

CDF®/QSR

PURE PHOTOPOLYMER (SBQ) CAPILLARY FILM SYSTEM; PHTHALATE-FREE

CDF/QSR is a series of SBQ (pure photopolymer) capillary films formulated to resist most screen printing solvents, including those used for vinyl stickers, decal printing and similar difficult applications. Other suitable applications include general graphics printing, UV applications, four-color process and fine line work, signage, and advertising specialties. The magenta films are coated on a matte-surfaced polyester. This imparts a slight texture to the printing surface of the stencil, thus minimizing hydrostatic attraction to the printing stock under conditions of high humidity, and electrostatic attraction under low humidity conditions. **CDF/QSR** is coated at thicknesses of 10, 15, 20, 30 and 40 microns. Mesh count should be compatible with film thickness: for **CDF/QSR-10** and **-15**, use 419/inch or finer (165/cm.+); for **CDF/QSR-20**, use 305/inch or finer (120/cm.+); for **CDF/QSR-30**, use 230 – 420/inch (90 – 165/cm.); for **CDF/QSR-40**, use 196 – 305/inch (77 – 120/cm.).

INSTRUCTIONS

Step 1: PREPARE THE MESH

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

Step 2: ADHERE CDF®/QSR TO THE SCREEN

Standard Method: Position **CDF/QSR** on a flat surface, emulsion side up. Place the printing side of a wet screen on top of the film. Make a single squeegee stroke across the squeegee side. Wipe off any excess water. "Roll-Down" Method: Roll the cut-to-size film, emulsion side out, around a small plastic tube 1" - 1 ½" (ca. 2 ½ - 4 cm.) in diameter. Soak the fabric from the squeegee side. Contact the edge of the roll to the printing side of the fabric at the top end of the screen. Unwind the roll, maintaining firm contact with the fabric. Make one light squeegee stroke across the squeegee side to remove excess water.

Step 3: DRY THE SCREEN

Dry the screen at room temperature in a dirt- and dust-free area. Use a fan to speed drying. Avoid high humidity. Under humid conditions, dry the screen with warm, filtered air, up to 100°F (38°C) in a commercial dryer. Use a dehumidifier in the drying area, if possible.

Step 4: REMOVE THE BACKING SHEET

The backing sheet acts as a dirt and dust protector during drying and storage. Remove it immediately before exposing the stencil.

Step 5: CALCULATE THE APPROXIMATE EXPOSURE TIME

From the Base Exposure Table below, select the type of light source you have and its wattage or amperage, then refer to the thickness of **CDF/QSR** you are using. Multiply your Base Exposure Time by all relevant Exposure Variable Factors (in the table below) 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 (instructions can be found in the **CDF Direct-Films Technical Data Booklet**) or use the **Ulano Exposure Calculator Kit**—carried through to actual printing—to determine your optimum exposure time. Optimum exposure is indicated: ■ At the exposure time when the emulsion first reaches its maximum color density and the edges of the positive do not "resolve." ■ There is no suggestion of softness or sliminess on the stencil. ■ The print best duplicates the test positive *at the level of resolution that the job requires.*

Step 7: WASHOUT

Wet both sides of the screen with a gentle spray of cold water; then spray forcefully from the printing side until the image areas clear. Rinse both sides of the screen 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). Dry the screen.

Step 8: BLOCK OUT & TOUCH UP

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

Step 9: RECLAIM THE SCREEN

*Aggressive screen openers or ink washes may cause **CDF/QSR** to lock into the mesh, making reclaiming very difficult. We recommend removing plastisols with mineral (white) spirits and all other inks with the solvents recommended by the ink manufacturer.*

Remove ink with the appropriate solvent. Rinse the screen with water. Degrease with **Screen Degreaser Liquid No. 3** to remove ink and solvent residues. Rinse with a forceful spray. Brush **Stencil Remover Liquid No. 4** or **Stencil Remover Paste No. 5** on both sides of the screen. Do not let the stencil remover stand for more than 5 minutes, and never allow the stencil remover to dry on the screen, as this can result in a permanent stencil. Rinse off the stencil remover with a gentle spray of water, then follow with a forceful spray. Use **Haze Remover Paste No. 78** or **Ghost Remover** with **Ghost Remover Activator** to remove any ink haze or residues.



