

Tecnoflon® P 459

Peroxide Curable Terpolymer

Tecnoflon® P 459 is a low viscosity, high fluorine (70%), peroxide curable fluoroelastomer. Tecnoflon® P 459 exhibits superior resistance to a wide variety of chemicals, coupled with excellent processability and optimum compression set. Tecnoflon® P 459 can be cross-linked using organic peroxides in conjunction with a co-agent. Tecnoflon® P 459 is a lower viscosity version of Tecnoflon® P 959: please refer to Tecnoflon® P 959 Technical data sheet for data on chemical resistance.

Some of the basic properties of Tecnoflon® P 459 are:

- Low post cure
- Superior mold flow
- Lack of mold fouling
- Excellent mold release
- Good chemical resistance
- Alcohol containing fuels
- Steam
- Fluids containing amine additives

Tecnoflon® P 459 can be used for injection and transfer molding of shaft seals, valve seals, O-rings, gaskets or any item requiring superior chemical resistance. Tecnoflon® P 459 can be combined with the cure system and other typical fluoroelastomer compounding ingredients. Mixing can be accomplished with two roll mills or internal mixers.

Tecnoflon® P 459 can be extruded into hoses or profiles and can be calendered to make sheet stocks or belting. Finished goods may be produced by a variety of rubber processing methods.

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.

Basic characteristics of the raw polymer are as follows:

| Property | Typical Value | Unit | Test Method |
|----------------------|--------------------|-------------------|------------------------------|
| ML (1+10') at 121 °C | 24 | MU | ASTM D1646 |
| Fluorine content | 70 | % | Solvay Internal Method – NMR |
| Specific gravity | 1.90 | g/cm ³ | ASTM D792 |
| Colour | Translucent | | |
| Packaging / Form | Slabs | | |
| Solubility | Ketones and esters | | |

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Typical properties

| Property | Typical Value | Unit | Test Method |
|-------------------------|---------------|------|-------------|
| Tecnoflon® P 459 | 100 | phr | |
| Luperox® 101XL-45 | 3 | phr | |
| Drimix® TAIC (75%) | 4 | phr | |
| ZnO | 5 | phr | |
| N-990 MT Carbon Black | 30 | phr | |

| Property | Typical Value | Unit | Test Method |
|---------------------------------------|---------------|-------|-------------|
| Mooney viscosity ML (1+10') at 121 °C | 27 | MU | ASTM D1646 |
| Mooney Scorch MS 135 °C | | | ASTM D1646 |
| MV | 13.5 | MU | |
| t ₁₅ | 7.8 | min | |
| ODR 12 min at 177 °C arc 3° | | | ASTM D2084 |
| Minimum torque | 6.5 | lb·in | |
| Maximum torque | 150 | lb·in | |
| t _{s2} | 0.9 | min | |
| t' ₉₀ | 2.0 | min | |
| MDR 6 min at 177 °C arc 0.5° | | | ASTM D6601 |
| Minimum torque | 0.65 | lb·in | |
| Maximum torque | 29.3 | lb·in | |
| t _{s2} | 0.4 | min | |
| t' ₅₀ | 0.6 | min | |
| t' ₉₀ | 0.9 | min | |
| MDR 12 min at 160 °C arc 0.5° | | | ASTM D6601 |
| Minimum torque | 0.68 | lb·in | |
| Maximum torque | 30.2 | lb·in | |
| t _{s2} | 0.8 | min | |
| t' ₅₀ | 1.5 | min | |
| t' ₉₀ | 2.9 | min | |

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| Property | Typical Value | Unit | Test Method |
|--|---------------|--------|-----------------------|
| Press cure: 6 min at 170 °C, 4 h at 230 °C | | | |
| 100% Modulus | 8.4 | MPa | ASTM D412C |
| Tensile strength | 23.7 | MPa | |
| Elongation at break | 205 | % | |
| Hardness | 76 | ShoreA | ASTM D2240 |
| Compression set 25 % deformation, 70 h at 200 °C | | | |
| O-ring #214 | 19 | % | ASTM D395 method B |
| 6 mm buttons | 15 | % | |
| Temperature retraction | | | |
| TR ₁₀ | -5 | °C | ASTM D1329 |

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