Using **plasmatreat**® test ink

Poor surface wetting

Good surface wetting

Test ink is applied quickly to the surface using the brush that is integrated in the bottle cover. A high surface tension is initially employed after pre-treatment. If the brush stroke edges are stable for two seconds (good surface wetting), then the substrate's surface tension corresponds with the value of the test ink, at least. If the brush stroke edges of the test ink contract (shrink) then gradual steps should be used to obtain a surface tension resembling that of the material that is being examined. The surface tension of the test ink with which the surface is being moistened matches the sought after surface tension. The test ink with the next higher surface tension no longer moistens then.

Important:

plasmatreat® test inks should not be mixed together. Meaningful tests on the surface tension are no longer possible then.

plasmatreat® test inks must be closed immediately after their use. The varying speed of the evaporation of the contained components results in a change in the composition of the test inks. In the case of frequent use, the test inks are only durable for a maximum of three months.

Series B and C **plasmatreat**® test inks are suitable for PVC. Series A test inks with a formamide base expand on PVC and provide incomparable results.

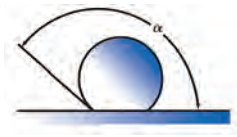
Series A and B **plasmatreat**® test inks consist of partly toxic chemical blends and are produced in accordance with the draft DIN standard on surface tension. Please heed the Safety Data Sheets.

Test Inks

For determining surface tension

plasmatreat
solutions on top

Surface Tension



Poor surface wetting

To obtain optimum surface wetting with a liquid (printing ink, adhesive), a substrate's surface tension is considered as the major parameter. The surface tension is considered as a relative measure for evaluating the printing ink coverage and the expected bonding of the printing ink, a layer of adhesive or some other coating on the substrate.

Good surface wetting

Plastics have a low surface tension between < 28 mN/m and 40 mN/m. Experience has shown, only surface tensions starting at 38–42 mN/m facilitate good adhesion conditions. A clear improvement in the surface tension can be achieved through an optimal pre-treatment, e.g. with atmospheric pressure plasma from **plasmatreat®**. Therefore, values of up to 72 mN/m are possible on many plastics (water fully wets the smooth surface).

Evaluation of test results obtained with plasmatreat® test inks

As with every test process, critical examination of the test results is necessary, even when determining the surface tensions using test inks.

Adherence is not affected by the surface tension!

The ascertained surface tension can only ever be a measure of the current condition of the substrate. Experience has shown, surface tension decreases in line with the storage time. In functioning processes, testing surface tension with **plasmatreat®** test inks is an excellent tool for quality assurance within the manufacturing process provided that the adhesive or the printing ink and the condition of the surface are harmonised.

The maximum error rate as a result of a reading equals 2 mN/m. In test series with repeat testing, the error tolerances drop accordingly. **The attained test values are relative values and are only conditionally comparable to other test methods.**

plasmatreat® test inks are available in three different series

Series A
- especially suitable for warmer surfaces
- longer readout time
- not suitable for PVC surfaces
- toxic
- manufactured according to DIN 53 364
- Available from 30–56 mN/m (in increments of twos)

Series B
- suitable for all common surfaces
- partly toxic (depending on the surface tension value)
- manufactured according to DIN 53 364
- available from 28–72 mN/m (in increments of twos)

Series C
- suitable for all common surfaces
- non-toxic, non-detrimental to health
- manufacturing based on DIN 53 364
- available from 28–72 mN/m (in increments of twos)

Openair® Plasma Technology Cleaned, activated, coated by plasmatreat® and creates a bond

Suitable for the following:

- plastics, sheet metal, lacquer, lined cardboard and glass
- surfaces that are difficult to print on
- the elimination of organic waste
- the elimination of dust particles
- for the electric discharging of subassemblies

The advantage:
Economic efficiency, environmental compatibility, process safety