



# Viton™ FreeFlow™ 5500

## Fluoroelastomers

## Technical Information

### Introduction

Viton™ FreeFlow™ 5500 “general-purpose” polymer process aid (PPA) is a new addition to the comprehensive range of Chemours additives. As the name suggests, Viton™ FreeFlow™ 5500 is designed to improve processing of polyolefins polymers in a wide range of applications where conventional PPAs are currently used. Viton™ FreeFlow™ 5500 is easy to disperse and does not require extensive qualification effort to adopt. Consider replacing conventional PPAs with Viton™ FreeFlow™ 5500 to solve standard processing issues.

Viton™ FreeFlow™ 5500 is a fluoroelastomer processing additive combined with a synergist (PEG). This combination eliminates melt fracture, reduces die buildup, lowers extrusion pressure, and reduces amperage and torque, which contribute to higher output and quality products.

Figures 1 and 2 represent the addition of Viton™ FreeFlow™ 5500 at 400 ppm through a 2% masterbatch in a linear low density polyethylene C4 resin (MFR 1 g/10 min, 190 °C [374 °F], 2.16 kg) as compared to a representative commercial PPA (named PPA-A) reflecting a second generation product. The performance is evaluated with a semi-industrial scale blown film line in clear resin LLDPE C4 1 MI.

**Clear resin (no additives):** In Figure 1, no other additives are used. As illustrated, Viton™ FreeFlow™ 5500 clearly differentiates versus PPA-A, especially to eliminate the remaining thin streaks on the film.

**Presence of anti-blocking agent:** In Figure 2, anti-block (talc) is added at 3000 ppm with a 20% masterbatch. Viton™ FreeFlow™ 5500 is very effective compared to other conventional PPAs.

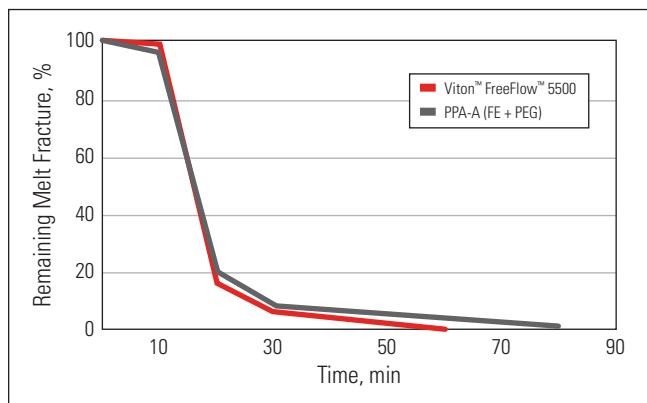
Viton™ FreeFlow™ 5500 is the PPA of choice for general-purpose application because it is effective, easily replaces existing solutions, and provides an ideal price to performance balance.

**Figure 1. Viton™ FreeFlow™ 5500 vs. Other PPA**

Shear rate: 461 sec<sup>-1</sup>

Resin: LLDPE C4 1 MI

Active PPA content: 400 ppm



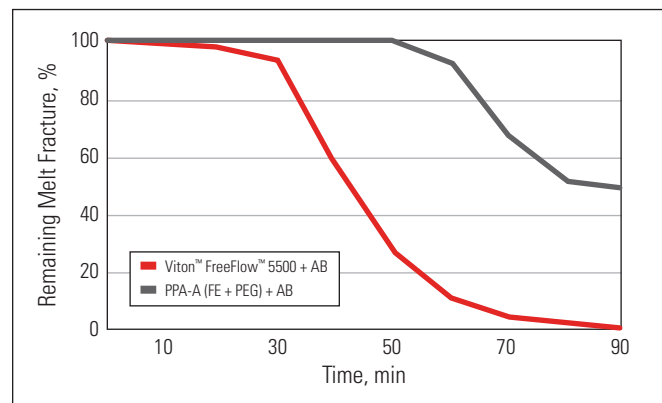
**Figure 2. Viton™ FreeFlow™ 5500 vs. Other PPA**

Shear rate: 461 sec<sup>-1</sup>

Resin: LLDPE C4 1 MI

Active PPA content: 400 ppm

Talc anti-block: 3000 ppm



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### Applications of Viton™ FreeFlow™ 5500

- Direct dosage during production of gas phase LLDPE (1.0 MI or more)
- Dosage during production of solution phase LLDPE (either direct or via masterbatch)
- Low concentration masterbatches (typically, 2–3% process aid) in LLDPE carrier with MI of 2 or more; can also be used in highly-concentrated masterbatch
- All extrusion processes using LLDPE, mLLDPE or HDPE, LLDPE/LDPE blends, or LLDPE/LDPE blends, including also pigment or anti-blocking agent

### Advantages

- Process improvements in all types of polyolefins, including HDPE, LDPE, and LLDPE
- Elimination of melt fracture or surface defect
- Reduction of die buildup
- Reduction of die pressure
- Lower torque and amperage
- 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.

### 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	200–800
In heavily filled or pigmented film	600–1000
Reduction of die buildup, ppm	100–200

Levels are parts per million Viton™ FreeFlow™ 5500.

These numbers are intended to be starting points for formulation. The actual level required will depend on a multitude of 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)

### Safety and Handling

Viton™ FreeFlow™ 5500 is considered safe material to handle. It is stable at the temperatures at which polyolefins are formulated and processed. However, prior to the use of Viton™ FreeFlow™ 5500 in polyolefins, review the Safety Data Sheet (SDS) and follow the recommendations in the Chemours technical bulletin, “Guide for Concentrate Preparation and Handling of Viton™ FreeFlow™ PPAs.”

### For more information, visit [Viton.com](http://Viton.com)

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