1646	64
Ethylene Content, wt%	ASTM D3900	68.0
ENB Content, wt%	ASTM D6047	5.5

Guide Formulation

Formulation 1 & 2

	Formulation 1	Formulation 2
S5890F	100.0	100.0
FEF	80.0	145.0
CaCO3	-	70.0
PEG-4000	-	2.0
P-6	50.0	95.0
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**	**423.8**

** Unit: phr*

Properties	Test Method	Formulation 1	Formulation 2
Compound Mooney Viscosity ML 1+4 @ 100℃	ASTM D1646	81.2	81.7
Pre-vulcanization characteristics	ASTM D1646		
Large Rotor at 125℃			
Minimum Viscosity (Vm)		51.9	52.6
t'5 (min)		15.53	5.40
t'35 (min)		26.47	7.37
Δt30		10.94	1.97
Rotorless Cure Meter (MDR, 160℃/30min)	ASTM D5289		
M_L (lb·in)		2.83	2.83
M_H (lb·in)		24.79	23.92
t_S2 (min)		2.17	0.95
t_C50 (min)		3.73	2.00
t_C90 (min)		6.84	15.59

Cured at 160℃ for 20 min

Properties	Test Method	Formulation 1	Formulation 2
Specific Gravity	ASTM D792	1.10	1.26
Hardness (shore A)	ASTM D2240	70	75
Tensile Strength (kgf/cm^2)	ASTM D412	189	121
Elongation (%)	ASTM D412	412	219
100% Modulus (kgf/cm^2)	ASTM D412	40.4	59.5

Heat Resistance

Properties	Test Method	Formulation 1	Formulation 2
Hardness (Change Point)	ASTM D2240	+2	+6
Tensile Strength (Change %)	ASTM D412	-2	+1
Elongation (Change %)	ASTM D412	-27	-35

** 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)	33.0	32.6

** After 72 hours at 100 ℃*

Formulation 3 & 4

	Formulation 3	Formulation 4
S5890F	100.0	100.0
FEF	155.0	140.0
CaCO3		20.0
PEG-4000	1.0	1.0
P-6	90.0	100.0
ZnO	5.0	5.0
Stearic Acid	1.0	1.0
MBT(M)	-	0.5
TMTD(TT)	0.7	0.8
DPTT(TRA)	0.7	0.8
TETD(TE)	0.2	0.5
ZnBDC(BZ)	1.5	-
CBS(CZ)	1.0	1.5
Vulnoc R	1.4	-
Sulfur	0.3	0.8
Total	**357.8**	**371.9**

** Unit: phr*

Properties	Test Method	Formulation 3	Formulation 4
Compound Mooney Viscosity	ASTM D1646	73.1	54.2
ML 1+4 @ 100℃			
Pre-vulcanization characteristics	ASTM D1646		
Large Rotor at 125℃			
Minimum Viscosity (Vm)		43.8	32.5
t'5 (min)		14.38	10.32
t'35 (min)		26.77	15.08
Δt30		12.39	4.76
Rotorless Cure Meter (MDR, 160℃/30min)	ASTM D5289		
M_L (lb·in)		3.03	1.76
M_H (lb·in)		18.33	13.31
t_S2 (min)		3.23	2.09
t_C50 (min)		4.86	2.71
t_C90 (min)		6.68	3.89

Cured at 160℃ for 10 min

Properties	Test Method	Formulation 3	Formulation 4
Specific Gravity	ASTM D792	1.16	1.17
Hardness (shore A)	ASTM D2240	73	69
Tensile Strength (kgf/cm^2)	ASTM D412	141	123
Elongation (%)	ASTM D412	268	439
100% Modulus (kgf/cm^2)	ASTM D412	56.4	33.0
Tear Strength (kgf/cm)	ASTM D624	45	44

Heat Resistance

Properties	Test Method	Formulation 3	Formulation 4
Hardness (Change Point)	ASTM D2240	+2	+3
Tensile Strength (Change %)	ASTM D412	+6	+2
Elongation (Change %)	ASTM D412	-21	-29

** After 168 hours oven aging at 100 ℃ per ASTM D573*

Properties	Test Method	Formulation 3	Formulation 4
Hardness (Change Point)	ASTM D2240	+6	+8
Tensile Strength (Change %)	ASTM D412	+1	+6
Elongation (Change %)	ASTM D412	-41	-49

** After 168 hours oven aging at 130 ℃ per ASTM D573*

Oil Resistance

Properties	Test Method	Formulation 3	Formulation 4
Hardness (Change Point)	ASTM D2240	-27	-36
Tensile Strength (Change %)	ASTM D412	-35	-47
Elongation (Change %)	ASTM D412	-26	-29
Volume Change (%)	ASTM D471	+83	+110

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

Compression Set

Properties	Test Method	Formulation 1	Formulation 2
Compression Set (%)	ASTM D395 (Method B)	34.6	42.3

** After 70 hours at 100 ℃*

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