AIRGLIDE PRESENTATION


airglide
POLICE
AD59 YKA
RENEWABLES AVIATION MARINE TRANSPORT

Renewables

Increased production through reduction

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Benefits

- To increase electricity generated through:
  - Reduced friction
    - From smoother surface
    - Drastically reduced debris, bugs and bird poo
    - Eliminate the need to clean blades
    - Reduce noise levels
    - Adds only ounces to the overall weight
    - Preventing ice build up

- Increase production through reduction

Benefits

- To increase electricity generated through:
  - Improved lift
    - When applying **Airglide** ™ to the exterior surfaces of the blade thereby increasing the efficiency of the laminar flow over the aerofoil blade, with the reduced surface friction it creates.

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Benefits

- To improve site optimisation:
  - With Reduced friction & improved lift
    - Creating lower drag & earlier “cut in”
      - Less “wind speed” required
      - More “site” opportunities
        - Potential for competitive advantage
        - Reduced radar signature
        - Increasing the stealth of the blade
        - Reduced noise levels
        - No increase in gloss levels
        - Operate at lower temperatures

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Benefits

- Protection of the blades/ generator from:
- Sea water ingression
- Reduce debris build up such as bugs & acid rain et al
- Harmful UV rays
- Reduce ice and Hoar frost build up

Airglide services give the following cost benefits:

- Wind Turbine efficiency
- Less Lifetime maintenance costs
- Improved life of the turbine blades
- Increased site availability (due to less wind required)
- Reduces noise levels

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Trialling

- We can test for approval any time
- Trials available on request. in accordance with company policy
- We can apply to any ‘on ground’ blade. Stanchion and generators immediately.
- Application on existing wind farms will be possible in the future with our ongoing development of a blade application cradle

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Application

- We can apply to any number of blades on the ground per day and adhere to client requirements
- We recommend re-application every 5-7 years for extreme competitive advantage
    - And to ensure the whole surface is clean from bugs etc. that adversely affect the “lift” performance
    - And to ensure stealth qualities remain at optimum levels, and noise levels are drastically reduced.

Modus operandi

- Our team on the ground preparing the new turbines are all trained and certificated by Airglide, we also work closely alongside clients, so as to incorporate their own work practices with our own, so as to offer the best solution.

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Solar

- **Airglide** also has the added benefit within the solar panel industry of improving performance levels on all solar panels.
- All solar panels that do not have self cleaning glass ‘about 80%’ of the present panels within the European market, suffer from performance degradation of up to 40% within a few weeks of installation all due to debris build up. Airglide can improve the performance of each solar panel by drastically reducing the build up of debris and therefore increasing energy output. Therefore creating a solid business case for the industry

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Aviation

Cutting costs to increase profit

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Who are we?

• Experienced in the Industry since 1985 to repair, paint and ‘protect’ all types of aircraft within the Aviation community

• Having successfully applied the **Airglide** product to land and sea transportation we now seek to extend it’s use to fixed and rotary wing aircraft, single engine to wide bodied jet

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Background

- Unique nanotechnology protective coating
- Polymer that cross-links and bonds to surface
- Silicon and Teflon free
- Boeing approved and AMS 1650C globally certified
- In use with Airbus

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Airglide: what does it do ?

- Reduces fuel costs and carbon footprint
- Reduces annual cleaning and maintenance costs
- Protects against corrosion / erosion
- Eliminates debris build up on leading edge and primary areas
- Reduces ice build up on primary areas
- Prolongs clarity of livery , extends paint life
- Retains asset value
- Reduces paint degradation, therefore saving more fuel
- Reduces degredation on annual performance

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‘nano particle versus polish particle

Planet Earth

Football

For a comparison, imagine the Earth as a polish particle, then our nano particle would be the size of a football

