

Product Information

Krytox™ KS 1220 functional polymer is an innovative perfluoropolyether (PFPE) alkoxy silane developed by Chemours. It takes advantage of the technology behind Krytox™ performance lubricants to impart anti-smudge, anti-fouling, and easy-clean properties to a variety of surfaces. The unique chemical structure of Krytox™ KS 1220 provides treated substrates with excellent oil and water repellency, as well as low coefficient of friction. As a result, surfaces treated with Krytox™ KS 1220 exhibit a smooth feel and are scratch-resistant. Krytox™ KS 1220 is an ideal easy-clean coating solution for maintaining the appearance and integrity of highly manipulated surfaces, such as touch panel displays, cover glass, optical lenses, and metal casings.

Properties

- Hydrophobic and oleophobic
- Abrasion resistance
- Low coefficient of friction
- Chemically stable in non-alkali cleaners
- Durable and transparent
- Thermal and UV resistance

Krytox™ KS 1220 Performance

Measurement Type	Unit	Krytox™ KS 1220	(6+2)Rf-silane ⁵	Untreated Glass
Water Contact Angle	°	117	84	14
Water Roll-Off	°	12	17	—
Oil Contact Angle	°	73	60	<10
Oil Roll-Off	°	4	6	—
Coefficient of Friction		0.15	—	—
Abrasion ¹	Cycles	>3,000	—	—
Thermal Resistance ²	°	>110	—	—
Chemical Resistance ³		Great	Good	Poor
Anti-Smudge ⁴		Excellent	Okay	Poor
Surface Energy	mJ/m ²	15	33	72

¹Water contact angle exceeds 100° using a TABER® linear abraser with #0000 steel wool and 1 kg/cm² of force

²Water contact angle after 9 days of exposure at 200 °C (392 °F)

³Maintained contact angle >110° after 24 hr soak in various household cleaners (pH <11)

⁴Qualitative wipe test

⁵(Tridecafluoro-1,1,2,2-tetrahydrooctyl)trimethoxysilane; CAS No. 85857-16-5

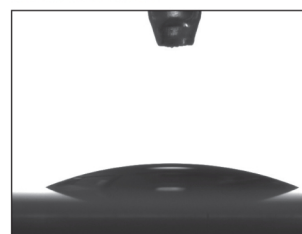
Application Methods

Krytox™ KS 1220 functional polymer can be applied by dip coating, spray, or physical vapor deposition (PVD) methods. In general, spray coating is recommended, because it allows the coating procedure to be amenable for a continuous process. The thermal stability of Krytox™ KS 1220, and its ability to moisture cure, permits a wide range of curing conditions.

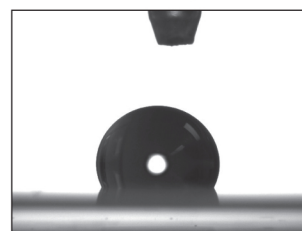
Preparing a Surface

An activated surface with reactive, ideally hydroxyl, functionality is necessary for Krytox™ KS 1220 to chemically bind to the substrate. Therefore, thorough cleaning and activation of the surface to be coated is critical for the proper performance of Krytox™ KS 1220. Without proper cleaning, surface contamination may impede chemical binding and negatively impact the product's performance. When necessary, plasma or ion-discharge treatment may be used to activate the surface and enhance the bonding between Krytox™ KS 1220 and the substrate. Alternatively, chemical and/or physical methods may be necessary, depending on the application.

Untreated Glass



Treated Glass with Krytox™ KS 1220



Coating a Surface

Krytox™ KS 1220 functional polymer is typically prepared by diluting the product to 0.1-0.5% by weight with solvents having a boiling range of 50-110 °C (122-230 °F).

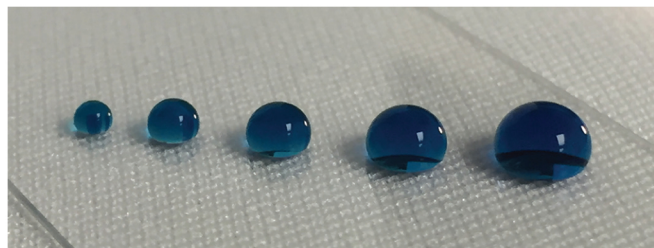
Solvents suitable for use with Krytox™ KS 1220 include fluorinated fluids, such as Vertrel™ XF and Vertrel™ Suprion from Chemours. This coating can be applied by dip coating, spraying, or vapor deposition methods.

Curing

For optimum surface treatment, Krytox™ KS 1220 functional polymer must chemically bind to the substrate surface through a proper curing process. Thermal curing at 100-150 °C (212-302 °F) for 30-60 min is recommended for most applications. However, temperature and cure times may be varied to achieve optimal performance. Using a lower temperature and longer cure time can be helpful to achieve optimal performance for materials with lower thermal tolerance. Water is required to cure Krytox™ KS 1220. If surface moisture is not present, a humidity-controlled environment around 50-90% RH should be utilized.

Post-Cure Process

Depending on the coating method, residual material may be visible on the coated surface. Simply wipe the surface with a lint-free, microfiber cloth until visually clear. Covering the surface with a protective film is recommended for proper storage.



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Characteristics of Krytox™ KS 1220

	Unit	Krytox™ KS 1220
Appearance		Clear liquid
Concentration ¹	%	20
Solvent Boiling Point	°C (°F)	55 (131)
pH		Neutral
Specific Gravity ²	g/cm ⁻³	1.6
Solvent Vapor Pressure	hPa	248 at 20 °C (68 °F) 313 at 25 °C (77 °F) 854 at 50 °C (122 °F)

¹1% active ingredient in Vertrel™ XF fluorosolvent

²Relative density

Handling Instructions

Please refer to the Safety Data Sheet (SDS) prior to using and handling Krytox™ KS 1220 functional polymer. When handling Krytox™ KS 1220, work in a well-ventilated area to avoid inhalation hazards. Wear safety glasses and nitrile gloves to avoid unintended exposure. Krytox™ KS 1220 is moisture-sensitive; therefore, appropriate methods should be used to ensure the sustained reactivity of the material. If an open bottle is to be reused, re-introducing a nitrogen blanket and refrigeration will prolong the shelf life.

Packaging

Krytox™ KS 1220 functional polymer is offered as a 20% solution in Vertrel™ XF fluorosolvent and available in either 100- or 500-g (0.22- or 1.1-lb) amber glass bottles. The product is packaged under nitrogen, and refrigerated storage is recommended.

This information is not intended to provide guidance in selecting the appropriate product for your application. To ensure the best product for your application please contact our Technical Service Department at 1-800-992-2424 (in Canada please call 1-800-323-4621).