



### **HOW TO USE CON-TROL-CURE® DYNE PENS**

For maximum accuracy, we recommend that you use the middle of the range Dyne Pen for initial testing: 36 or 38 dynes/cm or tube color green or red. If the ink wets the surface within two (2) seconds without forming globules or beading, the treatment level of the film is either higher, or exactly the same as that of the liquid.

Second testing should then be performed using a Dyne Pen of the next higher dyne value: here- 40 or tube color light blue. The first process with the 2-second indicator is repeated using Dyne pens of increasing values until the ink beads within two (2) seconds of application.

However, should the initial application of ink have beaded within two (2) seconds, then the same ink test should be repeated using the next lower value of 34 dynes/cm or tube color light grey.

With two (2) test applications, you are able to pinpoint the treatment level measurement. For example, it can be established that the treatment level of the film is between the values of two inks, e.g. 34-38 dynes/cm. With a certain amount of practice, it can be accurately estimated whether the level lies closer to 34 or 38 dynes/cm.

The surface tension value is a definite criteria for the adhesion of ink onto polymer plastics. There are however, other factors such as migration of slip additives that influence the adhesion of inks quite negatively, which do not necessarily register on surface tension testing. Consequently, even though good surface tension results were found, the ink adhesion can result negatively. It is also possible that polymer plastics with the same surface tension can give varying degrees of print adhesion.

In most cases, however, one can disregard these exceptions and get the best possible results of ink adhesion with surface tension between 36-42 dynes/cm. Too low a surface tension value, about 34 dynes/cm, almost always result in poor adhesion.

The Dyne Pen testing is suitable as a routine test carried out by the machine operator, and gives trained personnel an easy and effective means of determining treatment levels on film samples.

### **PROPER HANDLING AND STORAGE OF DYNE PENS:**

DYNE Pen inks are formulated of liquids with varying surface tensions and are hygroscopic. It is imperative that caps are firmly replaced immediately after use. Their characteristics are changed by water absorption from the air. For this reason, the life expectancy of these solutions is limited. Please note that these testing inks contain Formamide and 2-Ethoxy ethanol and, in accordance with German Industrial Norms (DIN), the following precautions for handling should be taken:

1. Ignition sources should be kept at a safe distance. In the case of fire, extinguishing agents CO<sub>2</sub> and waterspray should be used.
2. In the case of contact with the eyes and skin, affected areas should be washed with water and, for the eyes, a doctor should be consulted.
3. The inhalation of fumes should be avoided.
4. Do not take internally.