

**Printing ink for silicone rubber substrates (materials).**

**DESCRIPTION**

SE Series Ink is a high-gloss, fast-drying, easy-to-use, 2-component silicone ink. This ink adheres to silicone-based parts. It is the ideal ink for pad printing, screen printing, and spray coating silicone rubber substrates. It is perfect for printing injection-molded silicone parts for industrial, automotive, aerospace, drinkware, and many other parts that need excellent weather, chemical, and abrasion resistance. Some of the key features include high opacity, high gloss, extreme flexibility, and exceptional resistance to abrasion. Additionally, this silicone ink is dishwasher safe. It will withstand alkali chemicals, gasoline, and weather elements.

**Packaging**  
1 Kg (2.2lb)  
0.5 Kg (1.1lb)  
0.25 Kg (.55lb)

**Warranty**  
12 Months

**SUBSTRATES AND APPLICATIONS**

**Silicone** Marking, spray coating, color-filling, and printing platinum silicone parts

Silicone substrates may differ in printability due to hardness, density, etc.; therefore, preliminary trials are required to determine the suitability of this ink for the intended use.

**PROPERTIES & FEATURES**

Two-component ink  
High gloss and opacity  
High abrasion resistance  
Chemical resistance

**HIGH OPACITY COLORS**

370	310	300	312	314	315	315HD	317
322	324	350	351	352	358	354	355
330	332	333	334	336	337	338	339
341	342	344	345	346	348	363	
371	377	376					
901	902x	903	904	905	906	+ PMS	

All SE Series colors are intermixable and have very high opacity. Colors marked with an "x" are semi-transparent color shades and are for tainting other colors if needed. To maintain this ink's properties and characteristics, this ink series should not be mixed with other ink types or unspecified auxiliaries. All formulations are stored in the Boston Color Management Software. Custom colors are available upon request.

**INK ADDITIVES**

<b>Catalyst</b>	LG catalyst	*10%		
<b>SOLVENTS</b>	<b>SPEED</b>	<b>PAD PRINTING</b>	<b>SCREEN PRINTING</b>	<b>SPRAY COATING</b>
SF Solvent	Fast	10 – 70%	n/a	300 – 500%
TxM Solvent	Medium	10 – 70%	n/a	n/a
TRM Solvent	Medium-slow	10 – 70%	0 – 10%	300 – 500%
SS Solvent	Slow	10 – 70%	0 – 10%	n/a
<b>Cleaner</b>	TRM / SSX			
<b>Ink Removal</b>	n/a			

**\*Ratio.** Add the component as a percentage (%) of ink weight. □  
**\*Catalyst.** \*Use 12.5%–15% for the black and HD silicone ink colors for the best prints. □  
**\*Solvent.** Add 60% solvent to the silicone ink when **pad printing** with **black** and **HD color** applications.

\*Catalyst and solvent ratios can be increased or decreased depending on the printing application and desired viscosity

Solvent is added to the ink to adjust ink's viscosity. Ink thinner is another name for solvent. The choice of solvent and the amount added are determined by the printing environment, ink thickness, and the desired printing speed (the rate at which the ink dries). SF is an excellent fast drying pad printing solvent for improved ink transfer for fast printing. TxM solvent improves doctoring and reduces "ghosting" associated with silicone inks. TxM features excellent mixing, ink-film release properties, long processing period. It is also excellent for slow printing speeds and fine-detail prints. For screen printing use TRM Solvent. Type SS acts as a retarder when mixed with the ink. In cases where a retarder is used, any additional thinning of the ink mixture requires pure thinners. Excess solvent will cause ink transfer challenges.

Catalyst LG is also known as a crosslinker. Its work is to aid printing ink adhesion onto tough substrates and increase outdoor and chemical resistance.

The LG Catalyst for silicone inks should be stored in a tightly sealed container. Once added to the ink, it must be mixed thoroughly and homogeneously before using the ink. The ink-catalyst mixture must be used within the pot life.

Use SSX-Cleaner for manual cleaning of the working equipment and tools.

## MIXING PREPARATION

Before printing and, if necessary, during production, the ink should be thoroughly mixed.

### Using SE series

Stir the ink before pouring it into a mixing cup

Pour the ink into a mixing cup. Note the weight.

Hardener should be added at 10% of the ink weight. For black and HD colors, add 12.5% of the ink weight

● **10 parts of ink : 1 part of hardener**

Stir the ink and hardener mixture thoroughly to ensure homogeneity.

Add solvent to alter viscosity, using the appropriate solvents for your application.\*

Your product can now be pad-printed, screen-printed, color-filled, or spray coated.

