Nazdar Etch & Plating Resist Screen Inks

Nazdar's range of solvent-based, screen printable products for resisting etchants and/or plating solutions. These products are generally used in any industry that needs to etch or plate metals.

Specific Use

Primary Resist Type

Etch Resist:
212 Blue: resists mild alkaline and acid etchants. No board pre-treatment required apart from ensuring that the surface is free from oil and grease. 212 is an alkali strippable resist with alkaline etchants.

226 Black: maximum resistance to etchants for fine line printability, and strippable with inexpensive caustic solution.

Plating & Etch Resist:
16935PC Black: extremely sharp printing plate resist recommended for long plating cycles. This resist withstands not only most plating solutions but can be used as a solvent strippable resist with alkaline etchants.

182034PC Black: print on various metal stocks, including brass and stainless steel, used in the nameplate and printed circuit board industries. This resist withstands not only most plating solutions but can be used as a solvent strippable resist with alkaline etchants. This resist is easily removed even after relatively high temperature baking.

Plating Resist:
205 Blue: maximum resistance to plating solutions, recommended for long plating cycles, and fine line printability.

Substrates

Various metals, such as copper, aluminum, brass and stainless steel

Substrate recommendations are based on commonly available materials intended for the ink's specific market when the inks are processed according to this technical data. While technical information and advice on the use of this product is provided in good faith, the User bears sole responsibility for selecting the appropriate product for their end-use requirements. Reference the 'Quality Statement' at the end of this document.

Mesh

150-350 tpi (60-120 tpcm) monofilament polyester mesh for most applications.

Stencil

Use direct emulsions and capillary films which are solvent resistant.

Squeegee

70-80 durometer polyurethane squeegee.

Coverage

Depending upon ink deposit, the estimated coverage per gallon: 1,000 – 1,200 square feet (93 – 110 square meters)
Reference www.nazdar.com/en-us/ColorStar for examples of coverage calculations.

Screen Printing

Add only enough ink to the screen to be able to print for 5-10 minutes. Add additional ink in small increments throughout the print run to maintain screen stability. Thoroughly mix the ink prior to printing. Improper mixing can lead to inconsistent color and ink performance.

Maintain ink temperature at 65°-90°F (18°-32°C) for optimum print and cure performance. Lower temperatures increase the ink viscosity, impairing flow and increasing film thickness. Elevated temperatures lower the ink viscosity, reducing print definition and film thickness.

Users are required to pretest to determine optimum printing performance for a particular set of ink, substrate, screen, press, drying variables/conditions, resist properties, and removal properties.
Nazdar does not recommend inter-mixing this ink series with other inks or series.

Drying / Curing Parameters

The following are starting point guidelines to determine temperature and times to achieve a crosslinked ink film.
Good air circulation is necessary to remove the vaporized solvents. Drying time and temperature is dependent upon etching or plating operation.

16935PC Black:
10 to 45 minutes at 200°F (93°C)

182034PC Black:
10 to 60 minutes at 200°F (93°C)
10 to 15 minutes at 482°F (200°C).

205 Blue:
10 to 45 minutes at 200°F (93°C)
10 to 15 minutes at 482°F (200°C). 205 can be baked at this level but will be very difficult to relieve or strip. If this is an issue, use the 182034PC which can withstand high drying temperatures and remain strippable.

212 Blue:
minutes to 2 hours at room temperature
3 to 6 minutes at 140-176°F (60-80°C)
1 to 3 minutes at 212-248°F (100-120°C)

226 Black:
2 to 8 hours at room temperature
2 to 5 minutes at 250-265°F (121-127°C)

Processing

Resists Properties

16935PC Black: This resist withstands not only most plating solutions, but can be used as a solvent strippable resist with alkaline etchants. For alkali strippable resists with alkaline etchants, see 212 Blue.
182034PC Black: Withstands most plating solutions and alkaline etchants. This resist ink is easily removed even after baking at relatively high temperature.
205 Blue: This ink has a maximum resistance to plating solutions and is recommended for long plating cycles.
212 Blue: Mild alkaline and acid etchants including: ferric chloride, ammonium persulphate, nitric acid, cupric chloride, chromic / sulfuric acid, and hydrochloric acid.
226 Black: provides maximum resistance to etchants.

