**Aeromet Technologies, Inc.**
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February 7, 2015

**Subject: Aeromet Technologies, Inc. Capabilities List**

Aeromet can provide you with TECH Transfers which cover all of the following technologies regarding coatings and/or stripping of coatings for jet engine/IGT components repair:

**HPT/LPT Airfoils**

- Full Strip or Controlled Partial Technology using Dilute Acids, Using Patented Process
- Improvement and patent over this process to remove internal aluminide coatings, sulfidation on internal passages, and sulfidation removal of LPT cavities, hollow for weight reduction but not air cooled
- Recovery of platinum and or rhenium from stripping especially on scrap components, dissolution of copper/silver sludge to recover the silver

- We can supply conformal anodes shapes for both blades and vanes, from titanium platinized anodes, or platinized niobium substrates

- Coatings: Plain vapor phase aluminide, plain vapor phase chromide (with weight gain assured), or silicon inoculated aluminide coatings (with about 2.5 times the life of normal aluminide coatings), chromium silicide coatings, applications from slurry, non-aqueous platinum deposition for increased yield of platinum delivered to customer, normal platinum aluminide coatings with explanations for how to comply with GE 2 phase PtAl, single phase PtAl, coatings like MDC150L and Chromalloy RT-22, replacement for Sermalloy J, and spot repair of platinum aluminide chips, new RR ϒϒ' platinum aluminide enriched with hafnium or/and silicon.

- Advanced furnace technology to increase coating thicknesses, improve coating cleanliness, use of electrochemical aspects of aluminide deposition, more reliable furnaces with control of gas volumes and constituencies, close uniformity in small retorts, and co deposition of hafnium, zirconium, silicon or yttrium. Capability to apply either internal aluminide or internal chromide coatings, simultaneous internal chromide with external aluminide capability. Furnace tooling from graphite or graphite assisted nickel 200 for the elimination of iron from the coatings

- Advanced coating application capability currently under development, deposition of aluminide with silicon, hafnium, yttrium, platinum chromium, zirconium, in combination in a single aluminization of chromiding application, non-aqueous platinum deposition, non-uniform coating chemistry deposition, simultaneous non-uniform

coatings such as one coating underneath the platform and a different coating above the platform. Also capable of depositing aerospace engine coatings via simple CVD over Air plasma coatings. PCT Filed November 2014 for Lewis Acids dissolved in alcohol, nickel CVD for dimensional restoration of vane segments

**Compressor Blade Technologies**

- Stripping capability for CuNiIn for compressor blade root dovetails, Removal of WCCo from GE Titanium compressor blades, and removal of CrC-NiCr pads from CF6-6 mid-span shrouds, etching systems for alpha case removal on titanium, and etching to reveal cracks prior to FPI using HF-Nitric, all technologies performed with guaranteed safety for titanium components, not guaranteed for A286 or Inconel 718 components.

- Same Technology applied to Exhaust augmentor segments for PW 100 engines, PW 119 engines and PW F135 engines, plus CrC-NiCr from similar GE components. Also applicable to Boeing Steering gear assemblies on current advanced models, flap tracks on Boeing aircraft, piston rod assemblies on all actuator cylinders for either doors or landing gears. Applied to remove coatings from mud pump augurs on oil and gas drilling assemblies, removal of WCCO from printing press rolls

**IGT Stripping**

- Capability to remove without pitting all MCrAlY's for GE gas Turbines(including coatings being applied beginning in 2014) Siemens Turbines (ala Finnsbong), and MCrAlY' coatings used on Honeywell APU's. Capability to remove WCCo or CrC-NiCr from Oil and Gas down hole mud pump impellers, and gear boxed with plasma sprayed coatings on the bearing journals (from 4340 or 4140)

**Miscellaneous**

- Chromide coatings on US Navy bombing lugs for the 500 pound Penetrator bomb (used on US Navy Aircraft Carriers). Methods for manufacturing FeCrAlY honeycomb seals for IGT Applications on Siemens products
- Acid distillation and filtration systems, Ion chromatography systems for rhenium recovery, scrubbers and neutralization systems
- Equipment for performing strain to first crack determination
- Cyclic oxidation testing equipment for high temperature oxidation testing comparisons
- Sample buttons prepared
- Weird stuff like helicopter bearing stripping or moly aluminide
- Access to SEM-WDS Microprobe at the University of Utah a research grade machine with a fully trained professor performing the work
- Anodizing systems for aluminum and titanium, non-stick coatings for aluminum cookware and medical devices, passivation systems for stainless steels using either nitric acid or citric acid

Local FIC Patent sold back to Rich Chesnes, Cincinnati, Ohio

**Equipment**

- Furnaces, and platinum plating systems for all coatings listed above. New design for medium sized furnace with agitation inside retort, pH control over the coolant, systems available summer 2015
- Plastics welding capability for PVC, CPVC, PPE and KYNAR Tanks and equipment.
- Blueprints for design of 7 tank platinum plating system, coating uniformity thickness guaranteed, systems available now

Tech Transfers include the basic information in the same format as was required by GE for a PCN or a Process Approval Document. Most customers also have other special needs or requirements which are included in the particular Tech transfers we performed for them. The TECH Transfers all have been cleaned so that no reference to either the original customer, nor the customer's proprietary information is revealed. In some cases, we have excluded particular customer developments from our capability list to stay within the boundaries of the non-disclosures we have signed.

**Revert Recovery (A company spun off from Aeromet)**

- Recovery of platinum from substrates. Sale of rhenium bearing materials for higher recovery. Conversion of scrap which is revert quality and fully identified into powder for laser or 3D printing of new parts.

- Ability to etch titanium 64 adequately to be able to send to source for powderization (this material is then used for medical implant 3D printing applications). Ability to use CVD for deposition of titanium over SS304 substrates, then anodize the titanium and apply silane for non-stick applications

- Ability to lease both middle sized furnace and platinum plating systems, for reasonable rates