

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	56 lb/ft ³ (0.9 g/cm ³)
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 as an extrusion aid under 21 C.F.R. 177.1520 in the extrusion of olefin polymers for use as articles or components or articles intended for food contact subject to the provisions, including specifications, conditions of use, or limitations, if any, in this regulation including use at levels not to exceed 0.22% of the 3M product or 0.2% of the fluoropolymer (CAS 9011-17-0) by weight of the olefin polymer and use of the finished olefin polymer only under the conditions described in 21 C.F.R. 176.170(c), Table 2, under conditions of use B through H.

This 3M product may be used as a processing aid under 21 C.F.R. 177.1350 for ethylene-vinyl acetate copolymers for use as articles or components of articles intended for use in producing, manufacturing, packing, processing, preparing, treating, packaging, transporting, or holding food subject to the provisions, including specifications, conditions of use, or limitations, if any, in this regulation including use at levels not to exceed 0.22% of the 3M product or 0.2% of the fluoropolymer (CAS 9011-17-0) by weight of ethylene-vinyl acetate copolymers.

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.

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.

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