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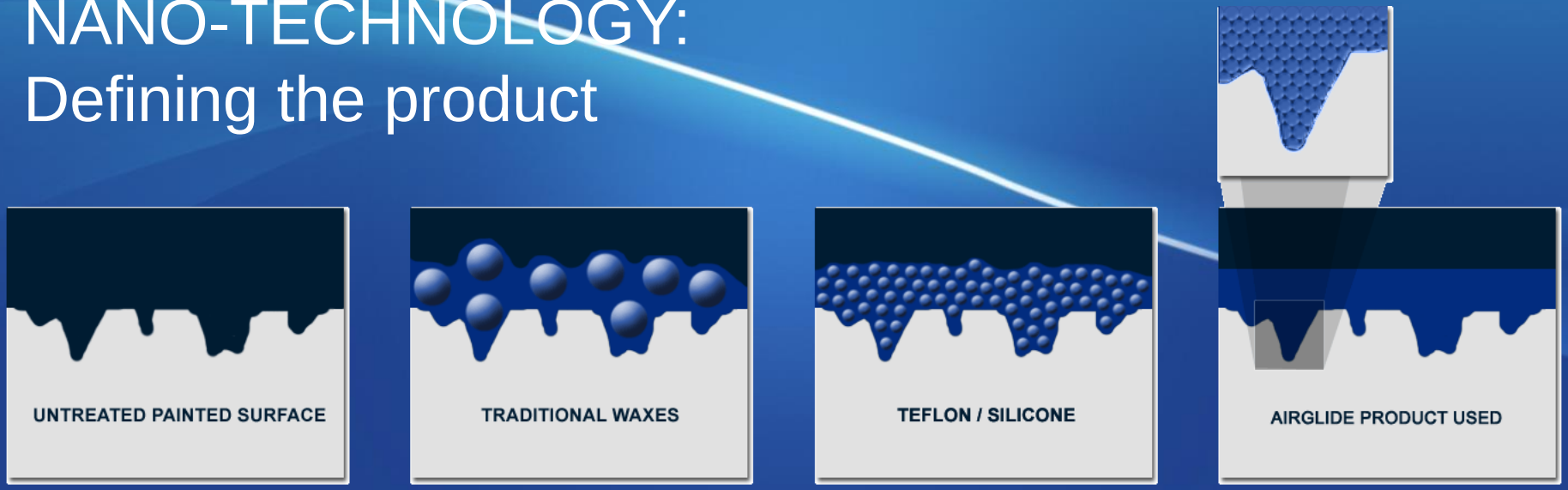
Surface diagram

NANO-TECHNOLOGY:
Defining the product



Hawker 400 trial results

No debris build up on leading edge and primary areas over 12 months plus

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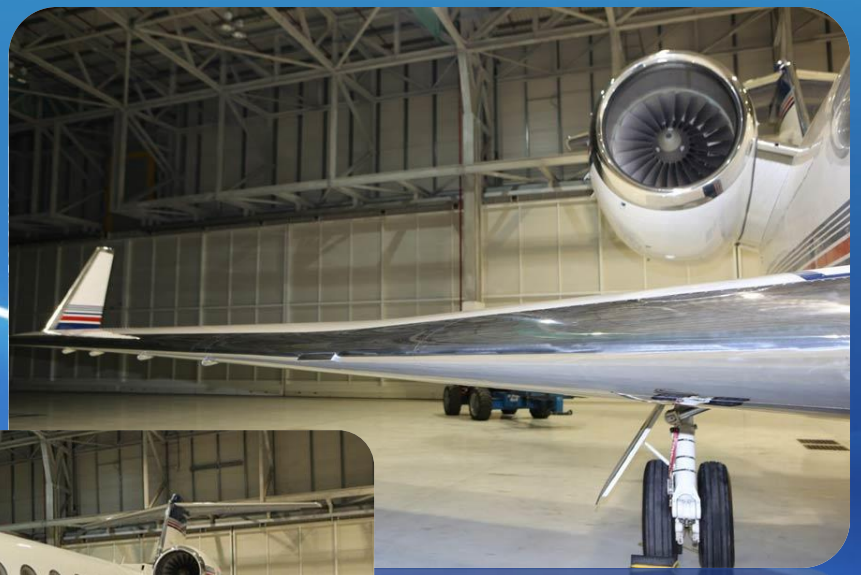
42% Reduced laminar drag



