



**Title: Preparing Substrates for Printing
with the Gerber Solara ion™ & Gerber
CAT | UV™**

Product: Gerber Solara ion & Gerber CAT | UV

Document Number: ANote 2010-ion & CAT UV-009

Last Modified: September 1, 2010

Summary: This document provides directions on normalizing and cleaning
rigid and flexible substrates to prepare them for printing.

Preparing rigid substrates

The Gerber Solara ion and Gerber CAT | UV can print on a wide variety of substrates up to 1" (25.4mm) thick and 64" (162.6cm) wide. Since there are so many different materials, Gerber recommends obtaining the manufacturer's specifications for storage, cleaning, and usage. This document covers the storage and care of some of the more common substrates.

Reviewing substrate product bulletins

- ◆ Substrate manufacturers provide important information on usage, storage, cleaning, and disposal, as well as application tips for their materials. Review these documents and follow the instructions BEFORE printing.

Normalizing rigid substrates

- ◆ The size of substrates can change depending on the temperature and/or humidity of the storage and working environment.
- ◆ For the best color-to-color and print-to-cut registration, "normalize" the rigid substrate in the working environment for at least 24 hours before printing.
- ◆ If the substrate has been stored in a location with temperature and humidity that is far beyond the recommended range for the Gerber Solara ion and Gerber CAT | UV, or for the substrates themselves, be aware that substrates deep within a stack of material may take longer to normalize than the surface pieces.

Old versus new substrates

- ◆ Substrates that are several years old may have inferior surface and performance properties as compared to new substrates of the same type. This degradation of quality can be due to storage conditions, chemical changes (plasticizers can migrate within the substrate), and other physical changes.

- ◆ Be cognizant that the age of substrates and its negative effects on print quality and receptivity to ink.

Printable versus non-printing sides

- ◆ Some rigid substrates have a printable side and a non-printable side. Make sure you are printing on the correct side.
- ◆ Printing on the non-printable side will yield inferior or unacceptable results.

Removing protective films

- ◆ Some substrates such as Dibond® or Sintra® come with a protective plastic film which must be removed before printing. Depending on the material, the protective film can be very difficult to detect.
- ◆ When using a substrate for the first time, be careful to check for and remove the protective film or coating prior to printing.
- ◆ After removing the protective film, some substrates should be allowed to “outgas” for a period of time before cleaning and usage. Consult the manufacturer’s product bulletin.
- ◆ If the protective film is removed with jerky motions it can leave lines and which can show through the printing (especially with light colors).
- ◆ The best way to remove the protective film is to wind it onto an empty roll core. Wrap the beginning of the protective film around the empty core and roll it across the material to wind up the film using a smooth motion.
- ◆ Any residual adhesive should be removed as described in “Cleaning rigid substrates” or according to the manufacturer’s instructions.

Note: Even when carefully following the film removal instructions, lines in light colored prints may be unavoidable, particularly when using older substrates which have been covered with the protective film for a lengthy time period.

Cleaning rigid substrates

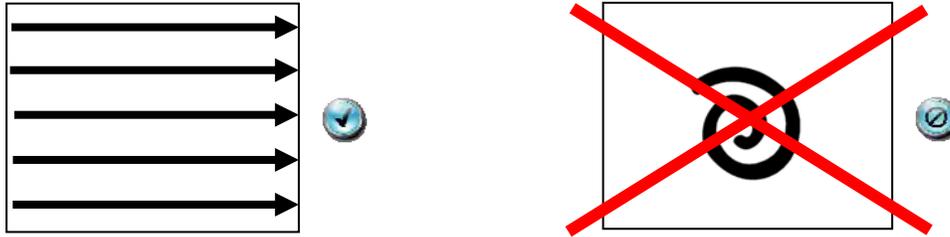
- ◆ Some substrates such as corrugated plastic, polycarbonate, expanded PVC, and painted aluminum require cleaning prior to printing to remove dust or debris which is often attracted by static electricity.

