

# Dyne Pens and Surface Tension Measurement

Measure surface tension of polymer plastics to ensure compatibility between inks, coatings and substrates - helps ensure proper adhesion



## CON-TROL-CURE® DYNE PENS

If an ink is to be compatible with a substrate, the surface tension of the ink must approximate that of the substrate. Surface tension is measured in Dynes/cm. To allow the printing and adherence of plastic substrates and other non-porous materials such as polymer, the surface must be treated so the surface tension rises to a defined point.

Untreated polymer plastics have a surface tension about 30 dynes/cm. Well-treated polymer plastics should have a value for printing of 38-40 dynes/cm. Polymer plastics with a surface tension less than 37 have binding problems. If the level is higher than 42 dynes/cm, and if the film has undergone two-sided treatment, the high treatment level can also cause the printed film to lift.

The level of treatment can be determined through the use of CON-TROL-CURE® Dyne Pens. These chisel tip marking pens provide a quick, clean and easy method of testing treatment levels achieved on polymer plastics. Testing the surface with a Dyne pen allows you to prove if a wettability of at least the test pen's dyne/cm level has been reached for good adherence.

Dyne Test Pens are color-coded for the easy identification of a pen with a specific dyne/cm level. The color coding of the tubes is as follows:

30 dynes/cm	white
32 dynes/cm	orange
34 dynes/cm	light grey
36 dynes/cm	green
38 dynes/cm	red
40 dynes/cm	light blue
42 dynes/cm	dark blue
44 dynes/cm	black

Item No.	Description
N001-001	CON-TROL-CURE DYNE PENS (set of 8)
	CON-TROL-CURE DYNE PENS; # 40**
	CON-TROL-CURE DYNE PENS; # 42**
	CON-TROL-CURE DYNE PENS; # 44**

\*\*Purchase individual # 40, # 42 or #44 dyne pens in quantities of 10 or more for 10% discount.

## 24-HOUR PRODUCT SERVICES

Internet: [www.uvprocess.com](http://www.uvprocess.com)

E-mail: [info@uvps.com](mailto:info@uvps.com)

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UV PROCESS SUPPLY, INC.

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The Pocket Goniometer provides a rapid measurement of static contact angle.

## THE POCKET GONIOMETER

The Pocket Goniometer is a battery operated instrument that measures static contact angle and dynamic surface hysteresis for laboratory and field applications related to gluing, printing and surface related problems. It is an ideal tool for checking contamination of a specimen and the effects from cleaning and surface treatments.

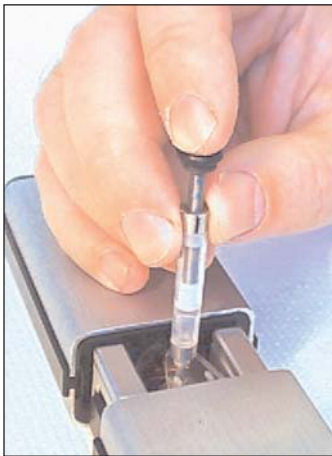
By placing a liquid droplet on a specimen surface a contact angle is formed at the contact area. A droplet that "beads up" is non-wetting and a contact angle greater than  $90^\circ$  is displayed. When the droplet "wets out" across the surface, wetting is obtained and the contact angle is less than  $90^\circ$ .

A 6x magnified image of the droplet is displayed on the built-in screen. A reading is quickly made by rotating the protractor until the lines are parallel to the tangent at the contact point. An optional eye-piece provides 7x magnification of the test sample for very accurate readings.

## Test Applications:

The contact angle can be measured in different ways depending on the test application.

Static Contact Angles & Dynamic Surface Hysteresis testing is valid for smooth, solid surfaces where the test liquid does not penetrate into the substrate. For liquids with high viscosity (e.g. glycerine) the contact angle reading is taken when the liquid droplet is at "equilibrium".



A liquid droplet is projected on a built-in screen for quick analysis.