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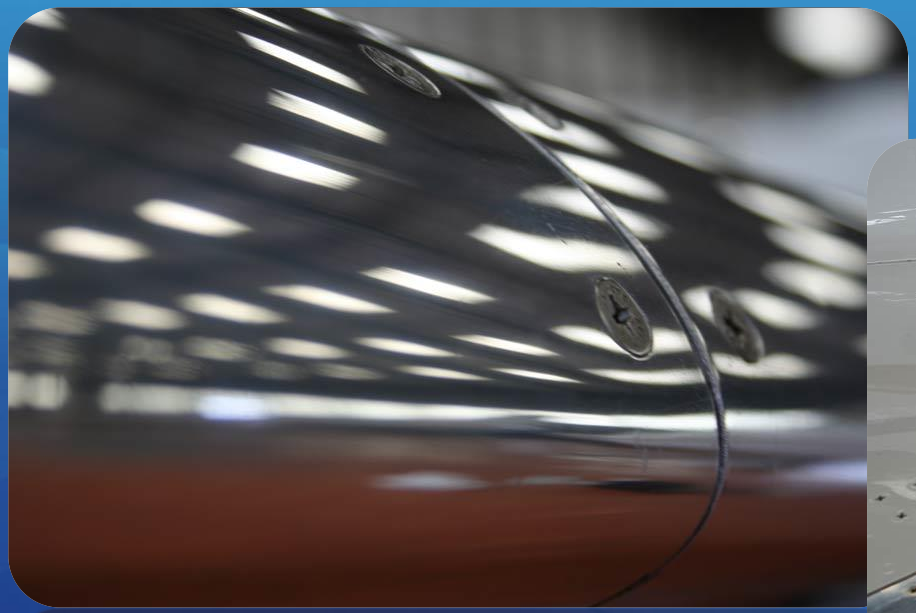
Leading edges on trial aircraft



Airglide Protected leading edge

This shows condition of leading edge after 12 months, photos clearly show improved Finish on treated leading edge, these pictures were taken after 12 months of trial

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Increased Resistance to Icing on the Ground / Air

Reduced de-icing costs and time

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Husbandry

- In flight an aircraft is exposed to:
  - Usual atmospheric contamination that include:
  - Sea salt , fuel burn residue, L/E debris
- Surface contamination causes:
  - Corrosion which damages the integrity of the aircraft fabric
  - Inhibits engine efficiency, increases drag and fuel consumption
- A clean aircraft:
  - Reduces direct operating costs
  - Permits early detection of oil and hydraulic leaks
  - Builds confidence in the minds of passengers that the aircraft is properly maintained and safe
- Interior protection on aircraft is exposed to:
  - Spills, dirt ingress, ink, chewing gum etc
  - wear and tear
  - Airglide can alleviate all of this

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Airglide Application Performance and Investment

- Applied by Airglide Specialist Aviation Technicians
- Exterior application time – A320 (illustrative)
  - Primary Areas – up to 8
  - Full Aircraft – up to 12 Hrs
- Interior application time – A320 (illustrative)
  - All Areas – up to 10 hrs
  - Partial interior (seats)– up to 6 Hrs
- Investment; to be discussed
- Airglide Interior Protection details available on request

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Marine Craft

Marine Benefits

- Reduces fuel costs
- Reduces your annual cleaning and maintenance costs
- Protects against sea water corrosion / erosion
- Reduces fouling build up on the hull / Keel
- Reduces debris build up on all external areas
- Prolongs clarity of livery , extends paint life
- Yacht interior protection including seats, panels and carpets
- Application to mast surfaces, reduce corrosion and inflatable surfaces

Marine Considerations

- At sea your craft is exposed to:
  - Usual surface contamination that include:
  - Sea salt , marine life etc
- Surface contamination causes:
  - Corrosion which damages the integrity of all craft
  - Inhibits engine efficiency, increases drag and fuel consumption
- A clean marine craft:
  - Reduces direct operating costs
  - Builds confidence in the minds of owners / guests that the craft is properly maintained and safe

Transport

Vehicle Exterior / Interior

The Exterior Product

- The only product in the global market with nano technology
- Totally silicon and Teflon free
- Prolongs the life of the vehicle paint, improves finish
- Protects all livery
- Reduces annual cleaning and maintenance costs
- Drastically reduces road debris build up
- Protects all surfaces inc plastic and bare metal
- Extremely cost effective
- Reduces your cleaning time by half
- Increases your workforce essential duty time

Don’t let your vehicles look like this

When it can look like this

The Interior Product

- The only dry chemical application product in the global market with nano technology
- Totally silicon and Teflon free
- Prolongs the life of interior trim
- Protects all leather, fabric, carpets
- Reduces daily cleaning and maintenance costs
- Drastically reduces debris build up
- Protects all surfaces inc plastic and bare metal
- Protects against spittle, and other unpleasantries

Product certificates, and test results

Boeing certification

Airglide updated reports imminent

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Airglide Certification - AMS 1650C

Globally recognised certification for aircraft polish, metal, liquid

AMS - Aerospace Material Specifications
These are standards developed by the Aerospace Materials Division under the direction of the SAE Aerospace Council. Over 1200 AMSs have been adopted by the Department of Defense and are used worldwide by the aerospace industry.

