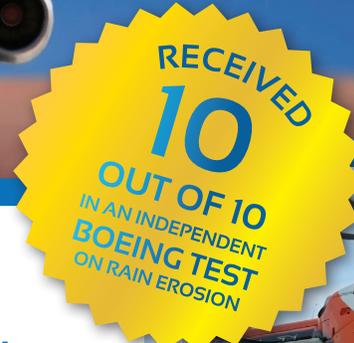




# TOUGHGUARD<sup>®</sup> Aviation

Protection and Performance Solutions



## TOUGHGUARD<sup>™</sup> Aviation Provides Unparalleled Performance and Durability

TOUGHGUARD's Aviation<sup>™</sup> Nano Paint Coating Product is known for protecting some of the world's most recognizable and prized military, commercial, corporate and private aircrafts. TOUGHGUARD's<sup>™</sup> Nano paint coating has met or exceeded industry specifications and proved to be a reliable, safe product that can be counted on in a wide variety of applications. Test results have proven durability and performance levels and have concluded that aircraft protected with TOUGHGUARD<sup>™</sup> will have a greater resistance to the buildup of harmful environmental elements such as; rain erosion, UV damage, soot and carbon buildup, pollutant & chemical damage and bird/insect residues.

TOUGHGUARD's<sup>™</sup> distinct advantage comes from our exclusive proprietary formulations that are truly unique in composition, validated by laboratory tests and satisfied customers who have come to rely on and expect the consistent and dependable durability that has become synonymous with TOUGHGUARD<sup>™</sup>.

Boeing recently released a study (Aero Magazine QTR\_01 13) proving that maintaining a clean aircraft has many benefits including; reduction of 'fuel burn penalties', corrosion control and positive corporate branding. Thousands of gallons of fuel can be saved by maintaining clean aircrafts. The use of TOUGHGUARD<sup>™</sup> allows operators to maintain cleaner aircrafts for longer periods of time reducing; down time, labor costs and chemical costs.

### WHAT MAKES TOUGHGUARD UNIQUE?

**Durability** — Once applied, ToughGuard<sup>™</sup> will perform and protect for up to 4 years with only one leading edge reapplication suggested after 2 years.

**Performance** — Surfaces coated with ToughGuard's<sup>™</sup> Nano paint coating deter the buildup of harmful environmental contaminants helping surfaces stay cleaner for extended periods of time. Real time studies indicate a commercial aircraft coated with ToughGuard<sup>™</sup> can go 600 days before requiring a routine maintenance washing.

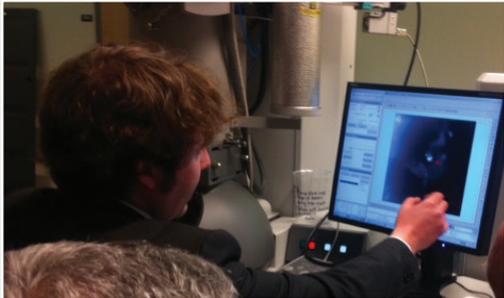
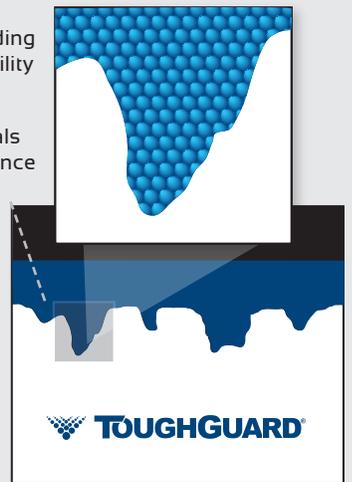
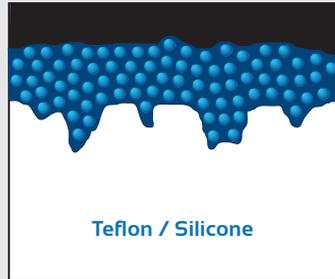
**Increased Fuel Efficiency** — Ongoing real time experiments on commercial aircraft indicate a fuel burn savings between .4 - .7% indicating a direct correlation between the use of ToughGuard<sup>™</sup> and a positive effect on fuel burn.

**Tested** — SMI, AMS, Boeing, Airbus and Douglas Aircraft. ToughGuard's Nano Paint Protection coating met or exceeded all industry specifications.



[www.ToughGuard.co.nz](http://www.ToughGuard.co.nz)

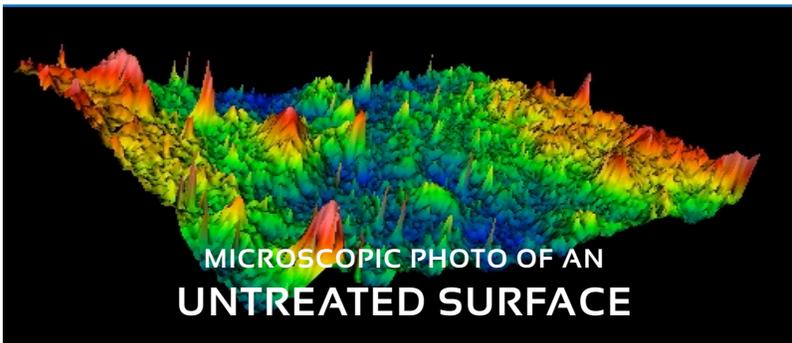
# THE TOUGHGUARD™ SCIENCE



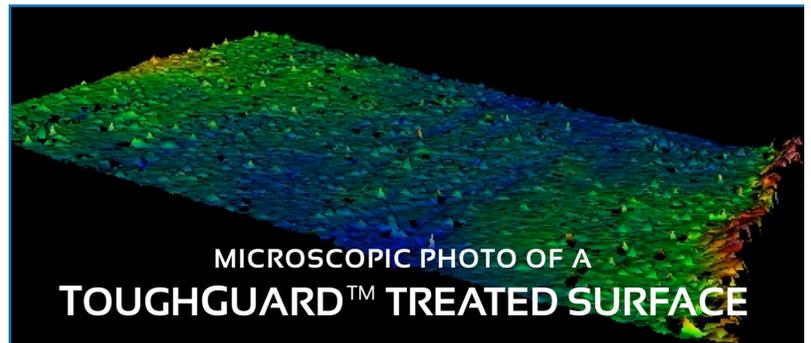
## Nanoscience at Work

The Nanoscience in TOUGHGUARD's™ polymer enables our high performance solution to cross-link and imbed deeper and bond denser inside the microscopic cavities of your asset surfaces. The greatly increased number of smaller particles allows more attachment points which produce a protectant with much stronger durability. As these imbedded particles self-level and harden, a flatter and perfectly smooth finish is the result. Dirt and contaminate particles now have an inhibited ability to attach.

## TOUGHGUARD™ Surface Testing and Analysis Results



This actual 3D picture shows the microscopic roughness of a painted surface that has not been coated with TOUGHGUARD™. This surface measured at an average of 170 nm.



One coat of TOUGHGUARD™ SHOWS THE DIFFERENCE. After just one coat of TOUGHGUARD™, the surface roughness measurement was reduced to an average of 110 nm.

## INDUSTRY CERTIFICATIONS

TOUGHGUARD™ products have been tested and proven compliant with the following certifications:

- 
**Aerospace Material Specifications (AMS) 1526C**

---

- 
**Boeing D6-17487 Revision R**

---

- 
**British Aerospace (AIRBUS) AIMS09-00-002**

---

- 
**Douglas Aircraft Company Customer Service Document (CSD) #1**

