Technical Data Sheet

SILASTIC™ LCF 9600 Series Textile Printing Ink

High-elongation, low-tack silicone ink system for textile screen printing

Features & Benefits

- Contains no PVC, phthalates, solvents, organotins or formaldehyde
- Soft, low-tack touch
- High elongation
- Semi-gloss or matte appearance
- Excellent wash durability
- Anti-color migration
- Easily pigmented
- Fast cure
- Ironable
- Cures at low temperatures

Applications

- Screen printing on most natural and synthetic textiles, particularly highly elastic garments

Typical Properties

Specification Writers: These values are not intended for use in preparing specifications.

Test	Property	Unit	SILASTIC™ LCF 9600 Textile Printing Ink	SILASTIC™ 9601 Textile Printing Ink
CTM[1] 0050	Mixed Viscosity	cP	490,000	280,000
	As Cured[2]			
	Appearance		Matte	Semi-gloss
	Hand Feel		Very soft, tack free	Very soft, low tack
CTM 0137A	Elongation	%	550–700	750–850

1. CTMs (Corporate Test Methods) are based on standard ASTM tests. Copies of CTMs are available upon request.
2. Test sheets prepared by compression molding a mixture of base and catalyst, cured for 12 minutes at 120°C (248°F).

Description

SILASTIC™ LCF 9600 Series Textile Printing Ink systems are two-component silicone systems designed for screen printing processes. SILASTIC™ LCF 9600 Series Textile Printing Ink systems do not contain PVC, phthalates, organotins, formaldehyde or solvents.

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Benefits

Once cured SILASTIC™ LCF 9600 Series Textile Printing Inks exhibit very soft, low-to-non tack hand feel and either a semi-gloss or matte appearance. The unsurpassed elongation properties of SILASTIC™ LCF 9600 Series Textile Printing Ink make it ideal for fabrics containing high levels of elastic fibers (up to 20%). Silicone prints made from SILASTIC™ LCF 9600 Series Textile Printing Ink have good adhesion and durability up to 100 home launderings.

In addition, they show very good anti-color-migration properties, particularly on polyester substrates and show great chemical (chlorine, solvents, etc) and heat resistance (iron-able).

How to Use

Printing Ink Preparation

The components of SILASTIC™ LCF 9600 Series Textile Printing Ink systems can be combined in varying proportions depending on the application and desired results. Starting formulations are described in Table I. Only tested and recommended color concentrates should be used with SILASTIC™ LCF 9600 Series Textile Printing Ink. This is because SILASTIC™ LCF 9600 Series Textile Printing Ink Catalyst could be poisoned by some ingredients in the colorant. Please contact your local technical representative for suitable color concentrates.

Table I:

Starting Printing Ink Formulations

Printing Ink	SILASTIC™ LCF 9600 or 9601 Textile Printing Ink Base	SILASTIC™ LCF 9600 Textile Printing Ink Catalyst	White Color Masterbatch (50% TiO_2)	Other Color Masterbatch (25% Active Content)	DOWSIL™ LC 9608 Textile Printing Retardant
White	50	2.0–4.0[1]	50		1.0–4.0[1]
Clear	100	3.0–5.0[1]			1.0–5.0[1]
Other Color	100	3.0–5.0[1]		7.5–10	1.0–5.0[1]

1. To achieve longer pot life, start with less catalyst and more inhibitor. If the ink isn't curing, try increasing catalyst amount.

   The base-to-color MB ratio is not fixed but should be kept within a range to achieve proper curing and maintain the properties of the printing. Recommended "base + color MB" to catalyst ratios go from 100:3 to 100:5 depending on the printing conditions. The catalyst should be added and mixed with other components right before the printing process.

Mixing, Printing, Curing, and Cleaning

Mixing

The components can be manually weighed and mixed by hand or using a mechanical mixer. Any air drawn into the ink may be removed under vacuum, but in most cases, the air will escape during the printing process.

Printing

Screens with 110 mesh or higher (≥ 110 threads/inch) are recommended for achieving a smooth print.