ASTM Specifications (American Society for Testing and Materials)
These standards are developed voluntarily by technically qualified members located worldwide. ASTM standards are used as reference procedures in most AMS & Military aerospace specifications.

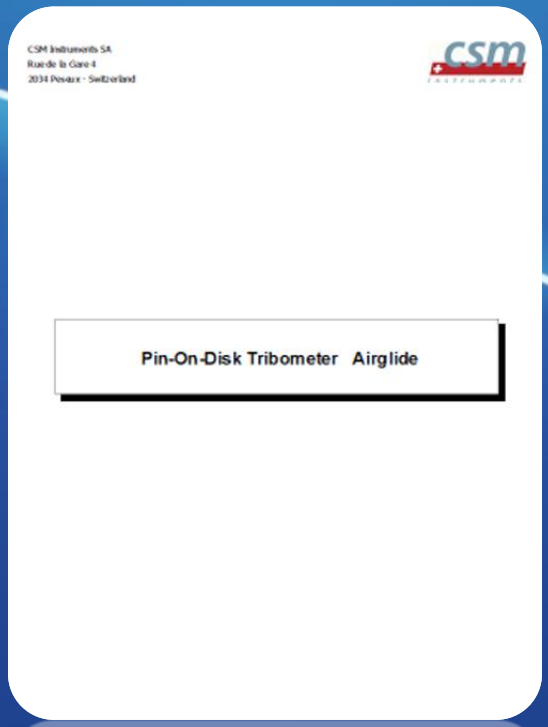
Military Specifications
These are standardized documents developed by the United States Department of Defense.

Airframe and Engine Manufacturers
These are private industry commercial specifications developed by manufacturers such as Boeing, Pratt & Whitney, GE, Rolls Royce, Lockheed, and Airbus.

Other Test Specifications
SMI performs testing to many other specifications including Transit Authorities and has developed many customized test procedures for individualized requirements.

Surface friction reduction tests

The difference is 42% (report attached):



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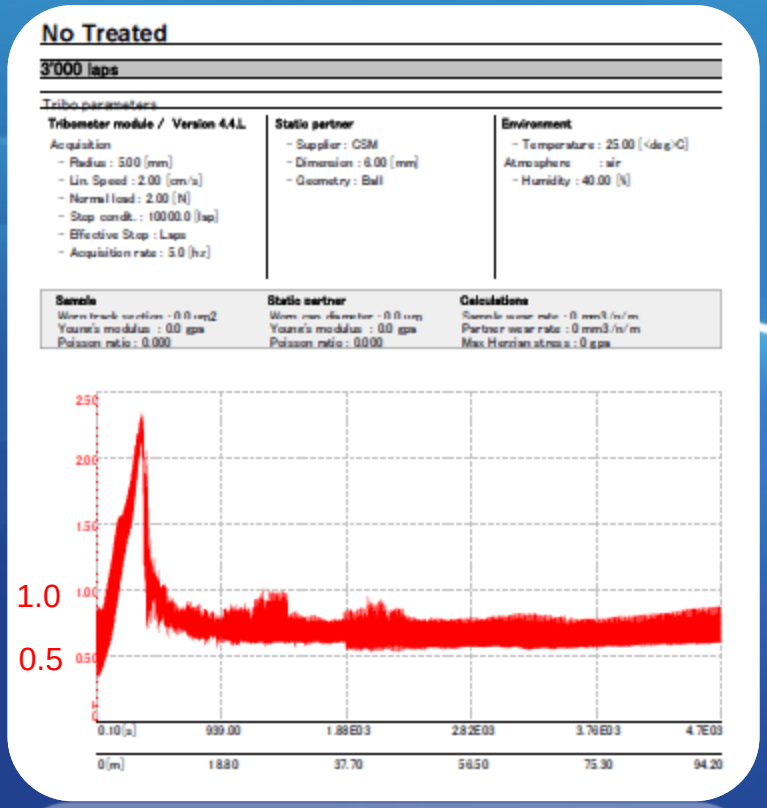
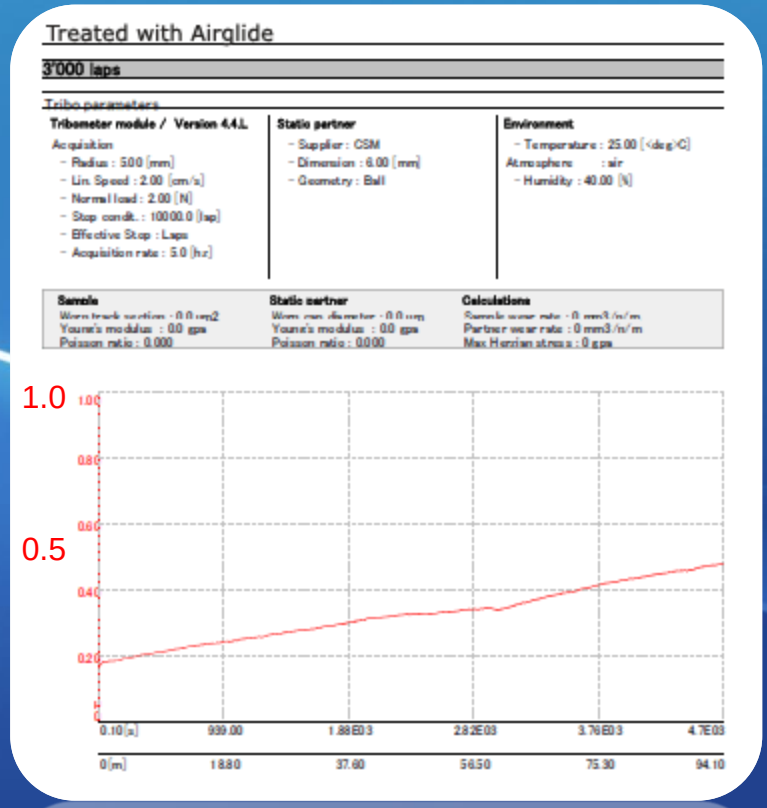
Before and after!





