



CHECKLIST:

Guide to optimize Surface Adhesion and Wettability
for improving your production process

What Solutions does Plasma Technology offer?

1. Activation

Plasma activation is the process of cleaning and activating a surface as a pre-treatment before applying an adhesive, coating or spraying.

Keylink Plasma Surface Treatment Systems improve its adhesion properties and is an optimal way to improve the strength of the chemical bond between the base material and the adhesive, coating or spraying. The application of the plasma activation process can significantly increase the cross-linking, reliability, and performance of a product.

Plasma Treatment is a relatively fast process, making it suitable for high-volume manufacturing applications, and can be integrated in the existing process easily.

2. Adhesion Improvement

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2.1. Improving Bonding

Pre-treatment with Keylink Plasma Surface Treatment Systems increase the adhesion between an adhesive and a base material. It increases the peel and shear in the joint between the adhesive and the base material.



2.2. Improving Painting

Plasma pre-treatment of base materials to optimize paint adhesion is an excellent way of plasma activation. Increasing the adhesion between a material with low surface energy and a paint without the use of a primer or adhesion promoters is a significant and an environmentally friendly improvement in the manufacturing strategy.

2.3. Improving Coating and Durability

Pre-treatment is also recommended to be applied if a coating, ink, or dye is used in material that exhibits poor performance. Using pre-treatment with plasma on these types of processes increases the material properties of these coatings and improves the durability of the coating performance.

3. Wettability Improvement

If a substrate has a low surface energy, its wettability is poor and adhesion very scarce, and then needs a surface treatment to increase energy. Plasma technology as an economical and environmentally friendly treatment offers a wide range of opportunities for improving the wettability.

Plasma cleaning removes all layers of grease, wax or oil without leaving a trace and increase the wettability significantly.

Non-polar surfaces in plastics such as PP, PE, SEBS, PS, PTFE, as well as plastic films, foils, papers and other materials can be activated with plasma, which increases the surface energy significantly.

4. Cleaning

Plasma cleaning technology by using Keylink Plasma Surface Treatment Systems offers solutions for any type of contamination for any substrate. In the cleaning process microscopic contaminations will be removed from a surface by a dry method of turning the foreign particles into a gas. Nearly all materials can be treated. Plastics, metals, rubbers, ceramics or glass are suitable for plasma cleaning. It is an economical, safer, environmentally friendly and more efficient process in comparison to the traditional chemical cleaning method.

Plasma cleaning is applied to the application of surface preparation prior to the application of a sealant, adhesive or coating as well as improving the bond strength.



Plasma surface cleaning is also a perfect solution for microbial contamination. Many medical and manufacturing equipment depending on plasma treatment because it's more effective than aggressive agents and organic solvents.

5. Printing & Label Application

One of the key parameters determining the quality of the print is the adhesion of the ink to the substrate. Without good adhesion, it is impossible to obtain a high-quality print. Pre-treatment for printing using plasma technology improve the surface adhesion significantly, resulting in a high-quality print. Nearly all materials such as metals, ceramics, glass, polymers or textiles can be pre-processed with plasma technology to increase the surface energy and improve the surface adhesion outstandingly.

6. Etching

Using plasma technology for etching is an optimal treatment removing material from a polymer substrate, metal, oxide, glass or ceramic.

There are various advantages to using plasma instead of traditional removal methods, such as chemical etching or mechanical abrasion.

With plasma materials can be removed with high accuracy without any damage of the underlying substrate. Beside of this with plasma treatment very thin layers can be removed, the depth of material removal can be controlled precisely.

7. Varnishing

Many products, parts or components are made of materials such as metals, glass, ceramics etc., whose surfaces are very difficult to varnish. Using plasma pre-treatment before varnishing it will clean and operationalize such materials. As a result, many materials with typical non-stick surfaces can be coated or varnished successfully.

