



RETAIN™ 2000

The Dow Chemical Company - Recycle Compatibilizer

Sunday, November 3, 2019

General Information

Product Description

RETAIN™ 2000 is a unique technology designed to enable effective compatibilization of polar and non-polar polymeric components typically found in recycle streams. This compatibilizer was developed using Dow's extensive knowledge in Materials Science and reactive chemistry to enable the efficient compatibilization of two otherwise immiscible entities while maintaining critically valued physical properties. RETAIN™ 2000 is most specifically designed to compatibilize polyamide (nylon) and ethylene-vinyl alcohol (EVOH) into a continuous polyethylene matrix. These polymers achieve their functionality by reacting with the polar polymers and then efficiently dispersing them into the polyethylene majority matrix. Due to the complex nature of a recycle stream, the typical properties reflect those found in select instances but serve as a guide for anticipated properties while recognizing that the reprocessing equipment selected will define the ultimate utility of the compatibilizer. Additionally, the level of recycle compatibilizer needed to achieve maximum physical properties is dependent on the amount and type of polar polymer present in the recycle stream.

Main Characteristics:

- Useful for compatibilizing EVOH and nylon into a polyethylene continuous matrix
- Stable physical properties optimally achieved using RETAIN™ 2000
- Uniquely designed to enable excellent tensile and puncture performance for a recycle stream
- Wide range of process and service temperatures
- RETAIN™ 2000 is designed with low color to enable broad utility of the recycle stream into color sensitive applications
- Viscosity of RETAIN™ 2000 is designed to easily mix via typical reprocessing equipment with minimal adaptations

General Utility Guidelines(1):

- For recycle streams containing EVOH, the addition level is optimal when the percent addition of RETAIN™ 2000 is equal to the percent of EVOH in the recycle stream
- For recycle streams containing nylon, the addition level may be as low as one-half the addition of RETAIN™ 2000 relative to the level of nylon in the recycle stream
- For recycle streams containing polyethylene terephthalate (PET), RETAIN™ 2000 is not recommended as a recycle compatibilization additive
- The addition rate of RETAIN™ 2000 should not exceed 20% in a recycle stream

Complies with:

- US FDA 21 CFR 175.105 (compliance defined by total recycle stream compliance) and is not designed for direct food contact.

(1) Recycle streams are often complex and the guidelines suggested should not be construed as absolute formulations. Users should consult with Dow technical representatives for additional assistance.

General

Material Status	• Commercial: Active		
Availability	• Africa & Middle East • Asia Pacific	• Europe • Latin America	• North America
Agency Ratings	• FDA 21 CFR 175.105		
Forms	• Pellets		

ASTM & ISO Properties ¹

Physical	Nominal Value	Unit	Test Method
Density / Specific Gravity	0.914		ASTM D792
Thermal	Nominal Value	Unit	Test Method
Melting Temperature	260 to 450	°F	Internal Method
Optical	Nominal Value	Unit	Test Method
Yellowness Index	< 20	YI	ASTM D2457
Additional Information	Nominal Value	Unit	Test Method
Active Ingredient - active	> 98	%	Internal Method

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Processing Information

Extrusion Notes

Fabrication conditions depend upon the processing methodology used (Recycle processing guidelines available upon request).

Notes

¹ Typical properties: these are not to be construed as specifications.