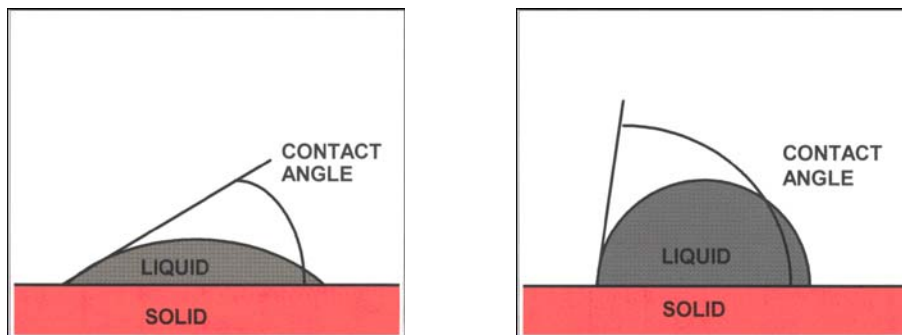


## Dyne Testing - all about dynes

Surface tension is the property of a liquid arising from unbalanced molecular forces at or near the surface. If it is higher than the surface energy of a material, the liquid tends to form droplets rather than spread out. Another name for an ink's surface tension properties is 'wettability'. Surface tension is normally measured in energy units called dynes/cm. A dyne is the amount of force required to produce an acceleration of  $1 \text{ cm/sec}^2$  on a mass of 1g.

The dyne level of a material is called its surface energy. If the liquid has a dyne level lower than the material's surface energy, then the liquid will spread out over its entire surface in a uniform wet layer. If the ink's dyne level is equal to or higher than a material's dyne level, the liquid will become cohesive and tend to remain in droplets.



Surface test fluids were introduced to give an accurate measurement of graduated surface tension levels. The fluid is applied to the surface or substrate until a satisfactory dyne level is found.

In addition to our family of pre-filled dyne test pens, Webconvert continues to offer dyne test solutions in bottles.

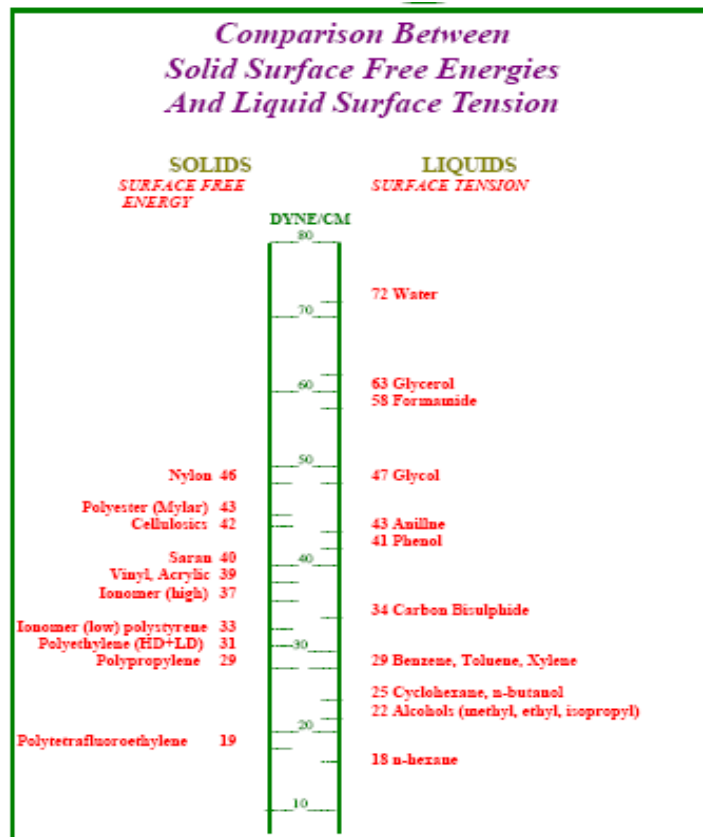
As part of our standard inventory Webconvert offers our ASTM D 2578 compliant dyne test inks from 30 to 70 dyne/cm.

# Testing Procedure Tips

- Spread the test fluid from the felt tip pen lightly over an area of approximately 7 cm of the test specimen, noting the time it takes for the continuous film of ink to break into droplets.
- Breaking of the fluid into droplets in less than 2 seconds indicates a lack of wetting and a lower numbered test fluid should be tried.
- If the fluid remains intact for longer than 2 seconds, a higher numbered test fluid should be tried.
- The aim is to establish the lowest reading at an optimum dwell time of 2 seconds.
- Extreme care must be taken to ensure the film surface is not touched or contaminated in the areas in which the tests are to be made.
- We recommend the replacement of the inks regularly if the bottled inks are frequently opened to atmosphere.
- If bottled inks are exposed to the air on a daily basis: dispose of remaining inks after 3 months.
- If bottled inks are exposed to the air on a weekly basis: dispose of remaining inks after 6 months.
- If bottled inks are exposed to the air on a monthly basis: dispose of remaining inks after 6 months.

## **Note:**

Disposal of dyne solutions is typically a locally regulated function. We recommend you contact your local municipality, or disposal service to learn how to properly dispose of any expired dyne solution.



## Disposable Surface Tension Test Pens

- Ideal for Cast and Blown Film Producers, and Converters needing a quick, mess free means to test surface tension “on the fly”.

Webconvert dyne pens work just like magic markers, so users can quickly draw a line on the desired material. Like the Dyne Solutions, the user draws a line on the substrate and counts two seconds.

### Results:

**Properly Treated:** The ink lies evenly on the material in a continuous line. There is no ink reticulation. The surface tension of the material is at, or higher than, the dyne level of the ink.

**Not Treated:** The ink reticulates into droplets. The surface tension of the material is well below the dyne level of the ink.

**Partial Treatment:** The ink line is defined but there is partial reticulation from the edges. The surface tension of the material is just below the dyne level of the ink.

## These pens offer the following:

- Pre-filled for ease of use
- Cost effective
- Long service life
- 6 month shelf life
- Safer – no filling or risks associated with chemical handling
- Less likely to become contaminated
- Available from 32-58 dynes in even dyne levels only.



## **Poly Test Pens** A fool proof pen specifically developed for the blown film industry.

Webconvert Poly Test Pens are quick and convenient to use to determine treatment level between 38 to 40 dyne/cm. This unique pen is easy to read. When the level of the substrate is below 38 dyne/cm the ink is not visible, greatly improving operator accuracy. This fast, easy to read pen is ideal in production situations for quickly determining if treatment is present. Webconvert Poly Test Pens are available in blue ink.