Resist Ink Strippingis recommended that resist inks be removed as soon as possible after etching or plating.
16935PC Black, 205 Blue: Solvent strippable - use chlorinated solvents such as trichloroethylene or xylol.
182034PC Black: Solvent strippable - use Xylene (2555 Screen Wash)
212 Blue: Spray or dip in a 4-7% sodium hydroxide solution. Rinse board thoroughly with water and dry.
226 Black: Alkali strippable - spray with 1-4% sodium hydroxide solution, or spray with an 8-10% solution of sodium hydroxide (10% maximum), to soften the ink and remove with a separate water rinse. The sodium hydroxide solution should be maintained at 100-120°F (38 - 48°C) although good results have been obtained at room temperature.

Cleanup

For screen cleaning, similar products to those listed below may be used.

Screen Wash (Prior to Reclaim): Use IMS201 Premium Graphic Screen Wash or IMS203 Economy Graphic Screen Wash
Press Wash (On Press): 2555 Screen Wash

Ink Modifications

Additives

Prior to production, test any additive adjustment to the ink. Inks containing additives should not be mixed with other inks.

Example for additives: Ink at 100g with 8% of an additive is calculated as: 100g ink + 8g additive = 108g total

Reducer / Thinner

Use the following item(s) to reduce the viscosity of these inks. Over reduction can reduce print definition, film thickness and adversely affect cure.

16935PC, 205: Use 5500 Thinner

182034PC: Use PA7 Thinner
212, 226: Use RE180 Thinner

Retarder
Use to improve on screen stability in hot, humid production conditions. Add up to 10%.

16935PC, 205: Use 5550 Retarder Thinner
182034PC: Use PA8 Retarder or 5550 Retarder Thinner
212: A retarder is not recommended
226: Use RE182 Retarder

General Information

Handling

Refer to the SDS for recommendations on handling.
Wear gloves and barrier cream to prevent direct skin contact. Safety glasses are suggested in areas where ink may be splashed. If product does come in contact with skin, wipe ink off with a clean, dry cloth (do not use solvent or reducer). Wash the affected area with soap and water.

Consult the applicable Safety Data Sheet (SDS / MSDS) for further instructions and warnings.
For assistance on a wide range of important regulatory issues, consult the following Regulatory Compliance Department link at http://www.nazdar.com or contact Nazdar Ink Technologies - World Headquarters (see contact listing at the end of this document).

Outdoor Durability Variables

Outdoor durability cannot be specified exactly. Slight color change and loss of gloss should be expected. Variables affecting a printed part's durability include:
- Ink film thickness and degree of curing
- Color formulation: large amounts of mixing clear or white, mixing several colors into one match, and/or mixing a small quantity of any single color
- Substrate type and age
- Mounting angle and directional orientation
- Geographical location
- Degree of air pollution
- Excessive abrasion
- Non-clear coated prints exhibit more color change and loss of gloss.

Storage / Shelf Life

Store closed containers at temperatures between 65°-78°F (18°-25°C). Storing products outside of these recommendations may shorten their shelf life.
Standard items useable for a period of at least **48 months** from the date of manufacture.

Ink taken from the press should not be returned to the original container; store separately to avoid contaminating unused ink. Store closed containers at temperatures between 65°-78°F (18°-25°C). Storing products outside of these recommendations may shorten their shelf life.

Standard Color Range

Based on information from our raw material suppliers, these ink products are formulated to contain less than 0.06% lead. If exact heavy metal content is required, independent lab analysis is recommended.

Packaging / Availability

Contact your Nazdar distributor for product availability and offering.

Item Type	Item Number	Item (or Color) Description
Standard Colors	16935PC	Black
Standard Colors	182034PC	Etch Resist Black
Standard Colors	205	Blue
Standard Colors	212	Blue
Standard Colors	226	Black

Additives	5500	Thinner
Additives	5550	Retarder Thinner
Additives	PA7	Polyall Thinner
Additives	PA8	Retarder
Additives	RE180	Thinner
Additives	RE182	Retarder
Cleaners	IMS201	Premium Graphic Screen Wash
Cleaners	IMS203	Economy Graphic Screen Wash
Cleaners	IMS301	Premium Graphic Press Wash
Cleaners	2555	Screen Wash

Nazdar Quality Statement

Nazdar® stands behind the quality of this product. Nazdar® cannot, however, guarantee the finished results because Nazdar® exercises no control over individual operating conditions and production procedures. While technical information and advice on the use of this product is provided in good faith, the User bears sole responsibility for selecting the appropriate product for their end-use requirements. Users are also responsible for testing to determine that our product will perform as expected during the printed item's entire life-cycle from printing, post-print processing, and shipment to end-use. This product has been specially formulated for screen printing, and it has not been tested for application by any other method. Any liability associated with the use of this product is limited to the value of the product purchased from Nazdar®.

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