Although the SILASTIC™ LCF 9600 Series Textile Printing Inks have shown to be more suitable for manual screen printing, these systems have been used successfully in automatic printing.

Mixing, Printing, Curing, and Cleaning (Cont.)

Printing (Cont.)

The on-press life and pot life of the SILASTIC™ LCF 9600 Series Textile Printing Ink system is limited. On-press times of up to 6 hours in automatic printing operations have been achieved for formulations using DOWSIL™ LC 9608 Textile Printing Retardant. Pot life of catalyzed ink formulations can be several days when kept in closed containers. It is recommended to add only enough ink to the screen to be able to print for 2–3 hrs. Add additional ink in small increments throughout the print run to allow for a continuous printing operation.

Drying

To build up printing thickness, the printing must be dried to get a tack-free surface before another layer is added on top. A conventional infrared (IR) flash dryer will achieve this typically in 3–15 seconds. For fabrics containing high levels of elastic fibers (15–20%) or fabrics with poor sublimation fastness, the printing surface temperature should be kept below 100°C (212°F) to prevent fabric damage or contamination from migrated dyestuff. Inks formulated with SILASTIC™ LCF 9600 Series Textile Printing Inks will air-dry/cure overnight.

Curing

After printing, the printed textile should be oven cured at 120–140°C (248–284°F) for 1 minute to ensure full cure. For sensitive fabrics or energy saving purposes, lower temperatures can be used for longer times. Materials such as tin complexes, sulfur, and amines are known to interfere with curing, so contamination by these must be avoided. For example, pre-treatment of printed fabric with an amino-silicone softener will cause incomplete cure.

Cleaning

It is always recommended to clean the screen right after the printing operation is completed as the ink will cure with time. Uncured but catalyzed SILASTIC™ LCF 9600 Series Textile Printing Ink Bases can generally be removed from the equipment with the same cleaning agents used to remove plastisol inks. In addition, hydrocarbon-based solvents such as white spirit can be used. Polar solvents are not suitable.

Pot Life / On-press Life

As mentioned above, the on-press life and pot life of the SILASTIC™ LCF 9600 Series Printing Ink is limited. DOWSIL™ LC 9608 Textile Printing Retardant can be used to retard the ink and extend the useable life up to 8 hrs or more depending on the operating conditions. After addition of the catalyst, mixture pot life is primarily determined by the Room Temperature (RT). Higher RT results in shorter pot life. Relative Humidity has little effect on pot life of catalyzed printing ink, however, if SILASTIC™ LCF 9600 Textile Printing Ink Base or SILASTIC™ 9601 Textile Printing Ink Base (uncatalyzed) are exposed to humid air during storage, the pot life of the subsequently catalyzed SILASTIC™ LCF 9600 Series Textile Printing Inks will be shortened, even when no significant changes in viscosity were noticed at first. To avoid shortening of pot life, containers of SILASTIC™ LCF 9600 Textile Printing Ink Base and SILASTIC™ 9601 Textile Printing Ink Base, pigmented or not, must be sealed well. Once the containers are opened, a PE, PP or PVDC film should be placed over the uncatalyzed printing ink bases to prevent moisture absorption.

Handling Precautions

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE ON THE DOW WEBSITE AT DOW.COM, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

Usable Life and Storage

When stored at or below 30°C (86°F) in the original unopened containers, SILASTIC™ LCF 9600 Textile Printing Ink Base has a usable life of 9 months and SILASTIC™ 9601 Printing Ink Base has a usable life of 12 months from the date of manufacture. Ink taken from the press should not be returned to the original container to avoid contamination and curing of fresh ink.

Packaging Information

SILASTIC™ LCF 9600 Series Textile Printing Ink Bases are available in 20 kg (44 lb) base/0.9 kg (2 lb) catalyst kits. Samples are available in 1 kg (2.2 lb) base/45 g (1.6 oz) catalyst kits.

Limitations

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

Health and Environmental Information

To support customers in their product safety needs, Dow has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area.

For further information, please see our website, dow.com or consult your local Dow representative.

Disposal Considerations

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Technical Representative for more information.

Product Stewardship

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

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