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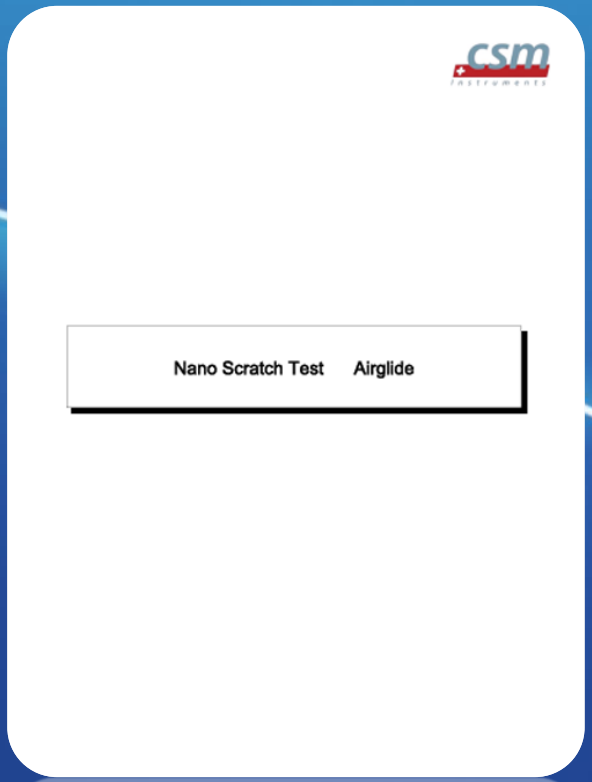
Nano Scratch Tests



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Nano Scratch Tests Results #1