The proper method for cleaning rigid substrates is illustrated below.

- ◆ Liberally spray a lint-free cloth with IP (Image Perfect) surface cleaner or 99% isopropyl alcohol until the cloth is saturated.

Note: Gerber does NOT recommend using 60% rubbing alcohol, 70% isopropyl alcohol, or other common cleaners because they may leave a residual film on the substrate.

- ◆ Wipe the substrate in a fluid motion in one direction, pushing the dirt off the edge of the substrate. The alcohol should be apparent on the surface.
- ◆ Do not wipe the substrate using a circular motion which can result moving the dirt around into swirled patterns which may be visible after printing.



- ◆ Wait until the cleaning solution fully evaporates before loading or printing on the substrate. **Complete evaporation of the solution may take several minutes to several hours.** Refer to the substrate's product bulletin for specific instructions.

Fingerprints and skin oils

- ◆ Fingerprints and skin oils can interfere with ink adhesion. Remove any hand oils from the substrate as described in "Cleaning rigid substrates."
- ◆ Handle the clean substrate by the edges, or wear cotton gloves when handling it to avoid re-contaminating the surface.

Substrate quality affects results

- ◆ High quality rigid substrates usually yield superior results over inexpensive substrates.
- ◆ Some economically-priced substrates have surface defects that can show through the ink no matter how well the surface is cleaned prior to printing.
- ◆ Inherent surface defects are most noticeable in light colored areas of a print. Busy prints or dark colors show fewer defects.
- ◆ Many substrates look alike and do not have identifying marks. If possible, confirm that the product that was ordered is the product that was received. Request NO substitutions from your supplier.
- ◆ Dings, dents, and warps will also affect printability. Carefully inspect incoming products for shipping damage before accepting delivery.
- ◆ Notify your substrate supplier that you are using the substrate for digital flat bed printing and require a higher level of quality than other graphic sign making techniques.

Preparing flexible substrates

Flexible substrates are both rolled and sheet materials of many types including vinyl, banner, paper and textiles. Due to the variety of flexible substrates, Gerber recommends following the manufacturer's specifications for storage and cleaning. Included in this document are Gerber's recommendations for preparing vinyl for printing. See ["Roll-to-Roll printing with the Gerber Solara ion and Gerber CAT | UV Application Note"](#) for more tips.

Rolled material storage tips

- ◆ The best way to keep the rolled material clean is to always store it properly in the original plastic bag and/or box.
- ◆ If the material gets dirty (often the static charge on the material attracts dirt from the rug or floor), the printed job may show imperfections such as voids, hair lines, or small unprinted areas.

- ◆ Most rolled material should be stored vertically or at an angle with support through the core tube. DO NOT store rolled material flat with the surface of the roll pressed against a hard surface.

Normalizing flexible substrates

- ◆ For the best color-to-color and print-to-cut registration, “normalize” the material by unrolling the amount you are going to use onto a clean, dry surface approximately 15 minutes prior to printing. This is particularly important when using heavy rolled material, and in hot, humid weather when using thin material in the 2-3 mil range.

Cleaning vinyl

CAUTION: Never clean vinyl material with alcohol, only clean vinyl with distilled water.

- ◆ Wipe the vinyl material with a clean, lint-free cloth moistened with distilled water. Allow the material to dry completely before printing.
- ◆ Prior to loading material into the printer, wipe the ends of the roll with a tack cloth to remove any dirt or dust.
- ◆ Use only blank un-printed material or slew the used roll material beyond the printed area before beginning the job.

Ensuring Print-to-Cut Success

- ◆ Materials that are to be printed and then cut should be at the same ambient temperature and humidity level for both processes to ensure success.
- ◆ Differences in temperature and/or humidity can cause changes in material size (expansion or contraction) and create imperfect print-to-cut results.

Sintra is a registered trademark of Allucabond Technologies, Inc. Dibond is a registered trademark of 3A Composites USA.

©2010 Gerber Scientific, Inc. All Right Reserved
