

Product Data Sheet

SUPRENE[®] 512F

 **SK** global chemical

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SUPRENE[®] 512F

SUPRENE EPDM 512F has high ethylene content for high green strength of uncured rubber.

Since SUPRENE EPDM 512F can make a formulation incorporating large quantities of fillers and process oil, the resulting compound is inexpensive. In addition, its 'friable bale' form facilitates its mixing with ingredients by means of a Banbury mixer and at shorter mixing time, which results in energy saving.

For examples of application of SUPRENE EPDM 512F making the best use of its above-mentioned characteristics, there are various extrusion products, such as hose, window gasket, various molded products, and low cost compounds.

Raw Polymer Properties

| | Test Method | Unit | Min. | Max. | Typical Value |
|---|-------------|------|------|------|------------------------|
| Mooney Viscosity, (ML 1+4, 125°C unmilled) | ASTM D1646 | - | 58 | 68 | 63 |
| Ethylene Content * | ASTM D3900 | wt% | 67 | 71 | 69 |
| 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) | - | - | - | - | 25kg (Friable Bale) |

* Ethylene Content + Propylene Content = 100%



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Typical Properties

| Properties | Test Method | S512F |
|------------------------------------|-------------|-------|
| Mooney Viscosity ML 1+4 @ 125°C | ASTM D1646 | 63.0 |
| Ethylene Content, wt% | ASTM D3900 | 69.0 |
| ENB Content, wt% | ASTM D6047 | 4.5 |

Guide Formulation

| | Formulation 1 | Formulation 2 |
|-------------------|---------------|---------------|
| S512F | 100.0 | 100.0 |
| FEF | 104.0 | 80.0 |
| CaCO ₃ | 53.0 | - |
| PEG-4000 | 1.0 | - |
| CIR | 1.5 | - |
| P-6 | 90.0 | 50.0 |
| ZnO | 5.0 | 5.0 |
| Stearic Acid | 2.0 | 1.0 |
| MBT(M) | 1.4 | 0.5 |
| CBS(CZ) | 1.1 | - |
| TMTD(TT) | - | 1.0 |
| Sulfur | 0.7 | 1.5 |
| Total | 359.7 | 239.0 |

* Unit: phr



| Properties | Test Method | Formulation 1 | Formulation 2 |
|---|-------------|---------------|---------------|
| Compound Mooney Viscosity ML 1+4 @ 100°C | ASTM D1646 | 49.1 | 73.8 |
| Pre-vulcanization characteristics Large Rotor at 125°C | ASTM D1646 | | |
| Minimum Viscosity (Vm) | | 31.1 | 46.5 |
| t'5 (min) | | 22.78 | 16.43 |
| t'35 (min) | | 35.19 | 28.08 |
| Δt30 | | 12.41 | 11.65 |
| Rotorless Cure Meter (MDR, 160°C/30min) | ASTM D5289 | | |
| M _L (lb·in) | | 1.5 | 2.36 |
| M _H (lb·in) | | 12.90 | 25.76 |
| t _{S2} (min) | | 3.60 | 2.19 |
| t _{C50} (min) | | 5.14 | 3.85 |
| t _{C90} (min) | | 11.25 | 8.42 |

Cured at 160°C for 20 min

| Properties | Test Method | Formulation 1 | Formulation 2 |
|---|-------------|---------------|---------------|
| Specific Gravity | ASTM D792 | 1.19 | 1.09 |
| Hardness (shore A) | ASTM D2240 | 65 | 69 |
| Tensile Strength (kgf/cm ²) | ASTM D412 | 120 | 185 |
| Elongation (%) | ASTM D412 | 656 | 436 |
| 100% Modulus (kgf/cm ²) | ASTM D412 | 18.6 | 35.1 |



Heat Resistance

| Properties | Test Method | Formulation 1 | Formulation 2 |
|-----------------------------|-------------|---------------|---------------|
| Hardness (Change Point) | ASTM D2240 | +4 | +3 |
| Tensile Strength (Change %) | ASTM D412 | +4 | -7 |
| Elongation (Change %) | ASTM D412 | -27 | -31 |

* After 72 hours oven aging at 120 °C per ASTM D573

Compression Set

| Properties | Test Method | Formulation 1 | Formulation 2 |
|---------------------|-------------------------|---------------|---------------|
| Compression Set (%) | ASTM D395 (Method B) | 51.4 | 45.2 |

* After 72 hours at 100 °C

