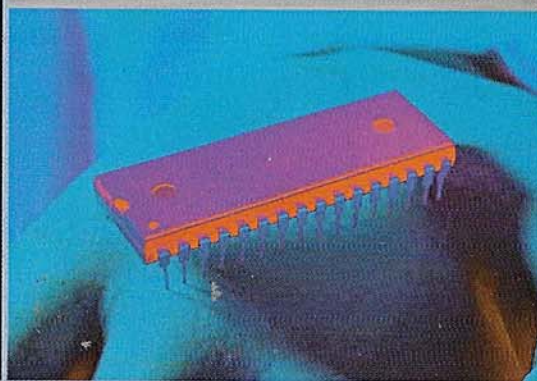




AS9100;ISO 9001

PURECOAT INTERNATIONAL, LLC



SOLUTIONS FOR THE 21ST CENTURY

Purecoat International Mission Statement

Purecoat International, LLC has operated in its present Florida location for over twenty-five years, applying specialized metal finishes to components utilized worldwide by the aerospace, electronics, transportation & microwave industries. PCI also operates a newly constructed metal finishing facility in Belmont, Massachusetts. PCI's focus is to offer metal finishes which will enhance component-operating life. This is accomplished through the deposition of highly specialized materials such as NiBRON - a proprietary electroless nickel-boron finish designed to resist fretting and galling wear. We also offer gold, silver and copper coatings to maximize conductivity and substrate protection; and a variety of finishes which conform to high-end military and commercial specifications.

What is NiBRON

NiBRON is Purecoat International, LLC registered trade name for an electroless nickel-thallium-boron coating. It is an engineered surface deposit which is readily applied to a variety of substrates, such as steel and nickel alloys, aluminum, copper alloys, and titanium. It also resists fretting and galling and has nearly three times the wear resistance of medium phosphorus, electroless nickel, and twice the wear resistance of low phosphorus electroless nickel. Target thickness range is 0.0002-0.0020, for a finished part complete without post machining. Electroless deposition provides uniformity of $\pm .0001$. NiBRON also accepts dry film lubricant. The application process minimizes any potential for hydrogen embrittlement. NiBRON's unique "columnar" structure results in a more ductile deposit, permitting the substrate to flex in application without loss of adhesion.

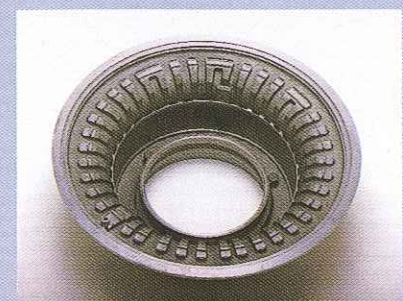
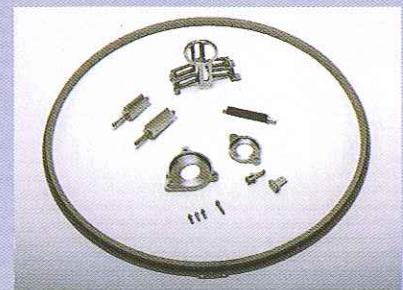
NiBRON is applied to titanium Inlet Guide Vanes in Fighter Jets, critical to military turbine engine efficiency, to minimize wear on the vane stem journals and contact faces.

NiBRON has many other applications in various industries; please call for any questions or application inquiries.

Processes Available AMS & Military Specifications

NiBRON
Nickel-Thallium-Boron
Plating
Nickel Plating
Electroless Nickel Plating
Cadmium Plating
Passivation
Fluoropolymer Lubricant
Anti-Galling Compounds

Gold Plating
Silver Plating
Copper Plating
Tin-Lead Plating
(Reflow Available)
Tin Plating (Reflow Available)
Tri-Alloy Plating (Copper-
Tin-Zinc)
Chemical Film (CL-1A-CL-3)



Aerospace

Purecoat International, LLC has been involved in the application coating on several jet engine components for high performance military engine configurations. (See Below) The results obtained have indicated that our NiBRON coating has significantly improved component life cycles to permit achievement of tactical cycle performance objectives. On these particular engine configurations, NiBRON conforms to AMS-2433 and is specified on more than 100 part numbers as bill of materials. NiBRON is also specified on several hundred-part numbers for development engines.