Technical Data Sheet

STORAGE: Unexposed screens can be stored in a dark, dry, cool environment for up to one month. Unused film can be stored in it tubes for up to one year. High heat and humidity reduce shelf life.

BASE EXPOSURE for CDF/QSR at 100 cm (40 inches) exposure distance using white mesh.

Light Source	CDF/QSR-10	CDF/QSR-15	CDF/QSR-20	CDF/QSR-30	CDF/QSR-40
Carbon Arc:					
30 amps	78 sec.	138 sec.	179 sec.	391 sec.	525 sec.
60 amps	40 sec.	69 sec.	89 sec.	195 sec.	262 sec.
110 amps	22 sec.	38 sec.	49 sec.	107 sec.	143 sec.
Metal Halide:					
1000 watts	33 sec.	57 sec.	73 sec.	160 sec.	215 sec.
2000 watts	16 sec.	28 sec.	37 sec.	80 sec.	108 sec.
3000 watts	11 sec.	19 sec.	24 sec.	53 sec.	72 sec.
4000 watts	9 sec.	14 sec.	18 sec.	40 sec.	54 sec.
5000 watts	6 sec.	11 sec.	15 sec.	32 sec.	43 sec.
7000 watts	5 sec.	8 sec.	10 sec.	23 sec.	31 sec.
Pulsed Xenon:					
2000 watts	90 sec.	158 sec.	205 sec.	447 sec.	601 sec.
5000 watts	36 sec.	63 sec.	82 sec.	179 sec.	240 sec.
8000 watts	23 sec.	40 sec.	51 sec.	112 sec.	151 sec.
Mercury Vapor					
1000 watts	45 sec.	77 sec.	100 sec.	218 sec.	292 sec.
2000 watts	23 sec.	39 sec.	50 sec.	109 sec.	146 sec.
4000 watts	11 sec.	19 sec.	25 sec.	54 sec.	73 sec.
Fluorescent Tubes*					
40 watts	96 sec.	170 sec.	220 sec.	480 sec.	645 sec.

*Note: Base exposure times are given for 10 cm (4 inches) exposure distance for unfiltered backlight. For "cool white" or "daylight" tubes, use at least double the exposure time.

EXPOSURE VARIABLES: Factors for variables affecting base time

Mesh		Exposure Distance:		Exposure Distance:	
Stainless steel mesh	2.0-4.0	20"/50 cm	0.25	48"/120 cm	1.44
Dyed Mesh	1.5-2.0	24"/60 cm	0.36	52"/130 cm	1.69
Imaging		28"/70 cm	0.49	56"/140 cm	1.95
Fine line positive printing	0.80	32"/80 cm	0.64	60"/150 cm	2.25
Fine line reverse printing	1.20	36"/90 cm	0.81	72"/180 cm	3.24
Halftones, to 50 lines/in (20/cm)	0.90	40"/100 cm	1.00	84"/210 cm	4.41
Halftones above 50 lines/in (20/cm)	0.80	44"/110 cm	1.21	100"/250 cm	6.25
Adhering					
Direct/Indirect	1.3-1.5				
Taped-up Positives					
Tape-up or montage positives, per layer	1.10				

STORAGE: Store CDF/QSR rolls in their tubes, and sheets in their original packaging, to protect the film from accidental exposure and mechanical damage. CDF/QSR has a shelf life of 15 months. Storage temperature should range between 19° and 24° C. (65° - 75° F.) with a relative humidity of 40% - 60%. Film-mounted screens can be stored in a completely dark, dry, cool environment for up to one month.

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