



Flexipel™ S-22WS

Solvent soluble surface-treatment polymer

Overview

- Solvent soluble, partially fluorinated surface protectant acrylic copolymer
- Imparts oil & water repellency on virtually any surface it contacts at ambient curing temperatures
- 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
- Stable dispersion with virtually no settling, either as supplied or when diluted, at most any temperature
- 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
- Contains no chlorofluorocarbons, chlorinated solvents or hydrochlorofluorocarbons
- WERCS ID number: WPS1171261
- WERCS Validation number: WPS1171261

Applications

- Apparel, carpet and upholstery fabrics
- Canvas, wood and decking
- Concrete, stone, tile and grout sealers
- Paint and coatings for metallic surfaces
- Paint and clear coats
- Waxes and polishes
- Graphic arts

• Solvent-based cleaning products
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.

Technical Information

Flexipel S-22WS is a virtually colorless and odorless partially fluorinated acrylic polymer dissolved in Odorless Mineral Spirits. Effective at very low concentrations, Flexipel S-22WS 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.

Flexipel S-22WS imparts water and oil repellency with soil and stain protection to apparel and fine fabrics, leather, upholstery, outdoor awning and tent fabrics, and carpeting, and imparts stain and soil resistance to hard porous surfaces, including stone and tile used as Building Materials (i.e., kitchen, bathroom and architectural surfaces) and other hard surfaces including wood.

As a Coatings Additive, Flexipel S-22WS enhances cleanability and weatherability in coating films. As a Surfactant, S-22WS 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.

Formulary

Easy to use, Flexipel S-22WS is typically diluted 1:20-60 (0.4-1% solids) in OMS or suitable solvent of choice. Flexipel S-22WS applied solutions dry to touch in 30-120 minutes at ambient temperatures and achieve maximum repellency in 16-24 hours, depending on application rates and conditions.

Typical Properties

PROPERTY	VALUE
Appearance	Clear to slightly hazy liquid
Color	Colorless to light yellow
Odor	Mild solvent
Ionic character	Nonionic
Solubility	<1% in water, alcohol, etc. >80% in xylenes, heptane, etc.
Total solids, %	22.5±0.5
Density@25°C	0.84±0.04 g/ml
Boiling Point	320°F/160°C
Flash point (TCC)	104°F/40°C
Storage	Gels at 9°F/-13°C. Warm to 40°F/4°C to restore.
Shelf life	12 months

Packaging and Handling

Flexipel S-22WS is available in:
55 gallon steel drums (Net Wt. 350 lbs)
5 gallon plastic pails (Net Wt. 32 lbs)

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

DOT Proper Shipping Name: Petroleum Distillates, N.O.S., Combustible Liquid UN 1268, PG III

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

Please refer to back page for important information

Flexipel S-22WS Formulation Guidance

Flexipel S-22WS is a solvent soluble fluoropolymer supplied in Odorless Mineral Spirits. When applied, the OMS volatilizes, depositing S-22WS 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, imparting oil repellency (that is, a drop of motor oil or cooking oil will bead up rather than penetrate or wet the surface). While this phenomenon is commonly referred to as “curing,” it is not curing in the mechanistic sense of cross-linking with itself or with the substrate.

Dilution and Application

- Dilute 1 part Flexipel S-22WS with 20-60 parts of OMS or solvent of choice.
- Adjust level of S-22WS based on cost/performance properties required.
- Evaluate as replacement at equal activity, then re-evaluate at 1/2 use rate to determine optimum replacement ratio.
- Dries to touch in 30-120 minutes and achieves maximum repellency in 16-24 hours, depending on application rates and conditions.
- Can be applied with a low pressure sprayer (<60psi), roller or brush.

NEVER USE A PAINT SPRAYER OR OTHER HIGH PRESSURE EQUIPMENT TO APPLY PRODUCT

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. See MSDS for more information.

Flexipel S-22WS Superior Surface Protection

Flexipel S-22WS is a fluorinated polymer based surface protector, vastly 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 whatsoever. 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, becoming increasingly more difficult to clean. A major benefit and value of Flexipel S-22WS 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, effectively translating into “stay cleaner longer” product performance and newness retention.

Performance Data

Preparation of Test surface treatment

1 part of Flexipel S-22WS was diluted with 20 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 1.0 and 1.5 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). Similar applications were performed for salt treated decking material and concrete, but the application rate was 1 gallon per 400-600 sq. feet.

Water/Alcohol Repellency Drop Test (DuPont Test Method)

- Repellency was measured by applying 3 drops of test liquid and observing wetting of the surfaces. If the drops were repelled for longer than 10 seconds the surface was judged to be repellent to that test liquid. Test liquids ranged with increasing wetting power from 2% Isopropyl alcohol to 100% Isopropyl alcohol. The higher the concentration of Isopropyl, the more repellent the surface
- All fabrics repelled 100% Isopropanol

Oil Repellency Drop Test (AATCC Test Method 118-1989)

- Repellency was measured by applying 3 drops of test liquid and observing wetting of the surfaces. If the drops were repelled for longer than 30 seconds the surface was judged to be repellent to that test liquid. Test liquids ranged with increasing solvent penetrating power from Mineral Oil (1 rating) to Decane (6 rating). The higher the number test liquid the more repellent the surface. Decane (6 rating) is more difficult to repel than Dodecane (5 rating), which is more difficult than Tetradecane (4 rating) and so on.
- All fabrics repelled at least a 4 oil and most repelled a 5 or 6 oil with the average of all surfaces treated equal to 5.2 out of 6.

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