

Measuring surface tension of plastic films (per DIN ISO 8296)

The surface tension of plastic films can be easily determined with reproducible results according to DIN ISO 8296 using test inks. The values obtained by different people using this method in different laboratories are comparable. Surface tension values per DIN ISO 8296 cannot usually be compared to the values per ASTM D 2578-99a. The surface tension values are indicated as mN/m (= dyn/cm).

The test method is based on determining the wetting properties of inks of different surface tension on the plastic surface to be tested. The brush on the bottle cap is dipped into the test ink; the excess ink is wiped off on the edge of the bottleneck and the ink applied immediately to the surface to be tested. The stripe of ink should be not less than 100 mm. The behaviour of the edge of the stroke is assessed over approximately 90 % of the length so that slight discrepancies are not taken into account. If the edges of the ink stripe contract in less than two seconds, the test is repeated with ink of lower surface tension until the edges remain intact for two seconds. If the edges of the ink stripe remain intact for longer than two seconds the test is repeated using ink of higher surface tension until the time of two seconds is obtained. The value indicated on the bottle corresponds to the surface energy of the film. Conduct the test in the standard laboratory atmosphere 23/50, i.e. at 23° C ambient temperature and relative humidity 50% +/-10%.

The solutions must not be mixed together. To ensure that brushes for different test inks are kept apart, only one bottle should be opened at a time. The bottle must be closed immediately after each test to prevent humidity absorption. The test inks should be discarded and replaced



after three months. To obtain best results, extreme cleanliness is required when testing. Fingerprints or any other form of contamination on the test surfaces will produce false test results.

Safety Instructions

Test inks according to DIN ISO 8296 contain considerable amounts of formamide and ethylene glycol monoethylether. Avoid all direct contact with the skin and inhalation of the vapours. Both substances are classified as "toxic (T)". Do not work with the test inks during pregnancy. Test ink residue must not be discarded into the sewerage system. Local waste disposal regulations must be observed. Material safety data sheets are available on request.

Delivery

The test inks are available in 30 ml and 100 ml bottles covering a range of 30 to 72 mN/m.

The standard test ink set is blue and consists of 10 bottles of 30 ml each in a protective box, covering the following range of surface tensions: 34 – 36 – 38 – 40 – 42 – 44 – 46 – 48 – 52 – 54 mN/m.

Test pen

The 38 mN/m test pen is a quick method of determining pretreated surfaces. It is not suitable for measuring surface energy.

The test pen is used as any other felt-tip pen. If the line drawn on the surface to be tested is continuous, the film has been pretreated at not less than 38 mN/m and can be printed. If the line is interrupted, the film has been poorly pretreated or not pretreated at all. The substances in the test pen are classified as „non-toxic“.

Test pens are available in packs of ten.



SOFTAL electronic GmbH

König-Georg-Stieg 1 · 21107 Hamburg · GERMANY
Tel. +49 (40) 7 53 08-0 · Fax +49 (40) - 7 53 08-129
E-Mail: sales@softal.de · <http://www.softal.de>