

# 3M™ Dynamar™ Polymer Processing Additive FX 9614

## Features and Benefits

- Broadens extrusion processing capabilities of polyolefin resins
- Ideal for use in low melt index LLDPE and high molecular weight HDPE resins
- Excellent thermal stability for high temperature processing
- Reduces or eliminates melt fracture
- Reduces or eliminates die build-up
- Lowers apparent melt viscosity
- For use at very low levels
- Free-flowing fluoropolymer based processing aid
- Can offer performance and cost advantages

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

## Typical Properties

Property	
Form	Granular
Partitioning Agent	10% Inorganic
Color	Off-White
Particle Size	Approximately less than 10 Mesh
Bulk Density	41 lb/ft <sup>3</sup> (0.7 g/cm <sup>3</sup> )
Typical Use Levels	50 – 800 ppm

## Product Description

3M™ Dynamar™ Polymer Processing Additive FX 9614 is a free-flowing granular concentrate form of a fluoropolymer designed for use at very low levels to improve the processing of thermoplastics. At the very low use levels (typically 50 – 800 ppm) necessary to improve processing, it does not alter or detract from the good mechanical properties associated with high strength plastics.

Dynamar FX 9614 exhibits exceptional commercial utility in low melt index film grade polyolefins such as linear low density polyethylene (LLDPE and mLLDPE) and higher molecular weight, high density polyethylene (HMW-HDPE) resins. It can also be used at low levels to reduce extruder die build-up when processing LDPE, EVA and other polyolefin resins.

FX 9614 lowers apparent melt viscosity and permits processors to use high strength resins which otherwise could not be processed on available equipment.

As a polymer processing additive FX 9614 reduces or eliminates melt fracture and can reduce extruder torque. Through optimization of the extrusion process, the use of FX 9614 may also allow an increase in output and yield films with enhanced and balanced bi-directional physical properties and improved clarity and gloss.

## Incorporation Procedure

To be effective, FX 9614 must be melt blended into the host resin at one of the following stages prior to conversion into extruded products.

- Resin Producer
  - Direct addition (See Dynamar PPAs “Direct Addition During Resin Manufacture Guidelines”)
  - Use a concentrate containing 2-3% FX 9613 and let down to an appropriate level
- Concentrate Producer
  - See Dynamar PPAs “Concentrate Preparation Guidelines”
- End User
  - Source resin containing FX 9614 from a resin producer or
  - Source a concentrate containing 2-3% FX 9613 and let down to an appropriate level

## Storage and Handling

3M™ Dynamar™ FX 9614 should be stored in a clean dry environment at temperatures below 27°C (80°F) to prevent agglomeration and to insure long term storage stability. Please refer to the Material Safety Data Sheet for details on handling.

## Food Contact/FDA Regulatory Status

This 3M product may be used at levels up to 2000 parts per million (ppm) as a polymer processing additive for all polymers intended for use in contact with all food types described in Table 1 of 21 C.F.R. 176.170(c) under Conditions of Use A through H described in Table 2 of 21 C.F.R. 176.170(c).

3M makes no recommendation about the suitability of these products in the user's intended application. It is user's responsibility to determine whether its use of 3M products in a particular application is suitable and will comply with applicable laws and regulations.

## Safety/Toxicology

To avoid potential hazards (including the evolution of toxic vapors) associated with processing this material, please read and follow the information provided in these documents available to you through your 3M sales representative:

- Product Label
- Material Safety Data Sheet
- Dynamar PPAs Concentrate Preparation Guidelines
- Dynamar PPAs Direct Addition During Resin Manufacture
- Dynamar PPAs Evaluation Guidelines

You should also read and follow all directions from suppliers of other ingredients that you intend to use in conjunction with 3M PPA material.

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