Partial List of Aerospace parts using NiBRON coating

Compressor Bearing Seal Supports

Variable Vanes

Augmentor Nozzle Mounting Brackets

Synchronization Rings

Flap Tracks

Shuttle Manipulator Arms

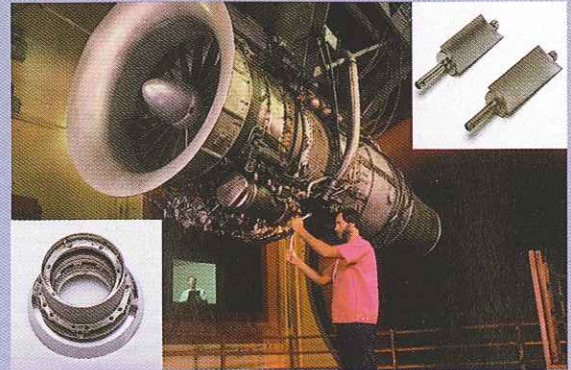
Military Applications - Army Tank

Airborne High Speed Machine Gun Mounting

Types of Aircraft Engines

F-100 Jet Engine, F-220 Jet Engine, F-220 E Jet Engine,

F-229 Jet Engine, F-14 Fighter Jet, F-15 Fighter Jet, F-16 Fighter Jet, F-22 Fighter Jet.



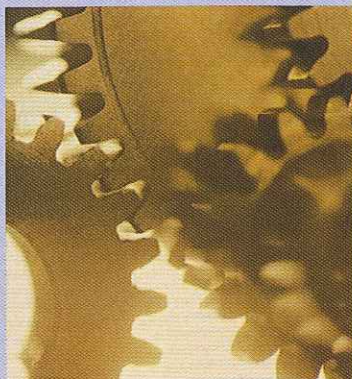
General Aerospace: There are many other programs presently in the development phase working with different aerospace companies to evaluate the use of NiBRON in areas other than jet engines. These include the landing gear, control systems, and other mechanical systems in which galling, fretting or excessive wear is being experienced.

Automotive Applications



Over the last few years a major effort has been made to introduce Purecoat International's coating process into the automotive industry. There are numerous tests and evaluations being conducted presently with major manufacturers and the results to date are very encouraging. The following are some examples of applications.

Clutch Throw-Out Mechanism: A major supplier to the automotive industry was experiencing serious galling problems on a helical spline on a high production clutch release mechanism. At the time of problem identification there were many thousands of units out in the consumer market. This supplier was faced with the fact that there appeared to be no solution to this problem without a major redesign, which of course, would have been catastrophic to the company. NiBRON was found to be extremely successful and is now being used.



Thrust Washers: Thrust washers are used in the differential assembly in automatic transmissions. Parts were made of bronze and left uncoated. Life was approximately 20,000 miles. Purecoat International was consulted and using our NiBRON coating, we were able to extend the life of the thrust washers to 100,000 miles.

Electronics

PCI offers a variety of finishes for Cellular, GPS, PCS and most of today's communications systems. Our pure and semi bright silver coatings yield maximum conductivity for filters, duplexers and connectors while providing low insertion loss. High power output assures minimal tuning-time at final assembly. Gold plated contacts and connector bodies are used in a wide range of operating temperatures and environments. PCI also offers a unique Tri-Alloy coating consisting of copper, zinc & tin. This "stainless steel" looking finish is applied over either copper or silver to prevent tarnishing where the application environment is at elevated temperatures. Tri-Alloy also reduces intermodulation associated with other finishes.



General Applications

Oil Drilling: NiBRON can be applied to the metal shafts and hardware associated with drilling including exotic steels alloys and beryllium copper. NiBRON is resistant to hydrochloric acids which provide better wear resistance than chrome during the drilling process.

Glass Industry: NiBRON has been successfully used to improve the service life of tools used in forming glass containers. NiBRON improves wear properties and makes available unique release agents through the low co-efficient of friction.

Tooling: NiBRON has been successfully used as a coating on cutting tools, forming tools, jigs and fixtures. It's expected that there will be an increase of recognition for this type application in the near future.

NiBRON is a registered trademark of Purecoat International, LLC.



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