

3M™ Dyneon™ Fluoroelastomer FC 2179

Features and Benefits

- Composition: di-polymer of vinylidene fluoride and hexafluoropropylene
- High viscosity
- Process targets: compression molding
- Excellent compression set resistance
- Proprietary incorporated cure technology

Note: Data in this document are not for specification purposes.

Typical Properties

| Property | |
|---|--------------------|
| Fluorine Content | 65.9% |
| Specific Gravity | 1.80 |
| Color | Opaque Off-White |
| Solubility | Ketones and Esters |
| Mooney Viscosity ML 1 + 10 @ 121°C (250°F) | Approximately 80 |

Product Description

3M™ Dyneon™ Fluoroelastomer FC 2179 can be compounded using standard water cooled internal mixers or two-roll mills with standard fillers and ingredients utilized in typical fluoroelastomer formulations. The “dry” ingredients should be blended before adding to the masticated gum. For best results, Dyneon FC 2179 should be banded on the mill several minutes prior to adding the blended dry ingredients. Once mixed, the compounded stocks have good scorch resistance and storage stability.

Product Form

FC 2179 is packaged in slab form and is available in a returnable bulk shipping container system for 1,320 lbs (600 kg) of material. The bulk container system is comprised of 48 individual polyethylene bags containing 27.5 lbs (12.5 kg) of product. Smaller quantities are available in 55.1 lb (25.0 kg) boxes.

Safety/Toxicology

Follow recommended handling precautions for use of 3M fluoroelastomers. General handling precautions include: (1) Store and use all 3M fluoroelastomers only in well ventilated areas. (2) Do not smoke in areas contaminated with dust from 3M fluoroelastomers. (3) Avoid eye contact. (4) After handling 3M fluoroelastomers wash any contacted skin with soap and water.

Potential hazards, including evolution of toxic vapors, do exist during compounding or processing under high temperature conditions. Before processing 3M fluoroelastomers, consult the product MSDS (Material Safety Data Sheet) and follow all label directions and handling precautions. You should also read and follow all directions from other compound ingredient suppliers. Material Safety Data Sheets on 3M products are available from your 3M Sales Representative.

ISO 9001

All 3M fluoroelastomers are manufactured at ISO 9001 registered facilities. Our product realization process is also ISO 9001 registered.



Note: Data in this document are not for specification purposes.

Typical Properties of Vulcanizate

| Compound | phr |
|----------------------|-----|
| FC 2179 | 100 |
| N990 MT Carbon Black | 30 |
| MgO | 3 |
| Ca(OH) ₂ | 6 |

Typical Rheological Properties Moving Die Rheometer (MDR) 100 cpm, 0.5° Arc, 6 Minutes

| Temperature | 177°C (350°F) |
|--|---------------|
| ML, Minimum Torque, Inch-lb (dN m) | 3.6 (4.1) |
| t ₂ , Time to 2 Inch-lb Rise from Minimum – Minutes | 1.3 |
| t ₅₀ , Time to 50% Cure – Minutes | 1.9 |
| t ₉₀ , Time to 90% Cure – Minutes | 2.5 |
| MH, Maximum Torque, Inch-lb (dN m) | 27.8 (31.4) |

Typical Physical Properties Press Cure 5 Minutes @ 177°C (350°F) Post Cure 24 Hours @ 260°C (500°F)

| | |
|--------------------------------|-------------|
| Tensile, psi (Mpa) | 2475 (17.1) |
| 100% Modulus, psi (Mpa) | 1100 (7.6) |
| Elongation at Break, % | 180 |
| Hardness, Shore A [ASTM D2240] | 76 |

Compression Set Resistance, (ASTM D395 Method B, -214 O-rings)

| | |
|-------------------------------|-----|
| Aged 70 hours @ 200°C (392°F) | 10% |
|-------------------------------|-----|

| | |
|--------------------------|--------------------|
| TR10 [ASTM D1329] | -18°C (0°F) |
|--------------------------|--------------------|

Warranty, Limited Remedy, and Disclaimer: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. User is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application. Unless a different warranty is specifically stated in the applicable product literature or packaging insert, 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. If the 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

Limitation of Liability: Except where prohibited by law, 3M will not be liable for any loss or damages arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.

Technical Information: Technical information, recommendations, and other statements contained in this document or provided by 3M personnel are based on tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed. Such information is intended for persons with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. No license under any 3M or third party intellectual property rights is granted or implied with this information.

