HYDREPEL® W-301
Polypropylene Hydrophobic Modifier

Introduction

HYDREPEL®W-301 modifier is internal polymer modifier composed of proprietary formulations. It is designed to be used in polypropylene fiber applications as hydrophobic surface modifier. Incorporation of HYDREPEL® W-301 into polypropylene polymer allows the fiber producer to introduce durable hydrophobicity as well as to improve the softness and drape or "hand" of polypropylene fibers and fabrics. HYDREPEL® W-301 is a 20% to 40% active masterbatch ready to be used for direct addition through various metering devices. Base polymer resin of HYDREPEL® W-301 is chosen to provide matching melt flow index of desired application process (spun bond, melt blown, BCF, filament, etc). HYDREPEL® W-301 can be recommended as surface modifier imparting improved durable water repellency for polypropylene nonwovens, carpet, apparel, and upholstery markets.

Modifier Application Information

HYDREPEL® W-301 modifier is custom formulated to achieve the appropriate processing and performance requirements. Goulston recommends approximately 2.5% to 20% let down ratios depending on masterbatch concentration and final product application and construction. However, as each process and intended application is different, the exact level of addition should be determined by the customer.

HYDREPEL® W-301 should be thoroughly gravimetrically blended with virgin polypropylene resins. Pre-blended mixture of HYDREPEL® W-301 with base polymer should be added directly into the hopper of extruder. Usage of gravimetric side feeders is possible and highly recommended. Virgin polypropylene homo-polymer resins should have an optimal range between 3.0 and 800.0 melt flow index (MFI).

Processing Conditions

HYDREPEL® W-301 should be used in the extrusion process at approximately 260±5ºC, although higher temperatures may be employed. Depending on processing conditions, the melt flow of the modified resin system during extrusion may be slightly increased allowing higher throughput and finer fibers to be produced.

Modifier Measurement

To determine the exact amount of modifier in the final product hot Soxhlet extraction can be recommended. It is also possible to conduct extraction measurements using high pressure, or microwave assisted extraction. Hexane should be used as a solvent in any type of chosen extraction method. Other low

molecular weight hydrophobic organic solvents such as heptane and petroleum ether can be used instead of hexane. Broad band NMR can also be used to determine amount of modifier in the final product. If NMR is used, then special conditions and calibration curves have to be developed.

Technical Performance Data

Physical Properties of Master Batch Concentrate

Appearance	Cylindrical or spherical pellets
Color of pellets	Clear, light tan
Specific gravity	<1.0 g/cm^3

Performance Data

Properties of 20 gsm Spun-Bond Fabric with HYDREPEL® W-301

Sample	Softness, g	Strength, g/mm^2		Elongation, %		INDA SPF	HSH, mm
		MD	CMD	MD	CMD		
HYDREPEL® W-301	41	660	300	68	51	0.340	123
PP Control	52	610	300	52	55	0.352	87

HYDREPEL® W-301 was added at 10% letdown from 20% master batch.

Addition of HYDREPEL® W-301 makes spun bond fabric:

- Stronger.
- More hydrophobic with improved HSH
- Provides soft hand.

Environmental Information

Toxicological Information:

No toxicological data is available at this time.

US FDA Status

Please talk to your Goulston Sales representative about FDA compliance of this finish

Information for European Community:

This product does not contain nonyphenol or animal derived materials.

Safety:

Good industrial hygiene should be practiced whenever any chemical product is used. For additional information, please refer to the MSDS provided for this product.

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