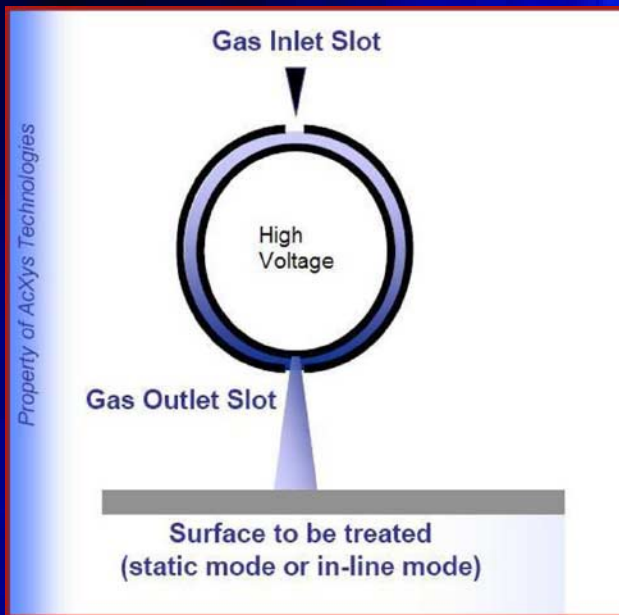




The Acteco consortium includes plasma set-ups suppliers. **AcXys Technologies** provides equipment and turn-key processes based on a unique atmospheric pressure plasma technology. The **AcXys system** produces a low temperature reactive atmosphere capable of treating almost any materials in any size or shape. Examples of materials are: textiles or webs, polymers, metals, glass, optics, electronics devices / products and rubbers.

Nitrogen and dopants are injected between an inner electrode and a metal housing. High voltage is applied between the electrode and the metal, thus creating a plasma in the gas. Plasma is then ejected from the source. The ejected plasma, called post-discharge plasma, contains active species that may change the chemical properties of the material's surfaces. This principle, see cross section, may be used for any source length.



Principle scheme of AcXys atmospheric plasma source

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AcXys Technologies' equipment generate a blade-shaped plasma, which length can be adjusted according to the customer's needs. When used in a controlled atmosphere, the plasma phase can be large enough to enable treatment of 3D objects. This makes it possible to treat any shape and any size.

This plasma technology is being used in a variety of applications across many industries. The technology can be used to clean surfaces, to chemically activate them, to perform oxido-reduction chemistry at surfaces, and to surface engineer materials. Properties like wettability, spreading rates, adhesion and thin film cohesion can be considerably improved. In addition, a new concept of adhesion called dry-adhesion has been developed by avoiding the use of wet adhesives. Those properties are reached mainly by surface functionalization techniques. Another recently developed technique allows CVD deposition enhanced by atmospheric plasma.

Within the ACTECO project, **AcXys Technologies** runs several tests using both techniques on fabrics. In a first phase, **AcXys Technologies** will define processes for hydrophobic, oleophobic and antibacterial applications. Depending on the testing results obtained by the end users on the treated samples, **AcXys Technologies** will modify and adapt the process until the expected results are reached. In a subsequent phase, **AcXys Technologies** will scale up its solutions according to the first phase by providing a mini-web device which is a roll-to-roll system running up to 100 m/min.

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