



# Aculon® Anti-Fouling Treatment

## Product Information

**Aculon® Anti-Fouling** nano-scale repellency product is a surface treatment that imparts hydrophobicity and oleophobicity to a wide variety of metals and oxide containing surfaces. Aculon Anti-Fouling is typically applied by dipping or wiping, and results in a hydro/oleophobic monolayer film that is resistant to chemical and mechanical degradation where a surface that inhibits adsorption and bonding of contaminants is desired.

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 on Flat Substrate)	116°
Oleophobicity (Oil Contact Angle on Flat Substrate)	80°
Sliding Angle of Water Droplet	20-30°
Coating degradation temperature	225°C

## Features

- Prevents adsorption of contaminants
- Repels water, oil, and other liquid organic materials
- Excellent chemical bonding to most metals and oxide surfaces
- Does not change the appearance of the surface
- Easy to apply and safe to use (take flammable liquid precautions)
- Does not leach from surfaces after application and drying
- Does not polymerize upon drying, so over-application is not a problem

## Application Ideas

- Impart repellency to stainless steel, pipes, and other industrial metals and material
- Prevent paraffin and asphaltene buildup
- Crude oil repellency
- Reduce cleaning frequency of Industrial and oil/gas equipment

## Application Techniques

### Surface Preparation/ Cleaning:

Ensure that the surface is free of any grease, fingerprints, adhesive residues or dirt (*i.e.*, water break free, water contact angle  $<20^\circ$ ). This can be accomplished by first degreasing the surface with solvents or by rinsing with soap and water, then removing monolayer-scale contaminants by using the supplied 905 cleaner. The substrate should be water break free prior to coating. Contact Aculon if you are unable to create a water break free surface and we will recommend a cleaner best suited to your application.

### Treatment Application:

**Wipe:** Dispense 1.5 ml Aculon Anti-Fouling onto a fresh piece of folded polyester or cotton cloth and vigorously wipe every surface for 1 minute by rubbing in a circular motion, then wipe excess treatment from the surface using a microfiber cloth.

**Spray:** It is not recommended to spray-apply Aculon Anti-fouling, as it is 'autophobic', meaning it repels itself as the monolayer begins to form on the surface. This can create a film with multiple, large pinholes as well as excess material drying up in spots on the surface. If you require a spray-based formulation, contact an Aculon representative.

**Dip:** Immerse the substrate in the treatment for one minute, remove carefully so that excess treatment does not dry up and streak/spot on the surface then air dry. If excess treatment does remain on the surface, wiping with a microfiber cloth or a tissue wetted with ethanol will remove any excess. If you cannot or do not want to contact the surface mechanically, excess can be rinsed away with Aculon fluorosolvent (contact an Aculon representative for samples).

**Dip Coating with Sonication:** Submerge the substrate in Aculon Anti-Fouling and sonicate for five minutes. Remove substrate from the solution and allow to air dry in a clean area.

**Drying/ Curing:** If curing is necessary (short dip times are used), the treated substrates are best cured at 120°C peak metal temperature for approximately 30 seconds. For silicon and titanium oxides, lengthening the cure time to 5 minutes is recommended. Aluminum does not need a cure if the dipping time is lengthened to 5 minutes at room temperature, otherwise a cure is recommended.

### 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.

### Safety, Handling, Storage, Shelf Life:

Store in a cool ( $-25^\circ\text{C}$ ) 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](http://www.aculon.com).

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