# Technical Data Sheet

# CDF® Vision™

## DIAZO DUAL-CURE CAPILLARY FILM SYSTEM ENHANCES CROSS-LINKING, YIELDING SHARP PRINTING SHOULDERS AND MECHANICAL DURABILITY

**CDF Vision** is a diazo dual-cure capillary film system. Its special formulation controls mesh penetration and forms an enhanced cross-linking "matrix" during exposure, resulting in sharp printing shoulders and mechanical durability. Particulate-size control reduces granularity effects for optimal resolution and definition. Texturing agents impart a micro-structural pattern to the bottom of the stencil, reducing adverse effects from high or low humidity during printing. We recommend **CDF Vision-15** for mesh counts of 165 or more threads per cm. (420+ per inch); **CDF Vision-18** for mesh counts of 120-165/cm. (305-420/inch); **CDF Vision-20** for mesh counts of 120-150/cm. (305-380/inch); **CDF Vision-25** for mesh counts of 100-150/cm. (255-380/inch); **CDF Vision-30** for mesh counts of 90-120/cm. (230-305/inch); **CDF Vision-35** for mesh counts of 70-110/cm. (180-280/inch); and **CDF Vision-50** for mesh counts of 33-77/cm. (86-196/inch). **CDF Vision** is compatible with UVs, vinyls, and virtually all solvent-based inks. Depending on the thickness selected, it is suited to such printing applications as: electronics, circuit traces, membrane switches, halftones, CDs and DVDs, ceramic decals, posters, and containers and bottles.

**INSTRUCTIONS**

**Step 1: PREPARE THE FABRIC**

Used or surface-treated fabric need only be degreased using **Screen Degreaser Liquid No. 3** or dilute **Screen Degreaser Concentrate No. 33**, or **Magic Mesh Prep**. (Mechanical abrasion, an option for new fabric that is not surface treated, increases the surface area of fabric for a better mechanical bond of the stencil. Use **Microgrit No. 2** before degreasing. Abrading and degreasing can be combined in one step with **Ulanogel 23**.) Rinse thoroughly. Use **Magic Mesh Prep** or **CDF Mesh Prep No. 25** to promote uniform water retention in the mesh openings during adhering. (**Magic Mesh Prep** also acts as both a degreaser and an antistatic treatment.)

**Step 2: ADHERE CDF VISION TO THE FABRIC**

Standard Method: Position a sheet of **CDF Vision** on a flat surface, emulsion side up. Place the printing side of a wet screen (ideally, directly following the fabric preparation rinse) on top of the film. The film will darken as it is wetted. Make a single squeegee stroke across the squeegee side. Wipe off any excess water, especially from the inside of the frame. "Roll-Down" Method: Roll the cut-to-size film, emulsion side out, around a small plastic tube 1" – 1 ½" (ca. 2 ½ X 4 cm.) in diameter. Make a squeegee stroke on the printing side of the mesh to assure uniform wetting. Contact the edge of the roll to the printing side of the mesh at the top end of the screen. Unwind the roll, maintaining firm contact with the mesh. Make one light squeegee stroke across the squeegee side to remove excess water.

**Step 4: DRY THE SCREEN; REMOVE THE BACKING SHEET**

Dry the screen thoroughly at room temperature. Use a fan to speed drying. If possible, use a dehumidifier in the drying area. Under humid conditions, dry the screen in a commercial dryer with filtered air < 104° F. (40° C.). Immediately before exposure, remove the backing sheet.

**Step 5: CALCULATE THE APPROXIMATE EXPOSURE**

From the Base Exposure Table (reverse side), identify the light source you are using and refer to the thickness of **CDF Vision** you have. The exposure time shown is your Base Exposure Time. Multiply your Base Exposure Time by all relevant Exposure Variable Factors to find your Approximate Exposure Time. (Base Exposure Time X Exposure Variable Factors = Approximate Exposure Time.)

**Step 6: DETERMINE THE OPTIMAL EXPOSURE TIME**

Make a Step Wedge Test (there is an instructional video covering this on the Ulano Web site (www.ulano.com) or use the **Ulano ExpoCheck** to determine your optimum exposure time. Optimum exposure is indicated: ■ At that exposure time when the film first reaches its maximum color density and the edges of the positive do not "resolve." ■ The squeegee side of the stencil is hard and not soft or slimy. ■ The print best duplicates the test positive *at the level of resolution that the job requires.* (Note: because resolution is relative to stencil thickness, it is not possible to resolve a line finer than the overall thickness of the fabric and stencil.) An actual test print should be made as part of any exposure evaluation.

