



Aculon® Sapphire Repellency Treatment

Product Information

Aculon® Sapphire Repellency Treatment nano-scale repellency product is a surface treatment specially formulated for sapphire substrates that imparts hydrophobic and oleophobic properties. It is designed for application by wiping, resulting in a hydro/oleophobic monolayer film that is resistant to chemical and mechanical degradation.

Solids	Solvent	Color
<5% Proprietary Ingredient	Ethanol, Fluorosolvent	Clear/ Colorless

Physical Properties of Formulation (all values @ 25°C)	
Viscosity*	2 cP
Boiling Point of Solvent	78°C
Flash Point	13.9°C
Environmental	Non toxic, non-ozone depleting, flammable
Shelf Life	2 Years (Unopened container)
Specific Gravity	0.98g/ml

*Determined by Zahn Cup #1 testing

Physical Properties of Post Treatment Coating	
Visible Light Transmission	100%
Coating Thickness	2-4nm
Solvent and Chemical Resistance	High
Hydrophobicity (Water Contact Angle)	116°
Oleophobicity (n-hexadecane)	80°
Sliding Angle of Water Droplet	20-30°
Coating degradation temperature	225°C

Features

- 100% optically clear
- Repels water, oil, and other organic materials
- Excellent chemical bonding to sapphire
- Lowers the coefficient of friction of surfaces (results in a 'slick' feeling)
- No substrate stress build-up
- Does not change the surface appearance
- Easy to apply and safe to use (take flammable liquid precautions)
- Does not leach from the surface after application and drying
- Does not polymerize upon drying, so over-application is not a problem

Application Ideas

- Easily create an invisible smudge and water resistant surface treatment on sapphire.

Application Techniques

Surface Preparation/ Cleaning:

Ensure the sapphire surface is visually clean by either using the provided Windex sprayer, degreasing with solvents, rinsing with soap and water, or utilizing your standard cleaning procedure.



For ideal bonding and coating longevity in aggressive environments remove all surface contaminants by creating a water break free surface (contact angle $<20^\circ$. Contact Aculon directly for more aggressive cleaning options.

Priming:

For optimal bonding use the provided Aculon Sapphire Primer wipe according to the provided TDS instructions.

Treatment Application:

Wipe: Vigorously wipe every surface of the sapphire part with the Aculon Sapphire Repellency wipe for 1 minute by rubbing in a circular motion, then wipe excess treatment from the surface using a microfiber cloth.

Drying/ Curing: Treated sapphire substrates are typically cured at 120°C for 5 minutes.

Testing For Hydrophobicity:

Allow droplets of water to fall onto the surface, they should bead up to a contact angle $>90^\circ$. If the surface is not hydrophobic clean the again surface and reapply.

Test for Oleophobicity:

Allow droplets of n-hexadecane to fall onto the surface, they should bead up to a contact angle $>60^\circ$. If the surface is not oleophobic clean the again surface and reapply.

Safety, Handling, Storage, Shelf Life:

Store in a cool (-25°C) and dry area, and keep away from direct sun light. See this product's MSDS for proper handling and fire hazard data. When stored properly, product has a 2 year shelf life.

For Additional Information:

To request additional product information or sales assistance, contact Aculon's Technical Team, at 858-350-9474. For information on other Aculon products, please visit our website at www.aculon.com.

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