## Features:

- Portable unit
- High quality lens system
- Battery operated
- Long life light source (expected lifetime of 70,000 hours)
- Industry Standards:
  - ASTM D724
  - TAPPI T458
  - SCAN P 18

Item No.	Description
N001-014	POCKET GONIOMETER

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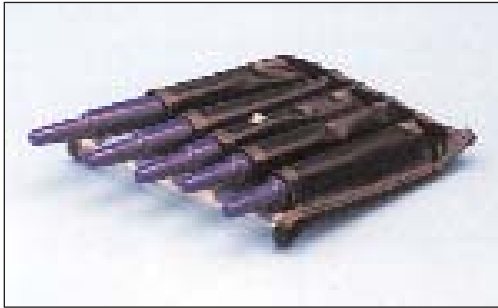
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## DYNE PEN TEST SET 36-48

Testing a substrate's surface energy level is an essential step graphic arts professionals must perform to ensure proper ink adherence. Verify the level of corona treatment on any plastic substrate with the proven reliability of this set of 5 dyne pens.

These magic marker-type pens quickly and effectively verify whether a substrate is treated from 36 up to 48 dyne. Holding the pen vertically and exerting enough pressure to allow the liquid to dampen the nib, users can quickly and easily draw a line on the material to be tested.

If the material is properly treated, the Dyne mark is uniform, resulting in continuous and homogenous colored line. If the material is insufficiently treated, the line of the Dyne test retracts in the form of small globules until the mark nearly disappears.

### Features:

- Accurate to within +/- 1 dyne/cm
- Five pen set: 36, 38, 42, 44 and 48 dyne levels
- Clean - no spill
- Numbered by dyne level
- Six month shelf life

Item No.	Description
N001-010	DYNE PEN TEST SET (36,38,42,44,48)

## CON-TROL-CURE® LIQUID DYNE PEN SET

Liquid Dyne Pen's spring-valve tip design keeps the pen's applicator away from the dyne fluid storage to prevent contamination. Press the tip firmly down to open the valve and flood the tip with fresh fluid. Available in a set of eight from 30 to 44 dynes/cm (30, 32, 34, 36, 38, 40, 42, 44.) Also available in a set from 46 to 60 dynes/cm (46, 48, 50, 52, 54, 56, 58, 60.) Available as full set of eight or individually (specify level; 8 minimum).

Item No.	Description
N001-002	CON-TROL-CURE LIQUID DYNE PEN SET (30-44)
N001-015	CON-TROL-CURE LIQUID DYNE PEN SET (46-60)
N001-012	INDIVIDUAL LIQUID DYNE PEN (EVEN # BELOW 61)
N001-012A	INDIVIDUAL LIQUID DYNE PEN (EVEN # ABOVE 61)
N001-013	INDIVIDUAL LIQUID DYNE PEN (ODD #)



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## DYNE TEST SOLUTIONS 100cc

Dyne Test Solutions are another way printers, converters and extruders can determine surface energy levels. Ranging from 30 to 70 dyne, these solutions offer an easy and effective method of testing.

By wetting the tip of a cotton applicator with one of the mixtures and spreading a line of the liquid over the test specimen, users can verify treatment within two seconds. If the continuous line holds for two seconds or more, users can be assured that the material is treated within 1 dyne of that solution.

Continuing to test different levels in ascending order will allow the user to ultimately determine the level of treatment. If the continuous film breaks into droplets in less than two seconds, the material is insufficiently treated. Users must continue to test in a descending sequence to determine treatment level. Applicator must be changed after each test.

### Features:

- Wide variety of testing levels: 30 to 70 dyne
- Applies easily with cotton applicator
- Six month shelf life
- Sold per 100cc

Item No.	Description
N001-011	DYNE TEST SOLUTION - 100cc (select from 30 to 70 dyne)



## 6 x 11-1/2" COTTON APPLICATORS

Limit contamination of test area when using Dyne Pens. Use these disposable, highly absorbent cotton swabs rather than pen tip to mark substrates. Available in box of 1000.

Item No.	Description
N001-007	6 x 11-1/2" COTTON APPLICATORS (1000/box)

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