



Thetapel™ FC-4040

Oil and Water Repellent for Textile Applications

Overview

- Short-Chain Fluorochemical Technology (meets the goal of the US EPA 2010/2015 PFOA Stewardship Program)
- Excellent Oil and Water Repellency
- Readily dilutes in water
- Imparts protection to textile surfaces with little or no change in appearance
- Treated surfaces are easier to clean
- Improves newness retention
- Can be used with cross-linkers

Repellency Data - Textiles Polyester/Cotton Fabric (65/35 blend) For 1.0% actives and

heat cure of 160°C for 5 minutes:
Static Water Repellency rating of 11.5
Water Repellency/Spray Rating of 95
Oil Repellency rating of 5.5

Applications

- Mill-applied Repellent/Protector for Textiles, Apparel, Nonwovens, Upholstery, and Home Furnishings

Technical Information

Thetapel FC-4040 is a partially fluorinated product designed for mill application to textile substrates. The product is mildly cationic. Thetapel FC-4040 offers exceptional oil and water repellency as well as spray rating when applied to cotton, polyester, and cotton/polyester blend fabrics.

Thetapel FC-4040 is suitable for use with cross-linkers such as Flexipol DMP-20 to achieve extended wash durability.

Thetapel FC-4040 readily dilutes in water.

Formulary

Thorough rinsing is important after scouring or dyeing to eliminate residual finishes, detergents, or surfactants that could interfere with the repellent/protector application.

Dilute Thetapel FC-4040 in water for application. The recommended dilution rate is 1% actives on weight of bath (OWB). The dilution rate may vary depending on application method, porosity of the substrate, desired performance, and cost parameters.

Application methods such as dip and nip or low-pressure spray are recommended.

DO NOT AEROSOLIZE OR ATOMIZE.

Typical Properties

PROPERTY	VALUE
Appearance	Emulsion
Color	Off-white
Solids, %	30.0 ± 2.0
Water solubility	Dispersible
pH (as is)	3.0 to 5.0
Density@25°C	1.05 ± 0.02 g/ml
Boiling Point	Approx. 100°C
Viscosity, cPs	100 Max.
Storage	Perishable if frozen
Shelf life	12 months

Packaging and Handling

Thetapel FC-4040 is available in:
275 gal. totes (Net Wt. 2205 lbs.)
55 gal. blue TH Poly drums (Net Wt. 441 lbs.)
5 gallon OH white Poly pails (Net Wt. 40 lbs.)

Refer to the Safety Data Sheet (SDS) for information on the safe use, handling, and disposal of this product.

DOT Classification: Non-Regulated

Whether you're looking for a replacement product or an ingredient for a specific attribute, give us a call. We can provide assistance based upon your particular formulation requirements and composition; please feel free to contact us.

Please refer to back page for important information

Performance Testing Water/Alcohol, Water Spray, and Oil Repellency

Preparation of Test Fabric Surface Treatment

Thetapel FC-4040 was diluted in deionized water and applied uniformly to each textile substrate by dip and nip method, followed by a heat cure at 160°C for 5 min.

Water/Alcohol Repellency Drop Test (DuPont Test Method)

To evaluate the relative water repellency of a treated fabric, the Water/Alcohol Repellency Drop Test is commonly used. In this test, a series of wetting solutions with increasing wetting power are applied to a treated test fabric, with treated surfaces repelling the strongest wetting solution achieving the highest repellency rating. Repellency was measured by applying 3 drops of test liquid and observing wetting of the treated surfaces. Test liquids ranged from weakly wetting 2% isopropanol in water (1 rating) to strongly wetting 50% isopropanol in water (6 rating), as well as an extended scale of solutions. The higher the concentration of isopropanol (higher number rating) of the drop not wetting the surface, the more repellent the surface. If the drops were repelled for longer than 10 seconds the surface was judged to be repellent to the test liquid.

The control fabrics had a water repellency rating of 0.

Oil Repellency Drop Test (AATCC Test Method 118)

To evaluate the relative oil repellency of a treated fabric, the Oil Repellency Drop Test is commonly used. In this test, a series of solvent solutions with increasing solvent power are applied to a treated test fabric, with treated surfaces repelling the strongest solvent solution achieving the highest repellency rating. Repellency was measured by applying 3 drops of test liquid and observing wetting of the treated surfaces. Test liquids ranged from weakly wetting mineral oil (1 rating) to strongly wetting decane (6 rating). The higher the number rating of the drop not wetting the surface, the more repellent the surface. If the drops were repelled for longer than 10 seconds the surface was judged to be repellent to the test liquid.

The control fabrics had an oil repellency rating of 0.

Water Repellency: Spray Test (AATCC Test Method 22)

Water sprayed against a taut surface of a fabric test specimen under controlled conditions produces a wetting pattern whose size depends on the repellency of the fabric.

Ratings range from 0 for complete wetting of the entire face of the specimen to 100 for no sticking or wetting of the specimen.

The control fabrics had a water repellency/spray test rating of 0.

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