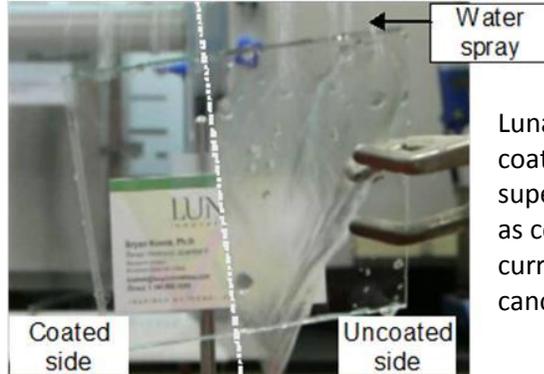


Maintaining a high level of visibility in aircraft transparencies is very difficult under inclement weather operational conditions. While many technologies and coatings have demonstrated the primary goal of achieving water shedding properties, they have lacked mechanical and environmental durability or have been difficult or expensive to apply. To address this need, Luna is developing a highly-durable hydrophobic coating exhibiting permanent hydrophobicity that will shed water quickly off aircraft canopy and windscreen surfaces. The hydrophobic coating technology developed during this program will decrease life cycle costs, reduce maintenance, and increase the safety of Navy equipment and personnel.



Luna's hydrophobic coating on an F-16 canopy.



Luna's hydrophobic coating exhibits superior watershed as compared to currently used canopy coatings.

Hydrophobicity and Watershed	<ul style="list-style-type: none"> • Permanent, durable hydrophobicity • Exhibits contact angle $> 112^\circ$ as compared to $< 100^\circ$ for uncoated canopy surfaces • Highly repellent to water and other fluids
Watershed and Visibility	<ul style="list-style-type: none"> • Exhibits watershed angles of $< 5^\circ$ as compared to $> 20^\circ$ for uncoated canopy surfaces • Water rolls off the surface easily • Improved visibility
Adhesion and Abrasion	<ul style="list-style-type: none"> • No significant haze after 2000 cycle Bayer abrasion test (ASTM F735) • Adhesion rating of 4B to F-16 and F-35 canopy polyurethane topcoats (ASTM D3359)
Solvent Resistance	<ul style="list-style-type: none"> • Resistant to common aqueous solutions, organic solvents, fuels, hydrocarbons, hydraulic fluid, lubricants, deicing fluids and coolants
Salt Spray and QUV Resistance	<ul style="list-style-type: none"> • Resistant to degradation via salt spray and UV exposure

Key Features and Attributes Include:

- **Permanent Hydrophobicity and Watershed** – water and other fluids easily roll off the surface
- **Improved Visibility** – Luna's coating improves visibility in inclement weather conditions
- **Rain Erosion Protection** – significant improvements in rain erosion protection over conventional polyurethane coatings for aircraft canopies
- **Simple Process** – Luna's coating may be applied using simple coating processes already used to coat aircraft canopies
- **Compatible** – easily applied onto current F-16 and F-35 canopy exterior surface treatments
- **Inexpensive** – no additional equipment is necessary, and processing costs are comparable to current processes; the coating formulation is produced from readily available materials
- **Scalable** - Luna has successfully demonstrated the coating a F-16 canopy at a commercial coating facility; both the chemistry and process can be easily scaled