



Viton™ FreeFlow™ Z200 and Z210

Fluoroelastomers

Technical Information

Introduction

Viton™ FreeFlow™ Z200 and Z210 are process aids for polyolefins that provide outstanding performance through the full range of polyolefin processing conditions to eliminate melt fracture, lower extrusion pressure, reduce amperage and torque, and reduce die buildup. The two products differ only in the rheology of the fluoroelastomer component.

Both Z200 and Z210 take advantage of proprietary large-particle technology to provide a highly efficient process aid that performs under a wide variety of extruder conditions and with formulations that cause other process aids to function marginally. Z200 and Z210 combine improved fluoroelastomer rheology with a non-blooming, thermally stable, proprietary interfacial agent to control the fluoroelastomer particle size delivered to the die. The resulting large particles of fluoroelastomer coat internal die surfaces more quickly and with lower dosage levels than do conventional process aids.

Z200 is best suited for the most aggressive mixing situations, such as:

- Direct dosage during production of gas phase LLDPE (1.0 MI or less)
- Low concentration masterbatches (typically 2% process aid) in LLDPE carrier (5 MI or less)
- All extrusion processes (e.g., film, pipe) using 2 MI or less LLDPE and mLLDPE or HDPE, particularly with high pigment or anti-block loadings
- Extrusion under conditions that promote mixing, such as high back pressure (from narrow die gaps or tight screen packs), or high shear screw elements (e.g., Maddock tips)

Z210 is best suited for applications involving moderate mixing conditions, such as:

- Dosage during production of solution LLDPE (either direct or via masterbatch)
- High concentration masterbatches (2–4% process aid), particularly with LDPE, PP, EVA carriers
- All extrusion processes (film, pipe, etc.) using 3 MI or more LLDPE, LL/LD blends PP resins
- Extrusion under low shear mixing conditions

Advantages

- Improved rates of conditioning during start-up of new lines or purged systems
- Improved performance on difficult lines or with difficult formulations without the need for high additive levels often required with other process aids
- Improved economics
- Excellent thermal stability (up to 300 °C [572 °F]) for cast film lines where polyethylene glycol-based process aids may degrade
- Improved performance in masterbatches containing pigments or high filler loadings
- Improved resistance to negative interactions with other additives like HALS, fillers, and anti-block
- Approved for many food contact uses* and suitable for potable water appliances**

* Manufacturer or marketer of products or articles in contact with food must meet applicable food contact regulations. Contact Chemours for details regarding suitability of Viton™ FreeFlow™ products in specific food contact applications.

**Appliance manufacturer or marketer is responsible for ensuring appliance meets requirements for potable water use.



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Formulation Guidelines

To assist in resin formulation, the following can be used as a general guide:

| | |
|---|---------|
| Elimination of Sharkskin Melt Fracture, ppm | |
| In standard film resins | 250–500 |
| In heavily filled or pigmented film | 500–800 |
| Reduction of Die Buildup, ppm | |
| | 50–250 |

Levels are parts per million Viton® FreeFlow™ Z200 or Z210

These numbers are starting points for formulation. The actual level required depends on many factors.

Typical Physical Properties

| | |
|----------------|----------------------------|
| Appearance | White, free-flowing powder |
| Packaging | 20-kg bag |
| Shelf Life, yr | 4* |

*Normal storage conditions—dry, unopened, temperature below 27 °C (80 °F)

For more information, visit Viton.com

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