

## QT-DISCHARGE

### TEXTILE EMULSION FOR DISCHARGE AND WATER-BASED INKS

QT-DISCHARGE is specially formulated to resist discharge inks, and is compatible with water-based and plastisol inks, too.

QT-DISCHARGE has a high ( $\approx 41\%$ ) solids content and viscosity (5,000 centipose), providing good stencil build per coat, excellent mesh bridging of coarse mesh, and fast drying. QT-DISCHARGE, red in color for easy stencil inspection, is supplied with diazo powder (rather than 925's syrup diazo), and thus requires no hazardous labeling or shipping up-charges.

#### **INSTRUCTIONS**

##### **Step 1: PREPARE THE MESH**

Used or surface-treated mesh needs only be degreased using **Screen Degreaser Liquid No. 3** or **Magic Mesh Prep**. Mechanical abrasion is an option for new mesh that is not surface treated. It increases the surface area of mesh for a better mechanical bond of the stencil, increasing printing run length. Use **Ulanogel No. 23** to combine roughing and degreasing in one step. Rinse the mesh thoroughly. A degreaser, **Magic Mesh Prep** also serves as a wetting agent and antistatic treatment. Mesh treated with **Magic Mesh Prep** can be coated with emulsion more evenly and will transfer ink more readily.

##### **Step 2: SENSITIZING**

Add water to the shoulder of the diazo bottle according to the table below.

| QT DISCHARGE     | Diazo #   | # of Fills to Shoulder |
|------------------|-----------|------------------------|
| QUART (60cc)     | DIAZO C62 | 1 Time                 |
| 1 GALLON (100cc) | DIAZO C68 | 1 Times                |
| 5 GALLON (500cc) | DIAZO C69 | 1 Times                |

Shake the container well until the diazo powder is completely dissolved. Wait 15 minutes for the bubbles to disperse. Add the diazo solution to the emulsion and mix it thoroughly using a stainless steel, glass, or plastic stirrer until the emulsion is uniform in color. Close the container. Wait for at least one hour to allow bubbles and foam to rise to the surface and break. Write the date of sensitizing on the container label. Note that QT-DISCHARGE should be handled only under yellow safe light conditions.

##### **Step 3: COAT THE SCREEN**

Using a round-edged coating trough, apply one coat of QT-DISCHARGE on the printing side of the mesh, followed by one coat on the squeegee side. QT-DISCHARGE is specially formulated so that, for most printing applications, this simple and fast technique produces stencils of optimal thickness.

##### **Step 4: DRY THE SCREEN**

Dry coated screens horizontally, printing side down, at room temperature in a completely dark, dirt- and dust-free area. If using a commercial dryer, dry the screen with warm, filtered air, up to 104° F. (40° C.). Use a de-humidifier in the drying area.

##### **Step 5: DETERMINE THE OPTIMAL EXPOSURE TIME AND EXPOSE THE STENCIL**

Use the Approximate Exposure Time (the Base Exposure Time X all relevant Exposure Variable Factors) as the central time in a Step Wedge Test (an instructional video for doing so can be found in the "Support" section of the Ulano Web site: [www.ulano.com](http://www.ulano.com)); or use the **Ulano ExpoCheck**, which makes it possible to test 10 exposure times using a single exposure. Carry the test through to actual printing to determine your optimum exposure time. Optimum exposure is indicated: ■ At that exposure time when the emulsion first reaches its maximum color density and the edges of the positive do not "resolve." ■ The squeegee side emulsion is hard and not soft or slimy. ■ The print best duplicates the test positive at the level of resolution that the job requires.

##### **Step 7: WASHOUT**

After exposure, wet both sides of the mesh with a gentle spray of tap water. Then spray forcefully from the printing side until the image areas clear. Rinse both sides of the mesh with a gentle spray until no soft emulsion is left on the squeegee side, and no foam or bubbles remain. Blot excess water from the printing side with newsprint (unprinted newspaper stock), or use a water vacuum.

##### **Step 8: BLOCKOUT AND TOUCHUP**

**Blockout Option 1:** Before drying and exposing the coated mesh, use excess emulsion from the coating step to cover the blockout area.

