Triton Systems, Inc.

Your Partner for Surface Modification and Nanocoatings
Via Unique Environmentally Friendly Process

Triton Systems offers ASSET™ – Advanced Solutions in Surface Engineering Technology – to meet your needs for ultrathin, rugged, highly functional surface modification and coatings. Our ASSET™ services provide you with expertise in coating chemistry and formulation coupled with Atmospheric Pressure Plasma Liquid Deposition (APPLD™) technology developed by Dow Corning.

**Triton will provide you with a customized solution that:**

**Enables New and Improved Products**
ASSET™ allows you to achieve a step change in the performance of your existing products or enables you to create new products for your target markets.

**Provides Process Cost Savings**
The ASSET™ solution is based on an energy and material efficient, lower emission footprint and a solvent-free process to tailor surface properties by depositing a very thin coating onto your substrate.
What is ASSET and how does it work?

Triton’s ASSET™ services combine precursor chemistry and formulation with the APPLD™ process. Depositing liquid precursors under atmospheric pressure and room temperature is a unique feature of APPLD™ technology developed by Dow Corning and patented worldwide.

The main steps in this process are:

- Liquid precursor is selected based on your requirements.
- Liquid precursor is atomized into droplets and sprayed directly into the plasma and then onto the substrate.
- The atmospheric pressure and cool plasma simultaneously activates the precursor and substrate giving rise to one step coating.
- All of the original properties of the liquid precursor are retained — even for large and complex molecules. This is advantage, unique to APPLD™, allows you to achieve a step change in the performance of your existing products, as other plasma processes destroy precursors.

Advantages of ASSET™:

- ASSET™ can be applied to almost any substrate. Examples include:
  - Woven fabrics
  - Non-woven fabrics
  - Plastic films
  - Metal foil or metalized substrates
  - Rigid (flat or 3D) components or devices
  - Temperature sensitive substrates
  - Water sensitive substrates

Advantages of Liquid Precursors:

- A wide range of precursors, not limited to gaseous or volatile materials. Solutions, suspensions, nanoparticle dispersions and mixtures can all be utilized to deliver functionality
- Enables thin film deposition with controlled surface engineering
- No limitation on liquid vapor pressure
- No requirement for heated delivery lines or precursor temperature control
- High deposition rate – x10 over fastest plasma vapor deposition

Advantages of Using Plasma Employed by APPLD™:

- Retains the functionalities of precursors
- Energy efficient, no heating required
- Immediate curing
- No residual solvent or water
- Ambient temperature
- Atmospheric Pressure, no vacuum hardware required
- Equipment platform for R&D and manufacturing scale is available

Unique Features of ASSET™ and APPLD™
Customized Surface Properties for Multiple Applications and Markets

ASSET™ is a powerful, generic surface engineering technology that gives you the freedom to design and customize the surface characteristics of your products while the bulk is left untouched by the process. It can be applied to any material in fiber, 2D web or 3D geometry.

<table>
<thead>
<tr>
<th>Functionality</th>
<th>Performance</th>
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<tbody>
<tr>
<td>Adhesive Promotion</td>
<td>Outstanding bonding and lamination on polymer and metal surfaces without the need for bulk adhesion promoters</td>
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<tr>
<td>Hydrophobic</td>
<td>Durable water repellency, complete water roll-off and inhibition of capillary flow</td>
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<tr>
<td>Hydrophilic</td>
<td>Water wicking, extra absorbency, easy capillary flow, anti-fog, easy take-up and good coverage for printing, coating, dyeing, etc.</td>
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<tr>
<td>Oleophobic</td>
<td>High solvent repellency, with durability to boiling water and solvent washes</td>
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<td>Low Friction</td>
<td>Coefficient of friction comparable to PTFE</td>
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<td>Non-Stick/Release</td>
<td>Low release force combined with high reusability</td>
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<tr>
<td>Bioactive</td>
<td>Selective biological tethering sites: bio-receptors/bio-affinity, antimicrobial coatings, and enzymes and proteins</td>
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<tr>
<td>Co-Polymers</td>
<td>Multifunctional surfaces</td>
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<tr>
<td>Trapped Active</td>
<td>Coating matrix encapsulates active molecules that can be released in a controlled manner over time or through an applied stimulus</td>
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Open the door to new, highly functional and high-value designer materials and surfaces.

Our highly skilled team has experience with coatings, synthesis and formulation, plasma process and chemical engineering, polymer science and engineering, supply chain and product development. Our ASSET™ services include:

Product Development
We will work independently or jointly with you to develop a coating formulation and process that suits your precise needs.

Coating Service
Our trained engineers can run coating machines that fit with your exact requirements.

Plasma Coating Equipment
We will work with you to design equipment specifically for your applications.
Large Area Plasmas

APPLD™ coatings have been demonstrated for treating flexible materials up to 8 feet (2.5 meters) wide. Surface coating and modification is carried out at room temperature by passing the material through a volume of non-thermal equilibrium, cool plasma generated by applying RF voltage across two opposing parallel plate electrodes.

The AP4 Workstation is:
- A stand-alone, roll-to-roll system for flexible web materials up to 12 inches wide
- Ideally suited for applied/industrial research and development; easily interfaced with optical and electrical diagnostics
- An excellent tool for generation of customer-specific application know-how
- Designed for pilot production and mainstream production of narrow webs
- Versatile and flexible

Jet Plasma

Jet Plasma is well suited for treating materials in 3D, rigid sheet or fiber/filament form. Surface engineering is carried out at room temperature by applying to the target substrate a stream of plasma emitted from a proprietary electrode configuration and carrying the liquid deposition chemistry. The PlasmaStream™ is a stand alone system that operates at atmospheric pressure for easy processing.

The SE 2100 PlasmaStream™ Workstation is:
- A turnkey stand-alone surface engineering station, equipped with X-Y-Z table
- Versatile and flexible (can run any number of different processes in many applications and markets)
- An R&D or pilot production tool ideally suited for applied research, product development and generation of application know-how

Contact Triton today to find out how ASSET™ services can help you.
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