**Step 7: WASHOUT:**

Wash out the stencil with water *from the printing side only* using high pressure water. When the image areas start to open, reduce the water pressure and rinse the stencil from the squeegee side until the image areas are completely clear. Blot excess water from both sides of the screen with newsprint. Dry the screen.

**Step 8: TOUCHUP AND BLOCKOUT**

For blocking out the screen, use S**creen Filler No. 60** or **Extra Heavy Blockout No. 10** on the dry fabric. For touchups, use **Screen Filler No. 60 o**r **Extra Heavy Blockout No. 10** thinned with water.

**Step 9: RECLAIM THE SCREEN**

**Caution: Strong screen openers or ink washes may cause CDF Vision to "lock," making reclaiming very difficult.** Use **All-Purpose Ink Wash**, the ink manufacturer's recommended washup solvent, or the least powerful ink diluent necessary to remove all ink remaining in the screen. Use **Screen Degreaser Liquid No. 3** to help remove ink or solvent residues that might impair the action of the stencil remover. Rinse the screen with a powerful spray of water. 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, as this can result in a permanent stencil. Wash the screen with a strong spray of water. Use **Walk Away Haze Remover** or **Haze Remover Paste No. 78** to remove ink and haze residues.

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**STORAGE:** Unused roll and sheets should be kept under cool conditions (not exceeding 24º C. or 75º F.) with relative humidity of 20-40%. Shelf life is 18 months from the date of manufacture. Storage outside the recommended conditions will result in reduced shelf life. Screens with unexposed film adhered can be stored for up to two weeks in a cool, dark, dry area. Heat and humidity reduce storage time.

**BASE EXPOSURE TABLE for CDF Vision at 40 inches (100 cm.) on white polyester or nylon.**

| **Light Source** | **CDF Vision-15** | **CDF Vision-18** | **CDF Vision-20** | **CDF Vision-25** | **CDF Vision-30** | **CDF Vision-35** | **CDF Vision-50** |
|---|---|---|---|---|---|---|---|
| **Metal Halide:** | | | | | | | |
| 2000 watts | 50 sec. | 1 min. | 66 sec. | 85 sec. | 109 sec. | 2 ¾ min. | 4 min. |
| 3000 watts | 34 sec. | 40 sec. | 44 sec. | 55 sec. | 73 sec. | 110 sec. | 165 sec. |
| 4000 watts | 25 sec. | 30 sec. | 33 sec. | 42 sec. | 55 sec. | 85 sec. | 2 min. |
| 5000 watts | 20 sec. | 24 sec. | 26 sec. | 33 sec. | 44 sec. | 66 sec. | 1 ½ min. |
| 7000 watts | 14 sec. | 17 sec. | 20 sec. | 24 sec. | 30 sec. | 50 sec. | 70 sec. |
| 8000 watts | 12 sec. | 15 sec. | 17 sec. | 20 sec. | 28 sec. | 43 sec. | 1 min. |
| **Fluorescent Tubes#** | | | | | | | |
| 40 watts | 5 min. | 6 min. | 7 min. | 9 min. | 11 min. | NR | NR |

#Base Exposure Times at 4 inches (10 cm.) using unfiltered black light tubes. For "cool white" or "daylight" tubes, use at least double the exposure time.
NR = not recommended

**EXPOSURE VARIABLES FACTORS: variables affecting exposure time**

| **Mesh** | | | **Exposure Distance:** | | **Exposure Distance:** | |
|---|---|---|---|---|---|---|
| Dyed Mesh | 1.5-2.0 | | 20”/50 cm | 0.25 | 56”/140 cm | 1.95 |
| | | | 24”/60 cm | 0.36 | 60”/150 cm | 2.25 |
| **Imaging** | | | 28”/70 cm | 0.49 | 72”/180 cm | 3.24 |
| Fine line reverse printing | 1.2 | | 32”/80 cm | 0.64 | 84”/210 cm | 4.41 |
| | | | 36”/90 cm | 0.81 | 100”/250 cm | 6.25 |
| | | | 40”/100 cm | 1.00 | | |
| | | | 44”/110 cm | 1.21 | | |
| **Adhering** | | | 48”/120 cm | 1.44 | | |
| Direct/Indirect Method using LX-660 (Blue) or Proclaim direct emulsion | 1.5 | | 52”/130 cm | 1.69 | | |
| **Taped-up Positives** | | | | | | |
| Taped-up or montage positives, per layer | 1.1 | | | | | |

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