

Product Data Sheet

# SUPRENE<sup>®</sup> 675WF

## SUPRENE<sup>®</sup> 675WF

SUPRENE EPDM 675WF is an oil extended 'friable bale' ENB type grade which contains 75phr of non-staining white paraffinic oil.

SUPRENE EPDM 675WF is possible to load it with high concentration of fillers etc. When blended with non-oil extended SUPRENE EPDM grade, the SUPRENE EPDM 675WF improves the properties and processability (at mixing and extruding) of the non-oil extended grade.

It can be formulated to make products of lower hardness.

Its blend with diene-type rubber gives excellent physical properties.

SUPRENE EPDM 675WF is mainly used in automotive parts such as window seal, hose, and various industrial parts.

### Raw Polymer Properties

|   | Test Method | Unit | Min. | Max. | Typical Value               |
|---|-------------|------|------|------|-----------------------------|
| Mooney Viscosity,<br>(ML 1+4, 125°C unmilled) | ASTM D1646  | -    | 57   | 67   | 62                          |
| Ethylene Content                              | ASTM D3900  | wt%  | 68   | 72   | 70                          |
| ENB Content                                   | ASTM D6047  | wt%  | 4.2  | 5.2  | 4.7                         |
| Oil Content                                   | -           | phr  | 72   | 78   | 75                          |
| Physical Form,<br>(kg/bale)                   | -           | -    | -    | -    | Friable Bale<br>(25kg/bale) |

\* Ethylene Content + Propylene Content = 100%

## SUPRENE<sup>®</sup> 675WF

### Raw Polymer

| Properties            | Test Method | S675WF |
|-----------------------|-------------|--------|
| Mooney Viscosity      | ASTM D1646  |        |
| ML 1+4 @ 125°C        |             | 62     |
| Ethylene Content, wt% | ASTM D3900  | 70     |
| ENB Content, wt%      | ASTM D6047  | 4.7    |
| Oil Content, phr      | -           | 75     |

### Formulation for High loading Applications

|                   | S675WF       |
|-------------------|--------------|
| EPDM              | 175          |
| N550 Carbon Black | 150          |
| Talc (PG-600)     | 90           |
| P-6 Oil           | 75           |
| PEG-4000          | 2.0          |
| KML #600          | 3.0          |
| ZnO               | 5.0          |
| Stearic Acid      | 1.0          |
| MBT(M)            | 1.0          |
| TMTD(TT)          | 0.5          |
| CBS(CZ)           | 2.0          |
| DPTT(TRA)         | 0.5          |
| Sulfur            | 1.5          |
| <b>Total</b>      | <b>506.5</b> |

\* Unit: phr

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### Vulcanization

| Properties                              | Test Method | S675WF |
|---|-------------|--------|
| Compound Mooney Viscosity               | ASTM D1646  |        |
| ML 1+4 @ 100°C                          |             | 59.2   |
| Pre-vulcanization characteristics       | ASTM D1646  |        |
| Large Rotor at 125°C                    |             |        |
| Minimum Viscosity (Vm)                  |             | 37.8   |
| t'5 (min)                               |             | 8.3    |
| t'35 (min)                              |             | 12.0   |
| Δt30                                    |             | 3.7    |
| Rotorless Cure Meter (MDR, 160°C/15min) | ASTM D5289  |        |
| M <sub>L</sub> (lb·in)                  |             | 2.0    |
| M <sub>H</sub> (lb·in)                  |             | 10.0   |
| t <sub>S2</sub> (min)                   |             | 2.0    |
| t <sub>C50</sub> (min)                  |             | 2.7    |
| t <sub>C90</sub> (min)                  |             | 8.1    |

### Cured at 160°C for 20 min

| Properties                              | Test Method | S675WF |
|---|-------------|--------|
| Specific Gravity                        | ASTM D792   | 1.2    |
| Hardness (shore A)                      | ASTM D2240  | 69.4   |
| Tensile Strength (kgf/cm <sup>2</sup> ) | ASTM D412   | 130    |
| Elongation (%)                          | ASTM D412   | 427    |
| 100% Modulus (kgf/cm <sup>2</sup> )     | ASTM D412   | 37.7   |

