Thetapel™ AM-5012

Solvent -based Repellent

Overview

- Solvent-based, partially fluorinated acrylic copolymer
- Imparts oil & water repellency at ambient curing temperatures on virtually any surface it contacts
- Provides an easy-to-clean surface particularly against oily soils
- Provides surface tension reduction in solvent-based applications for improved wetting, spreading, leveling, and coating properties
- Effective at very low concentrations, leaving bulk coating properties unaffected
- Excellent compatibility with binders, rheology modifiers, and other formulation components
- Will not affect the appearance, feel, color, odor, or other properties of treated surfaces
- Treated surfaces are easier to clean, and resistant to abrasion and weathering
- Can be diluted in a wide range of non-polar solvents

Applications

- Apparel and upholstery fabrics, especially water-sensitive fabrics
- Canvas
- Awning and tent fabric
- Leather
- Wood and decking, including composite decking
- Solvent-based cleaning products
- Solvent-based coatings
- Clear coats
- Waxes and polishes

Technical Information

Thetapel AM-5012 is a colorless and near odorless partially fluorinated acrylic polymer dissolved in Odorless Mineral Spirits (OMS). Effective at very low concentrations, Thetapel AM-5012 is soluble in most common oil-based systems for exceptional oil & water repellency, and for improving the wetting and spreading of non-polar organic solvent coating systems.

Thetapel AM-5012 imparts water and oil repellency as well as soil and stain protection to apparel and fine fabrics, upholstery, outdoor awning and tent fabrics, leather, as well as wood and composite decking.

As a coatings additive, Thetapel AM-5012 enhances cleanability and weatherability in solvent-based coatings. As a surfactant, Thetapel AM-5012 controls surface tension in organic systems during the application of solvent-based coatings and during the dynamic phase of drying and resin cross-linking in solvent-based urethane coatings, specialty inks, epoxy and adhesive systems.

NEVER USE A PAINT SPRAYER OR OTHER HIGH-PRESSURE EQUIPMENT TO APPLY THIS PRODUCT. DO NOT AEROSOLIZE. Power paint sprayers and other high-pressure applicators may aerosolize the product and may result in significant combustion and health hazards. Always use adequate ventilation. Refer to the SDS for more information.

Typical Properties

PROPERTY	VALUE
Appearance	Clear liquid, colorless to light amber
Odor	Mild solvent
Ionic character	Nonionic
Solubility	Insoluble in water, alcohol, etc. >80% in xylenes, heptane, etc.
Total solids, %	10.8 to 12.0
Density@25°C	0.78±0.04 g/ml
Boiling Point	162-188°C
Flash point (TCC)	40-50°C
Storage	Freeze/Thaw stable. Gels at 9°F (-13°C). Warm to 40°F (4°C) to restore.
Shelf life	12 months

Packaging and Handling

Thetapel AM-5012 is available in:
55 gallon steel drums (Net Wt. 350 lbs)
5 gallon pails (Net Wt. 32 lbs)

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

Note: In containers of 119 gallons or less, this product is not regulated by DOT.

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

Thetapel™ AM-5012 Formulation Guidance

Thetapel AM-5012 is a solvent-soluble fluoropolymer supplied in OMS. When applied, the OMS volatilizes, depositing Thetapel AM-5012 on the surface. This deposition mechanism is not chemically interacting with the surface itself, which is why it works on almost any surface it contacts. Once dried, the polymer orients at the air interface in such a way as to minimize surface energy, orienting the fluorochemical portion of the polymer to the air interface, greatly diminishing its oil/solvent solubility, and imparting oil repellency (a drop of motor oil or cooking oil will bead up rather than penetrate or wet the surface). While this phenomenom is commonly referred to as "curing", it is not curing in the mechanistic sense of cross-linking with itself or with the substrate.

Formulary Dilution and Application

Mix Thetapel AM-5012 before use.
For dilutions of this product, start with Odorless Mineral Spirits or solvent of choice, and then blend the Thetapel AM-5012 into the OMS or solvent.
Use gentle agitation to minimize foam.

- Dilute 1 part Thetapel AM-5012 with 5-10 parts of OMS or solvent of choice
- Adjust level of Thetapel AM-5012 based on cost/performance properties required
- Dries to touch in 30-120 minutes and achieves maximum repellency in about 24 hours, depending on application rates and conditions
- **Can be applied with a low-pressure sprayer (<60 psi), roller, or brush.**

Never use a paint sprayer or other high-pressure equipment to apply this product. **DO NOT AEROSOLIZE.**

Thetapel™ AM-5012 Superior Surface Protection

Thetapel AM-5012 is a fluorinated polymer-based surface protector, which is superior to silicone-based protectors, efficiently imparting both water and oil repellency to treated surfaces. While silicone-based protectors provide water repellency, they have very limited alcohol repellency and provide no oil repellency. In fact, silicone-based protectors are oleophilic (oil-loving) and actually attract oil-based stains and oily soils. Not only do silicone treated surfaces become soiled more rapidly than untreated surfaces, once they are soiled, they hold the oily soils and become increasingly more difficult to clean. A major benefit and value of Thetapel AM-5012 as a surface protectant is that surfaces protected with it soil much slower than untreated surfaces, and once they become soiled are easier to clean. This effectively translates into "stays cleaner longer" product performance and newness retention.

Preparation and Treatment of Test Surface
1 part of Thetapel AM-5012 was diluted with 10 parts of Odorless Mineral Spirits and lightly sprayed on a variety of fabrics ranging broadly in construction, end-use, and composition. Application rate was between 4 and 5 fluid ounces/square yard of fabric which was sufficient to evenly wet the fabrics. The fabrics were allowed to dry and cure overnight (24 hours).

Water/Alcohol Repellency Drop Test (DuPont Test Method)

- Repellency was measured by applying 3 drops of test liquid and observing wetting of the treated surfaces. If the drops were repelled for longer than 10 seconds, the surface was judged to be repellent to the test liquid. Test liquids ranged from weakly wetting 2% isopropanol in water (1 rating) to strongly wetting 50% isopropanol in water (6 rating). The higher the concentration of isopropanol (higher number rating) of the drop not wetting the surface, the more repellent the surface.
- All fabrics received a 6 rating.

Oil Repellency Drop Test (AATCC Test Method 118)

- Repellency was measured by applying 3 drops of test liquid and observing wetting of the treated surfaces. If the drops were repelled for longer than 30 seconds, the surface was judged to be repellent to the test liquid. 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.
- All fabrics had at least a 5 rating for oil repellency, with the average of all surfaces treated equal to 5.7 out of 6.0.