

- » **Long-Lasting Anti-Fog Treatment**
- » **Highly Effective for Condensation, Steam and Fogging**
- » **100% Inorganic Coating for Glass or Mirrors**
- » **No Maintenance Product Required**
- » **Room Temperature Cured**
- » **No Organic Surfactants**

KEY CHARACTERISTICS ASGARD™ FOG FREE™

- » Super-hydrophilicity...contact angles of $\leq 5^\circ$
- » Applicable to organic or inorganic substrates
- » Primers can be formulated for surfaces with poor adhesion
- » Safe, worry-free, durable silica composition
- » Highly transparent - ultra-fine silica particles ranging from 2~20 nanometers
- » Assumes substrate texture - no change in bulk properties
- » Easy maintenance - hard silica membrane permits grease to be removed permits water droplet angles of only 5° or less
- » Varied applications in both the professional and do-it-yourself markets
- » One liter covers 100 square meters because the membrane is as thin as 0.1 micron
- » Low cost = accessible to all markets
- » Easily unskilled application without visible imperfections
- » Critical consistency application obtained by use of available custom spray gun

SUPER-HYDROPHILICITY

- » Prevents fogging and controls condensation by creating a super-hydrophilic coating
- » Super-hydrophilicity results from careful regulation of size of ultra-fine silica particles to ensure minute irregularities of treated surface
- » Surface water contact angles of 5° or less (The surface water contact angle refers to the angle of a droplet of water on the surface of the coating.)
- » Super-hydrophilicity lasts 3~6 months although easy maintenance coating itself lasts for 5-10 years

Asgard™ Fog Free™ As An Anti-Fog Product

The primary mechanism for preventing a surface from fogging up today is the application of organic surfactants which only last a few weeks before washing off the treated surface. When used in a non-abrasive environment, Asgard™ Fog Free™ will retain its anti-fog functionality for up to 6 months.

Asgard Fog Free As An Easy Maintenance Surface

Even after the extremely super-hydrophilic effect of Asgard Fog Free has worn off, the surface will retain enough of its hydrophilicity to constitute one of the easiest to maintain surfaces available on the market today. Grease and permanent marker wash off easily without scrubbing by simply applying water. Pressure washing may become a relic of the past.

Composition of Liquid Coating

Silicon dioxide (SiO₂)
Tin oxide with antimony (SnO₂) (ATO)
Methanol

Environmentally Friendly

No surfactants
100% inorganic when dried (when solvent methanol evaporates)

 **DELPHI**
LABORATORIES

Environment-Friendly
Nano-Technology
Coating Solutions for
Industrial, Commercial &
Professional Applications

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Asgard™ Fog Free™ Competitive Product Evaluation Matrix

| Product | Asgard™ Fog Free™ | Quartz™ | Microguard™ | HydroTech™ |
|---|--|--|---|-------------------------------------|
| Category | Non-Photocatalyst | Non-Photocatalyst | Non-Photocatalyst | Photocatalyst |
| Ingredients | SiO2 + SnO2(ATO) | SiO2 | SiO2 + anti-microbial | SiO2 + TiO2 |
| Super-Hydrophilicity | Super-Hydrophilic Immediately <i>Without Light</i> | Inconsistent | Light Unnecessary | UV Required |
| Anti-Stain Ability | Even oily stains easily removed because of hydrophilicity (<5°) and silica hard coat | Weak NOX, SOX Attracts dust Stains removable | Weak NOX, SOX Attracts dust Weak on oily stains | Weak without Light |
| Condensation Control | Strong Effect | None | None | None |
| Anti-Fogging Effect | Strong Effect | None | None | Continuous Light Necessary |
| Number of Coats | 1 Coat (Top) | 1 Coat (Top) | 1 Coat (Top) | 3 Coats (1 Primer + 2 Top) |
| Training Required | No | Yes | Yes | Yes |
| Adhesion | Strongly Adheres to resins, paints and signs <i>without primer</i> | Adheres | Adheres | Adheres (Inorganic Primer Required) |
| Application Ease | Easy and Fast | Training Required | Easy | Difficult |
| Removal Solvent | Available (Specially Formulated) | Not Available | Not Available | Not Available |
| Application Coverage (1 Litre per Coat) | 50 sq. meters | 30 sq. meters | 30 sq. meters | 30 sq. meters (1L x 3 Coats) |



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Coating Solutions for
Industrial, Commercial &
Professional Applications*

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