

<p style="text-align: center;"><b>HYDROSORB 1001</b> <b>Polypropylene Hydrophilic Modifier</b></p>
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### **Introduction**

HYDROSORB 1001 modifier is internal polymer modifier composed of proprietary formulations. It is designed to be used in polypropylene fiber applications as hydrophilic surface modifier. Incorporation of HYDROSORB 1001 into polypropylene polymer allows the fiber producer to introduce durable hydrophilicity as well as to improve the softness and drape or “hand” of polypropylene fibers and fabrics. HYDROSORB 1001 is a soft pasty solid ready to be used for direct melt injection. It also can be supplied as 40% active masterbatch with base polymer resin matching melt flow index of desired application process (spun bond, melt blown, BCF, filament, etc). HYDROSORB 1001 can be recommended as fiber surface and liquid transport modifier for polypropylene nonwovens, carpet, apparel, and upholstery markets.

### **Modifier Application Information**

HYDROSORB 1001 modifier can be custom formulated to achieve the appropriate processing and performance requirements. recommends approximately 2% weight concentration. However, as each process and intended application is different, the exact level of addition should be determined by the customer.

If supplied in master batch concentrate form, HYDROSORB 1001 should be thoroughly gravimetrically blended with virgin polypropylene resins. Pre-blended mixture of HYDROSORB 1001 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).

If supplied in a 100% active form, it can be melted and directly injected into the flow of base polymer. Direct injection is recommended into the mixing zone of the extruder’s barrel. To improve uniformity of additive distribution in the final product a static mixer can be installed immediately after extruder’s head.

### **Processing Conditions**

HYDROSORB 1001 should be used in the extrusion process at less than 260±5 °C. 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. Isopropanol should be used as a solvent in any type of chosen extraction method. Other low

molecular weight alcohols such as methanol and ethanol can be used instead of isopropanol. 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 pellets  
 Color of pellets                Clear, white to slightly off-white  
 Specific gravity                 <1.0 g/cm<sup>3</sup>.

**Physical Properties of 100% active Modifier**

Appearance                      soft pasty solid  
 Color                                slightly off-white or very light tan  
 Specific gravity                 1.05 g/cm<sup>3</sup>  
 Melt Point                        60-75°C

**Performance Data**

**Tensile Properties of 20 gsm Spun-Bond Fabric**

Sample	Machine Direction		Cross Machine Direction	
	Max Load (kgf/mm2)	Max Percent Strain (%)	Max Load (kgf/mm2)	Max Percent Strain (%)
HYDROSORB 1001 @ 2%	0.6 ± 0.1	64 ± 7	0.3 ± 0.1	70 ± 12
Control PP	0.4 ± 0.1	42 ± 9	0.3 ± 0.1	75 ± 11

**General properties of 20gsm Spun Bond Fabric**

Sample	Contact Angle, °		Run-off, mm/%	SPF	Softness, g	Log(R)
	Initial	10 sec				
HYDROSORB 1001 @ 2%	73	1	209/0	0.255	38±8	11.79
Control PP	123	120	0/100	0.295	72±17	13.48

**Strike-Trough EDANA Test**

Sample	Time, seconds				
	1st strike	2nd strike	3rd strike	4th strike	5th strike
HYDROSORB 1001 @ 2%	2.02	3.73	4.23	4.32	5.77
Control PP	>120				

Addition of HYDROSORB 1001 makes spun bond fabric:

- Stronger

- Softer
- Slicker
- Durably Hydrophilic
- Provides durable electrostatic protection

### Environmental Information

#### Toxicological Information:

No toxicological data is available at this time.

#### US FDA Status

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

#### Information for European Community:

This product does not contain nonylphenol components and is considered suitable for use in Europe. HYDROSORB 1001 does not contain any 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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