Plasma for advanced materials

Applying an electric field to a gas produces an ionized gas (plasma), with applications in:
- Surface activation or modification
- Selective contamination removal
- Chemical grafting
- Sterilizing surfaces
- Etching polymers
- Coating surfaces at high speed

Atmospheric plasma—safe, versatile

Advancing beyond vacuum, atmospheric plasma can be easily incorporated into process lines to enhance manufacturing outcomes without the need for pumps or vacuum chambers. Surfx Technologies’ Atomflo™ solutions are:
- **Clean**-breakthrough technology is clean room compatible
- **Flexible**-multiple plasma source form factors
- **Fast**-highest reactive species density

Atomflo™ 400

The introduction of Surfx Technologies’ Atomflo™ 400 series brings high-speed atmospheric plasma solutions to many industries:
- Medical devices
- Aerospace materials
- Semiconductor manufacturing
- Biotechnology and pharmaceutical
- Metal and plastic adhesion
- MEMS devices

The **Atomflo™ 400** provides an enhanced atmospheric plasma facility:
- Variable **RF generator**
- **Auto-tuning** matching network
- All new **modular control** system
- **User friendly** interface
- **Variable reactive gas** chemistry
### Key plasma properties

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakdown voltage, $V_b$</td>
<td>170 V</td>
</tr>
<tr>
<td>Electron density, $n_e$</td>
<td>$10^{11}-10^{12}$ cm$^{-3}$</td>
</tr>
<tr>
<td>Electron temperature, $T_e$</td>
<td>17400 K (1.5 eV)</td>
</tr>
<tr>
<td>Neutral gas temperature, $T_n$</td>
<td>335-475 K</td>
</tr>
<tr>
<td>Reactive atom density, eg $n_o$</td>
<td>$10^{16}-10^{17}$ cm$^{-3}$ (≤1.0 vol.%)</td>
</tr>
</tbody>
</table>

### System technical specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (W x D x H)</td>
<td>440 x 640 x 230 mm (17.3 x 25.1 x 9.1&quot;)</td>
</tr>
<tr>
<td>Weight</td>
<td>Approximately 35 kg (77 lb)</td>
</tr>
<tr>
<td>Electrical supply</td>
<td>110-240 VAC, 50-60 Hz, 700W</td>
</tr>
<tr>
<td>Maximum RF power</td>
<td>200 W ±3%</td>
</tr>
<tr>
<td>Operating pressure range</td>
<td>40-100 psig ±5%</td>
</tr>
<tr>
<td>Primary gas</td>
<td>Helium</td>
</tr>
<tr>
<td>Secondary gas</td>
<td>Oxygen, Nitrogen, Hydrogen, Carbon Dioxide, Nitrous Oxide</td>
</tr>
<tr>
<td>Supported plasma sources</td>
<td>1” and 2” linear head, Deposition head, Minibeam head, Tubular source</td>
</tr>
</tbody>
</table>

### Versatile plasma applicators

The Atomflo™ 400 series offers a variety of plasma applicator geometries. Each applicator is specifically tailored for its intended industry.
Surfx Technologies LLC

Founded in 1999, Surfx Technologies has over 25 years experience in plasma and surface chemistry. Surfx’s plasma technology is exclusively licensed from the University of California, Los Angeles where the technology was first developed.

Its high-speed atmospheric plasma technology can be used to treat microelectro-mechanical systems (MEMS), microfluidics, semiconductors, solar cells, medical devices, sensors, plastics and composites. Our mission is to become the worldwide leader in atmospheric plasma surface treatment for the Aerospace, Medical Device and Semiconductor industries.

Surfx is a rapidly growing company that is driven by a total commitment to our customers. Surfx’s technical team of engineers and scientists provide expert service and support for your plasma processing needs.

Contact us today for more information about our complimentary application study to see if Surfx is right for you.

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