Non Treated

Non treated : Scratch # 1

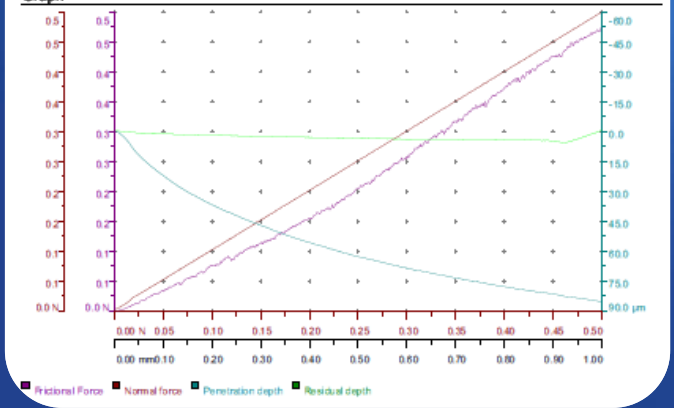
Scratch parameters

Linear Scratch	Position Y (mm) : 37.791
Type : Progressive	+ NSTX S/N: 50-00133 settings
Begin Load (N) : 0.00	Cantilever : HL-309
End Load (N) : 0.5	Fn contact : 0.003 N
Loading rate (N/min) : 0.99	Fn Speed : 0.02 N/s
	Fn Remove speed : 0.02 N/s
AESensitivity : 9	Approach speed : 2 %/s
Scanning load (N) : 0.00	Dz sensor in large range
Speed (mm/min) : 2	
Length (mm) : 1	Date : 3/22/2012
Position X (mm) : 23.848	Hour : 8:30:27 AM

Indenters

Type : Spherical	Material : diamond
Serial number : SD-A71	Radius (µm) : 10

Graph



Treated

Treated : Scratch # 1

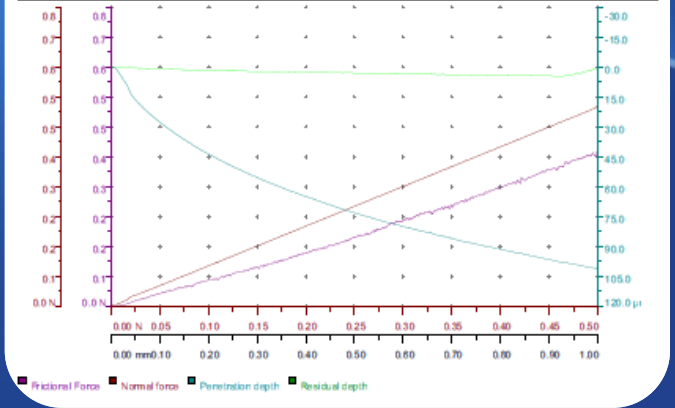
Scratch parameters

Linear Scratch	Position Y (mm) : 37.791
Type : Progressive	+ NSTX S/N: 50-00133 settings
Begin Load (N) : 0.00	Cantilever : HL-309
End Load (N) : 0.5	Fn contact : 0.003 N
Loading rate (N/min) : 0.99	Fn Speed : 0.02 N/s
	Fn Remove speed : 0.02 N/s
AESensitivity : 9	Approach speed : 2 %/s
Scanning load (N) : 0.00	Dz sensor in large range
Speed (mm/min) : 2	
Length (mm) : 1	Date : 3/22/2012
Position X (mm) : 23.848	Hour : 9:03:07 AM

Indenters

Type : Spherical	Material : diamond
Serial number : SD-A71	Radius (µm) : 10

Graph



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Nano Scratch Tests Results #2

Non Treated

Non treated : Scratch # 2

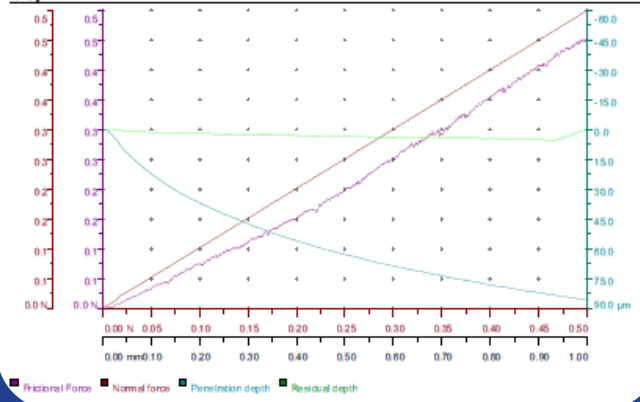
Scratch parameters

Linear Scratch	Position Y (mm) : 38.791
Type : Progressive	+ NSTX S/N: 50-00133 settings
Begin Load (N) : 0.00	Cantilever : HL-309
End Load (N) : 0.5	Fn contact : 0.003 N
Loading rate (N/min) : 0.99	Fn Speed : 0.02 N/s
	Fn Remove speed : 0.02 N/s
AESensitivity : 9	Approach speed : 2 %/s
Scanning load (N) : 0.00	Dz sensor in large range
Speed (mm/min) : 2	
Length (mm) : 1	Date : 3/22/2012
Position X (mm) : 23.848	Hour : 8:35:19 AM