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### Heat Resistance

| Properties                  | Test Method | S675WF |
|-----------------------------|-------------|--------|
| Hardness (Change Point)     | ASTM D2240  | 3      |
| Tensile Strength (Change %) | ASTM D412   | -3     |
| Elongation (Change %)       | ASTM D412   | -33    |

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

### Compression Set

| Properties              | Test Method | S675WF |
|-------------------------|-------------|--------|
| Compression Set (%)     | ASTM D395   |        |
| After 72 hours at 100°C | (Method B)  | 53.7   |

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## SUPRENE<sup>®</sup> 675WF

### Raw Polymer

| Properties            | Test Method | S675WF |
|-----------------------|-------------|--------|
| Mooney Viscosity      | ASTM D1646  |        |
| ML 1+4 @ 125°C        |             | 62     |
| Ethylene Content, wt% | ASTM D3900  | 70     |
| ENB Content, wt%      | ASTM D6047  | 4.7    |
| Oil Content, phr      | -           | 75     |

### Formulation for Non-black Applications

|                     | S675WF       |
|---------------------|--------------|
| EPDM                | 175          |
| Zeosil 155(Silica)  | 45           |
| P-6(Paraffinic Oil) | 45           |
| CaCo3               | 50           |
| SDA-21G             | 4.0          |
| PEG-4000            | 4.0          |
| ZnO                 | 5.0          |
| Stearic Acid        | 2.0          |
| MBT(M)              | 1.0          |
| CBS(CZ)             | 0.5          |
| TMTD(TT)            | 0.7          |
| ZnMDC(PZ)           | 0.4          |
| Sulfur              | 1.5          |
| <b>Total</b>        | <b>334.1</b> |

\* Unit: phr

## Vulcanization

| Properties                              | Test Method | S675WF |
|---|-------------|--------|
| Compound Mooney Viscosity               | ASTM D1646  |        |
| ML 1+4 @ 100°C                          |             | 61.7   |
| Pre-vulcanization characteristics       | ASTM D1646  |        |
| Large Rotor at 125°C                    |             |        |
| Minimum Viscosity (Vm)                  |             | 31.4   |
| t'5 (min)                               |             | 12.3   |
| t'35 (min)                              |             | 17.4   |
| Δt30                                    |             | 5.03   |
| Rotorless Cure Meter (MDR, 160°C/15min) | ASTM D5289  |        |
| M <sub>L</sub> (lb·in)                  |             | 1.9    |
| M <sub>H</sub> (lb·in)                  |             | 9.2    |
| t <sub>S2</sub> (min)                   |             | 2.5    |
| t <sub>C50</sub> (min)                  |             | 3.1    |
| t <sub>C90</sub> (min)                  |             | 9.6    |

## Cured at 160°C for 20 min

| Properties                              | Test Method | S675WF |
|---|-------------|--------|
| Specific Gravity                        | ASTM D792   | 1.1    |
| Hardness (shore A)                      | ASTM D2240  | 53.7   |
| Tensile Strength (kgf/cm <sup>2</sup> ) | ASTM D412   | 143    |
| Elongation (%)                          | ASTM D412   | 727    |
| 100% Modulus (kgf/cm <sup>2</sup> )     | ASTM D412   | 13     |

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### Heat Resistance

| Properties                  | Test Method | S675WF |
|-----------------------------|-------------|--------|
| Hardness (Change Point)     | ASTM D2240  | 2      |
| Tensile Strength (Change %) | ASTM D412   | 3      |
| Elongation (Change %)       | ASTM D412   | -16    |

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

### Compression Set

| Properties              | Test Method | S675WF |
|-------------------------|-------------|--------|
| Compression Set (%)     | ASTM D395   |        |
| After 72 hours at 100°C | (Method B)  | 58.7   |



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