

### Technical Information Leaflet

## XZ77 Series

### Alkali Soluble Plating Resists

#### PRODUCT REFERENCE

XZ77	Alkali Soluble Plating Resist Blue	CGSN7005
XZ77LB	Alkali Soluble Plating Resist Light Blue	CGSN7028
XZ77LVDB	Alkali Soluble Plating Resist LV Dark Blue	CGSN7034
XZ77RS	Rotary Screen Alkali Soluble Plating Resist Blue	CRSN2354

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ISO9001

ISO14001

RoHS & WEEE Directive Compliant

## 1) DESCRIPTION

Plating is the most complex process associated with circuit production by screen printing. The formulation of a plating resist is critical; it must withstand long periods of plating in either acid or alkaline baths and the various pre-cleaning processes. Plating resists must not contaminate plating baths and afterwards must be readily removable in either organic solvents or aqueous solutions. They must also be capable of very fine print definition i.e. capable of producing circuit patterns with tracks and gaps of between 200 - 250µm. (8 - 10 mil.).

The XZ77 series of plating resists is suitable for use with most commercially available electroplating solutions including acid copper, pyrophosphate copper, tin lead fluoborate, nickel, bright tin, acid gold, neutral gold and alkaline gold.

XZ77 is a thixotropic plating resist, suitable for the finest detail printing, formulated to give high definition prints and smooth non-porous films which are fully resistant to most commonly used plating and pre-cleaning solutions. The opaque blue colours offer excellent contrast against a copper background.

XZ77LVDB is a low viscosity plating resist formulated for higher speed screen printing and XZ77RS has been designed for Rotary Screen Printing.

XZ77 has been used successfully in both acidic and alkaline baths up to pH10 and is easily removed in aqueous alkali solutions of pH12 and above.

XZ77 is available in blue, light blue, and dark blue finishes to suit a wide range of substrates and processes. Please consult your local Sun Chemical Circuits representative for advice on product selection.

This Technical Information Leaflet (TIL) and the relevant Material Safety Data Sheet (MSDS) should be read carefully prior to using this product.

## 2) MIXING AND THINNING

XZ77 is a single pack product that should be printed at the highest possible viscosity to obtain sharp print definition and a thick porous film.

Should thinning be necessary to suit press conditions, up to 3% of Retarder XZ42 may be used.

XZ77RS is supplied at a suitable viscosity for flatbed screen printing. For Rotary Screen applications, the addition of 10 - 15% XZ39 fast thinner will be required. Viscosity on application should be typically 25 - 35 dPa.s.

**N.B. The resist should be stirred well before use.**

## 3) PRE-CLEAN

To obtain maximum adhesion, it is important that the boards are free of oil, grease and oxides. Mild chemical or mechanical cleaning is recommended.

#### 4) APPLICATION

XZ77 is suitable for use on hand operated, semi automatic and fully automatic screen printing machines.

Most types of photo-stencil are suitable, but for best print definition, capillary or combination stencils are particularly recommended.

70 - 110 T/cm. (180 - 280T/inch) polyester monofilament or equivalent grade steel meshes should be used.

Medium or hard polyurethane squeegees are recommended.

XZ77RS has been developed particularly for Rotary Screen printing with Stork Rotamesh. For best results, Stork RM405/17 is recommended to achieve a maximum wet film thickness of 10µm. (0.4 mil.).

All screens must be cleaned and thoroughly dried before use and free from residues of screen cleaner and ink.

#### 5) WASHING UP

Screen Cleaner XZ46 is recommended for washing up.

Alternative cleaners and screenwashes are available to suit customers' particular requirements. Your local Sun Chemical Circuits representative will be pleased to advise on product selection.

#### 6) DRYING

Best results are obtained by stoving using either convection ovens or long/medium wave infra-red ovens.

Convection oven	5 - 30 mins at 120 - 130°C (248 - 266°F)
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Infra Red Ovens	3 - 15 mins at 120 - 130°C (248 - 266°F)
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The resistance and adhesion properties of XZ77 can be steadily improved by prolonging the stoving schedule. However, removal of the resist after plating will be more difficult.

When using Rotary Screen applications, it is possible to dry the resist at up to 50m./min. using an oven set at 180°C (356°F) with a path length of 2m. minimum.

#### 7) PLATING

XZ77 is fully resistant to most commonly used plating and pre-cleaning solutions.

The effectiveness of the resist in other solutions should be tested prior to running production materials.

## 8) STRIPPING

If the minimum stoving schedule is followed, XZ77 can be removed in a 2% solution of sodium hydroxide at 40 - 50°C (104 - 122°F). Alternatively, a 30 - 60 second dip in static tanks of 10% solution of sodium hydroxide, followed by a water spray, can be used.

After long stoving schedules, a 5% sodium hydroxide solution may be necessary to achieve complete removal.

## 9) STORAGE AND SHIPPING

When stored in sealed containers, in a cool place (20°C / 68°F), away from sources of direct heat and sunlight, XZ77 has a shelf life of 1 year.

## 10) HEALTH AND SAFETY

Detailed material safety data sheets will be supplied by your local Sun Chemical Circuits representative.

The products detailed hereon have been tested in accordance with, and meet the requirements of, the RoHS Directive 2002/96/EC and the European Directive 2003/11/EC, regarding the presence of the metals - Pb (Lead / Lead compounds), Hexavalent Chromium, Cd (Cadmium), Hg (Mercury), and Poly Brominated Flame Retardants.

The materials detailed above are present below the specified maximum limits.

## 11) PACKAGING

XZ77	Alkali Soluble Plating Resist Blue	5.00 kg.	CGSN7005
XZ77LB	Alkali Soluble Plating Resist Light Blue	5.00 kg.	CGSN7028
XZ77LVDB	Alkali Soluble Plating Resist Low Viscosity Dark Blue	5.00 kg.	CGSN7034
XZ77RS	Rotary Screen Alkali Soluble Plating Resist Blue	5.00 kg.	CRSN2354
XZ39	Fast Thinner	5.00 L.	CDSN4001
XZ42	Retarder	5.00 L.	CDSN4004
XZ46	Screen Cleaner	5.00 L.	CDSN4008

## 12) DISCLAIMER

This information has been carefully compiled from experience gained in field conditions and extensive laboratory testing. However the products' performance and its' suitability for the customers' purpose depend on the particular conditions of use and the material being printed. We recommend that customers satisfy themselves that each product meets their requirements in all respects before commencing a production run. Since we cannot anticipate or control the conditions under which our products are used, it is impossible to guarantee their performance. All sales are also subject to our standard terms and conditions.

**13) SUPPORT**

Sun Chemical Circuits are an international company, and as such can offer technical, engineering and sales support to our customers worldwide. If you require more information regarding this product, or any of our extensive range of materials for PCB fabrication, please contact our local sales offices.