Indenters

Type : Spherical	Material : diamond
Serial number : SD-A71	Radius (µm) : 10

Graph



Treated

Treated : Scratch # 2

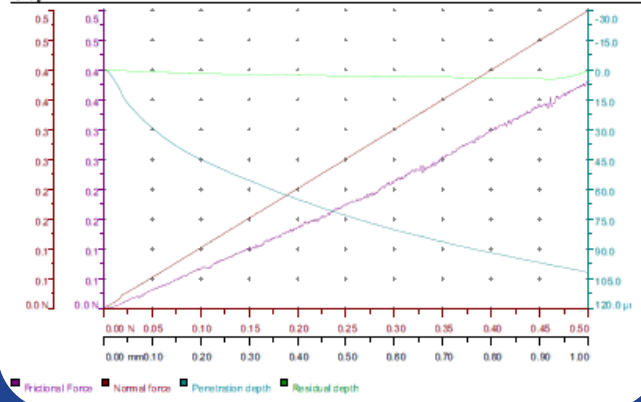
Scratch parameters

Linear Scratch	Position Y (mm) : 38.791
Type : Progressive	+ NSTX S/N: 50-00133 settings
Begin Load (N) : 0.00	Cantilever : HL-309
End Load (N) : 0.5	Fn contact : 0.003 N
Loading rate (N/min) : 0.99	Fn Speed : 0.02 N/s
	Fn Remove speed : 0.02 N/s
AESensitivity : 9	Approach speed : 2 %/s
Scanning load (N) : 0.00	Dz sensor in large range
Speed (mm/min) : 2	
Length (mm) : 1	Date : 3/22/2012
Position X (mm) : 23.848	Hour : 9:08:01 AM

Indenters

Type : Spherical	Material : diamond
Serial number : SD-A71	Radius (µm) : 10

Graph



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Nano Scratch Tests Results #3

Non Treated

Non treated : Scratch # 3

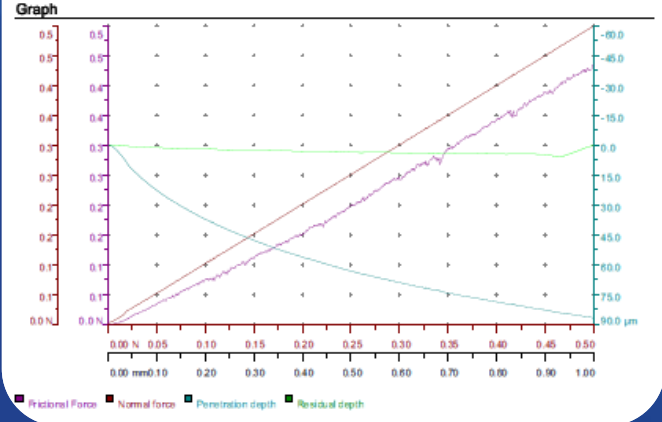
Scratch parameters

Linear Scratch	Position Y (mm) : 39.791
Type : Progressive	+ NSTX S/N: 50-00133 settings
Begin Load (N) : 0.00	Cantilever : HL-309
End Load (N) : 0.5	Fn contact : 0.003 N
Loading rate (N/min) : 0.99	Fn Speed : 0.02 N/s
	Fn Remove speed : 0.02 N/s
AESensitivity : 9	Approach speed : 2 %/s
Scanning load (N) : 0.00	Dz sensor in large range
Speed (mm/min) : 2	
Length (mm) : 1	Date : 3/22/2012
Position X (mm) : 23.848	Hour : 8:40:12 AM