**Blockout Option 2:** For plastisol or other non-water-based, non-discharge inks, after exposure and washout, dry the screen. Apply **Screen Filler No. 65** or **Extra Heavy Blockout No. 10**.

**Touchup Option 1:** Use excess emulsion and re-expose the screen.

**Touchup Option 2:** For non-water-based inks, use **Screen Filler No. 65** or **Extra Heavy Blockout No. 10** thinned with water.

**Step 9: OPTIONAL POST-EXPOSURE AND CHEMICAL POST-HARDENING**

Post-exposure—exposing the squeegee side of the screen for up to four times the original exposure time after washing out and drying the stencil—provides some additional durability. To post-harden stencils chemically, apply **Hardener D** to both sides of the dried stencil with a soft-bristled brush or sponge. Blot excess solution from the image area. Allow the screen to cure for 24 hours at room temperature—or expose the screen to heat (not exceeding 140° F., 60° C.) for one hour. Note that stencil removal will become more difficult and may require the use of stencil remover and a high pressure power spray.

**Step 10: STENCIL REMOVAL**

Remove ink from the screen using the solvent or solvent blend recommended by the ink manufacturer. Use **Screen Degreaser Liquid No. 3** to help remove ink and solvent residues that might impair the action of the stencil remover. Brush **Stencil Remover Liquid No. 4** or **Stencil Remover Paste No. 5** on both sides of the screen. Do not let the stencil remover dry on the screen. Wash the screen with a forceful spray of water. Use **Haze Remover No. 78** to remove ink and haze residues, if necessary.

**Step 11: GHOST IMAGE AND HAZE REMOVAL**

Use **Haze Remover No. 78** to remove ink and haze residues, if necessary.

**BASE EXPOSURE TABLE FOR QT-DISCHARGE at 40 inches (100 cm.) on white polyester or nylon**

| LIGHT SOURCE       |            | COATING METHOD |         |          |
|--------------------|------------|----------------|---------|----------|
|                    |            | 1              | 2       | 3        |
| Metal Halide       | 2000 watts | 21 sec.        | 1 min.  | 80 sec.  |
|                    | 5000 watts | 9 sec.         | 22 sec. | 30 sec.  |
| Mercury Vapor      | 2000 watts | 28 sec.        | 77 sec. | 100 sec. |
|                    | 4000 watts | 14 sec.        | 38 sec. | 50 sec.  |
| Fluorescent Tubes* | 40 watts   | 140 sec.       | 6 min.  | 9 ½ min. |

\*Base exposure times are for unfiltered black light, or super diazo blue tubes at 4 – 6 in. (10 – 15 cm.) exposure distance. For plant-light, filtered black light, and "daylight" fluorescent tubes, use at least double the exposure time.

**EXPOSURE VARIABLES**

Multiply the above base exposure times by all factors and variables that apply.

**Fabric**

|                                   |         |
|-----------------------------------|---------|
| Metal fabric                      | 2.0-4.0 |
| Dyed fabric                       | 1.5-2.0 |
| Finer than 330T/in<br>(130T/cm)   | 0.7-0.9 |
| Coarser than 250T/in<br>(100T/cm) | 1.1-2.0 |
| High heat and humidity            | 1.3-1.8 |

**DISTANCE FACTORS**

|                    |      |                    |      |
|--------------------|------|--------------------|------|
| 20 inches /50 cm.  | 0.25 | 44 inches /110 cm. | 1.21 |
| 24 inches /60 cm.  | 0.36 | 48 inches /120 cm. | 1.44 |
| 28 inches /70 cm.  | 0.49 | 52 inches /130 cm. | 1.69 |
| 32 inches /80 cm.  | 0.64 | 56 inches /140 cm. | 1.95 |
| 36 inches /90 cm.  | 0.81 | 60 inches /150 cm. | 2.25 |
| 40 inches /100 cm. | 1.00 | 72 inches /180 cm. | 3.20 |

**STORAGE** (unopened): one year at 68°F. (20° C.)

(after adding diazo): 4 -6 weeks at room temperature; 3 months under refrigeration

806dm, rev. 307, 209, and 712