Cure the product at the appropriate temperature. Different silicone substrates cure at different temperatures.

### Pot life (Useable life/ working time)

The ink-catalyst mixture is chemically reactive. As a result, this mixture must be used within the pot life (at 20 °C and 50% RH), which is 16–24 hours. When the temperature increases, the potency of the mixture increases.

### Scratch resistance

After full cure, the SE Series ink film has excellent adhesion to substrates. This ink exhibits high rubbing, scratching, and abrasion resistance.

### Dry Ink hardness resistance

The SE ink film takes-on the hardness of the substrates. In general the hardness of the ink is 40 - 60D

### Printing Plates

This pad printing ink is compatible with all commercially available pad printing plates (clichés), including photopolymer printing plates, anodized aluminum plates, thin steel plates, and hardened steel plates with a thickness of 10 mm. For a perfect print, the recommended etch depth is 25-35µm.

### Printing pads

Any silicone-based printing pad can be used with this ink. Shiny pads are best for the application

### Pad Printing machines

The Natron SE Series is suitable for both closed ink cup systems and open ink well pad printing machines. Use the appropriate amount and type of solvent, depending on the machine. For open ink-well machines, use slower solvents. One-color pad printing machines are ideal for 80% of the printing applications.

### Screen printing

For screen printing, use any of the commonly available polyester meshes and solvent-resistant emulsions. Use 200–230 mesh (mesh per inch)-count screens for the highest opacity and on dark substrates. Use a mesh count of 255–305 for fine details and light backgrounds.

**General Tip:** Lower Mesh = More ink, less detail - Higher Mesh = More detail, less ink

### Drying

- Heat cure **6 - 10 minutes at 121 °C (250°F)**. Fast cure: **4 minutes at 375°F**  
- Coated and High-Density silicone substrates e.g., swim caps - **10 minutes at 400°F**

The drying times for the inks mentioned vary depending on the density of the substrate, type of printing, drying conditions, solvents, and other additives used.

### Fade resistance and ink film thickness

**Pad printing:** The SE series uses pigments with high fade resistance. Ink film thickness is controlled by the depth of the printing plate and the amount of solvent used.

**Screen printing:** lower Mesh = More ink, less detail - Higher Mesh = More detail, less ink

### Storage and Shelf Life

Shelf life depends on the reactivity of the ink system as well as the storage conditions.

Shelf life (unopened ink) stored at room temperature (50 - 80°F).

- Metallics: 3 years

- All other colors: 4 years.

Higher storage temperatures reduce the inks' shelf life.

#### Screen printing - emulsion

Use TX-D (Plastisol, water base, discharge) emulsion on pre-burned screens

#### Screen printing - Squeegee

70 Durometer squeegees work very well. Consider 80-durometer squeegees for high-mesh count screens. For most applications, the 70/90/70 triple durometer is an excellent choice for more ink lay-down. Always consider having an off-contact when printing.

#### Spray coating

This silicone ink is excellent for spray coating applications. There is a wide range of spray guns suitable for this type of application, ranging from simple artist airbrushes to industrial spray guns such as 3M™ Accuspray™ ONE Spray Gun. (3M™ and Accuspray™ are trade marks of 3M)

**Warning:** Always consult the MSDS prior to use.

#### Labelling

For Natron SE Series and its additives, there are current Material Safety Data Sheets (MSDS) available according to EC and USA Regulations. The MSDS have in detail all relevant safety data, including labeling according to EC Regulation 1272/2008 (CLP regulation). Health and safety data may also be derived from the respective label.

### SPECIFICATIONS

The SE Series Ink is classified as NT (non-toxic) and is formulated with pigments that are free of heavy metals. Safety Data Sheets are available according to UE regulation. The primary indications are displayed on the product label.

The data and information given in this data sheet are based on our present experiences and testing. Our technical consulting, whether done verbally, in writing, or through extensive testing, is based on our best knowledge. This doesn't mean that the client doesn't have to test our products on their own to see if they are good for adhesion and compliance requirements.

Boston Industrial Solutions, Inc. does not warranty the use or application of the products it manufactures or supplies. Our only obligation shall be to replace any defective products supplied by us or to refund the original price of the product after we have determined it to be defective. We are not responsible for any other direct or indirect loss or damage that our products cause.

Before starting a whole production run, it is absolutely necessary to do printing tests and trials to figure out the best temperature, time, and compliance for each application.

If you have technical questions about our products or want more MSDS information, please contact Boston Industrial Solutions, Inc.

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