Indenters

Type : Spherical	Material : diamond
Serial number : SD-A71	Radius (µm) : 10

Graph



Treated

Treated : Scratch # 3

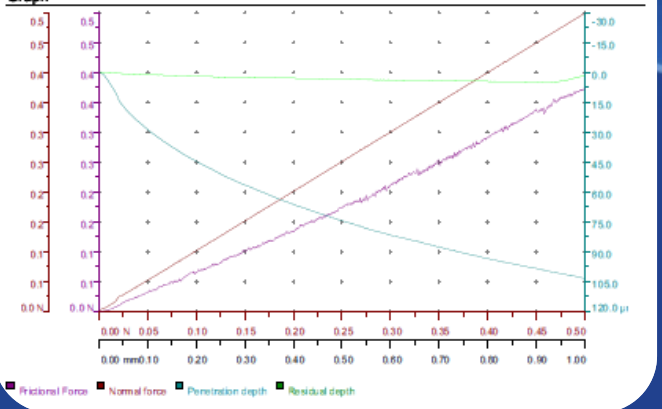
Scratch parameters

Linear Scratch	Position Y (mm) : 39.791
Type : Progressive	+ NSTX S/N: 50-00133 settings
Begin Load (N) : 0.00	Cantilever : HL-309
End Load (N) : 0.5	Fn contact : 0.003 N
Loading rate (N/min) : 0.99	Fn Speed : 0.02 N/s
	Fn Remove speed : 0.02 N/s
AESensitivity : 9	Approach speed : 2 %/s
Scanning load (N) : 0.00	Dz sensor in large range
Speed (mm/min) : 2	
Length (mm) : 1	Date : 3/22/2012
Position X (mm) : 23.848	Hour : 9:12:54 AM

Indenters

Type : Spherical	Material : diamond
Serial number : SD-A71	Radius (µm) : 10

Graph



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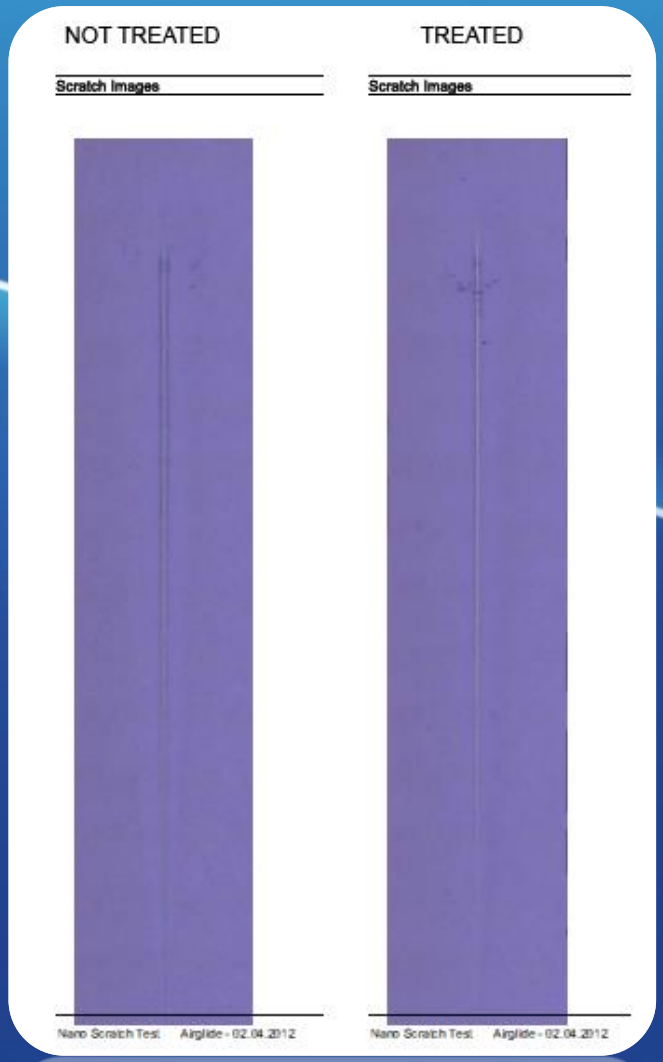
Nano Scratch

Tests Results



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To arrange a meeting or, if you require further information please, do not hesitate to contact us:

Dave Stoneman: Managing Director

e-mail: david@airglideltd.com

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Scientific Material International

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Material Specification Testing for the World's Aerospace Industry

For over 20 years, SMI has been the world's leader of aerospace materials testing. Our facility has performed specification testing to military and civilian specifications such as MIL, FED, AMS, ASTM, ARP, Boeing, McDonnell Douglas, Pratt & Whitney, General Electric, Rolls Royce, Lockheed and Airbus.

SMI is internationally recognized as an authorized testing facility by airframe and engine manufacturers throughout the world, including the US Air Force, US Navy, and foreign military.

Our facility is also utilized for testing materials used by various transit authorities across the United States.

We are members of SAE/AMS, ASTM, ACS, and AMS International.
Please tour our website (still under construction) for useful information and feel free to call us to discuss you specific testing requirements.

Scientific Material International
12219 SW 131 Avenue Miami, Florida 33186-6401
Phone (305) 971-7047 Fax: (305) 971-7048

Scientific Material International

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Test Specifications

Material Specification Testing for the World's Aerospace Industry

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