XZ34 & XZ55 Plating Resists

From the Sun Chemical family of Thermal Curing Plating Resists

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 plating periods in either acid or alkaline baths and 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 - 250m. (8-10 mil.).

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

2. Product features

- RoHS & WEEE Directive Compliant
- XZ34, XZ55RS, and XZ55 are screen printed resists that will withstand practically every plating bath or combination of baths likely to be used. They are also resistant to anodising, hydrofluoric acid etching and etchants commonly used in circuit production
- XZ34 provides good colour contrast to copper with no board staining
- XZ55RS gives high definition Rotary Screen printed images
- XZ55 is readily soluble in trichloroethane and is also removed by vapour cleaning
- XZ55 will withstand long periods in acidic or alkaline plating baths and various pre-cleaning processes

ISO9001
FM 09568

ISO14001
EMS 40768

3. Product Range

SAP No.				
90158058	XZ34	Solvent Soluble Plating Resist Blue	5.00 kg.	CGSN7011
91022213	XZ34	Solvent Soluble Plating Resist White	5.00 kg.	CGSN7045
90158059	XZ55	Solvent Soluble Plating Resist Brown	5.00 kg.	CGSN7014
90958141	XZ55RS	Rotary Screen Solvent Soluble Etch/Plating Resist	5.00 kg.	CRSN2565
90160152	XZ39	Fast Thinner	5.00 L.	CDSN4001
90160158	XZ89	Screenwash	5.00 L.	CDSN4014

SunChemical
a member of the DIC group

4. General Handling

4.1 Storage and Shipping

When stored in sealed containers, in a cool place (20ºC / 68ºF), away from sources of direct heat and sunlight, XZ34, XZ55RS, and XZ55 have a shelf life of 1 year.

4.2 Waste disposal

Care should be exercised in the disposal of printing ink waste. This should be carried out in accordance with good industrial practice, observing all the appropriate regulations and guidelines.

For more specific handling advice refer to the detailed Safety Data Sheet (SDS), supplied by your local Sun Chemical Circuits representative.

5. Application / Processing Conditions

5.1 Thinning

XZ34 and XZ55 are single pack products 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 5% of Fast Thinner XZ39 may be used.

XZ55RS is supplied at a suitable viscosity for flatbed screen printing. For Rotary Screen applications, the addition of
10-15% Fast Thinner XZ39 will be required. Viscosity on application should be typically 23 - 35 dPa.s.

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

5.2 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.

5.3 Application

XZ34, XZ55RS and XZ55 are 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) monofilament polyester or equivalent grade steel meshes should be used. Medium or hard polyurethane squeegees are recommended.

XZ55RS 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 10□m (0.4 mil).

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

5.4 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.

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5.5 Drying

Drying conditions for XZ34, XZ55RS and XZ55 will depend on the application viscosity of the resist. At the supplied viscosity, the resist can be dried using Infra Red drying systems, using the figures below as a guide. For convection ovens, the times shown should be doubled to allow for slower heating of the boards.

4 - 8 minutes at 120 - 130°C (248 - 266°F).

6 - 10 minutes at 90 - 100°C (194 - 212°F).

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.

Care must be taken to avoid overstoving as this could make resist removal more difficult.

5.6 Plating

XZ34, XZ55RS and XZ55 are fully resistant to practically every plating bath or combination of baths likely to be used.

They are also resistant to anodising, hydrofluoric acid etching and etchants commonly used in circuit production. The effectiveness of the resist in other solutions should be tested prior to running production materials.

5.7 Stripping

Aliphatic, aromatic and halogenated hydrocarbon solvents are suitable for removing the resist after plating.

XZ55 can also be removed in trichlorethane vapour.

Overstoving the resist film may make complete removal difficult.

6. 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.

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II – Europe.

As the world's foremost producer of inks, pigments and colour technology, Sun Chemical is leading our industry in developing and producing products which minimise our impact – and our customers' impact – on the environment and striving to maximise the use of renewable resources. We consider it our responsibility to be involved in the communities in which we live and work and to offer direction in meeting today's needs without compromising the ability of future generations to meet theirs.

7. Disclaimers

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.

8. Technical Assistance / Contacts

Sun Chemical Circuits are an international company, and as such can offer technical, engineering and sales support to our customers worldwide.

For further information regarding this product, or any of our extensive range of materials for PCB fabrication, please contact your local Sun Chemical team or visit the Technical Help Desk at website: http://www.sunchemicalhelpdesk.com

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