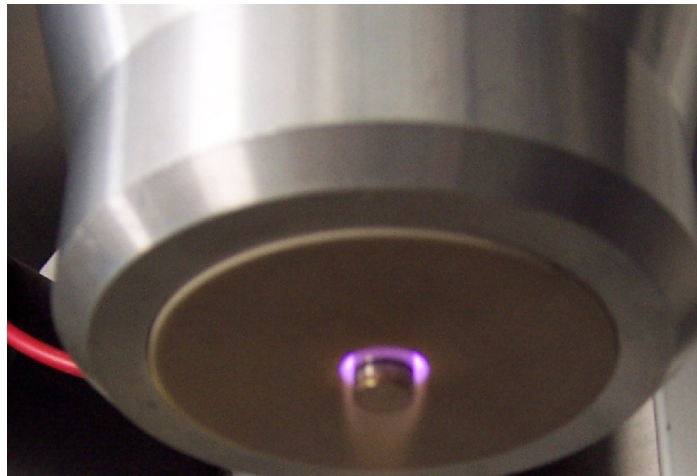


MATERIALS TECHNOLOGY

**PLASMASPOT®
FOR LOCAL TREATMENT OF COMPLEX GEOMETRIES**

VITO's PlasmaSpot® is an innovative plasma jet that operates at atmospheric pressure. It is the ideal tool for surface activation, cleaning or coating of complex, 3-D geometries. VITO also provides the optimal plasma process for your specific application.



Main characteristics

- » The patented PlasmaSpot® concept results in highly **efficient surface modification**;
- » the unique system design **minimizes maintenance** requirements;
- » the tool is ideally suited for the **local treatment of complex, 3-D geometries**;
- » the indirect treatment in the plasma afterglow allows processing at **moderate temperature**;
- » a wide variety of **chemical products** can be efficiently injected in the centre of the afterglow for **permanent surface modification**;
- » the compact and robot compatible design allows **easy process integration**;
- » VITO's Aplaus™ software allows **full process automation**.

The PlasmaSpot® operates according to the following specifications:

Parameter	Range	Typical Value
Power	20 – 500 W	450 W
Voltage	5 – 25 kV	11 kV
Frequency	1 - 100 kHz	70 kHz
Plasma Gas	nitrogen, air, oxygen, carbon dioxide, hydrogen, helium, argon,... and any mixtures thereof	Nitrogen
Gas consumption	5 – 100 l.min ⁻¹	80 l.min ⁻¹
Chemical precursors (liquid or gaseous)	optional: hydrocarbons, organic acids, siloxanes,...	Depending on application
Precursor consumption	1 – 20 ml/min	Depending on application
Homogeneous plasma area	Ø 10 – 25 mm	11 mm
Working distance	1 – 20 mm	6 mm
Working temperature	25 - 250 °C	80 °C
Typical deposition rate for coatings	10 – 100 nm.s ⁻¹ .cm ⁻²	30 nm.s ⁻¹ .cm ⁻²

Applications

Material surfaces are frequently contaminated with e.g. oils, oxides or sulphides. The PlasmaSpot® is ideally suited for smoothly **cleaning** surfaces from contamination at atmospheric pressure.

- » VITO developed a dry and contactless process for the restoration of delicate antique objects containing silver parts. A black sulphide layer was successfully removed from the silver surface.



Plastic surfaces are often inert and water repellent. Plasma surface **activation** improves the wetting behaviour. This greatly facilitates gluing and printing.

- » The unique design of the PlasmaSpot® enables for the activation of complex geometries like plastic micro plates. A permanent increase of the surface energy greatly facilitated subsequent joining of a component onto the micro plates.



Thin **coatings** modify the surface properties of an object without interfering with its bulk properties. Such coatings extend the life span of an object, or improve the quality of the product.

- » Thin layers improve the friction behaviour of rubber seals and guides. The PlasmaSpot® is ideally suited for applying such coatings as the specific process chemistry requires a minimum working distance from the plasma source.



For references, contract terms
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