

ADHESIVES

INTRODUCTION

This fabrication bulletin addresses adhesives and procedures used while fabricating DuPont™ Corian® brand solid surface.

OVERVIEW

There are several adhesive applications in the fabrication of DuPont™ Corian® solid surface.

An inconspicuous “hard” seam between two sheets of Corian® solid surface – An essential part of converting flat sheet into an object made from Corian® solid surface, DuPont™ Joint Adhesive is the ONLY joint adhesive approved for making rigid bonds to Corian® solid surface products. Use this adhesive for inconspicuous seams between Corian® products.

A flexible bond between Corian® solid surface and Corian® solid surface or another material – A flexible bond that allows movement is required when bonding Corian® solid surface to other materials or when the design requires expansion. The flexibility of silicone adhesive allows movement due to thermal expansion or contraction. When bonding to substrates or support frames where the silicone will not be visible, 100% silicone adhesive is recommended. For visible expansion joints, either between Corian® products or to other materials, such as adjoining walls, DuPont™ Surfaces Sealants are color coordinated for use with colors of Corian® solid surface.

A temporary bond to hold surfaces of Corian® solid surface in place while the main adhesive system cures – Temporary bonds, either for adhering clamping blocks or for temporary adhesion while the main adhesive cures, can be useful. Hot melt adhesive can be used for temporary bonds, but never for permanent bonding.

A. SAFETY

Please read the Material Safety Data Sheets (MSDS) for these adhesives. The MSDS documents may be found at www.corian.com and include important safety information.

B. DUPONT™ JOINT ADHESIVE

Color-coordinated DuPont™ Joint Adhesive is the only endorsed adhesive for creating an inconspicuous hard seam. It is produced in a range of specific colors to complement

sheet and shape products. Some adhesive colors can be used with multiple colors of Corian® solid surface. Your distributor can provide you with suggested color matches. Exact color match cannot be guaranteed.

DuPont™ Joint adhesive creates a rigid bond and should only be used to bond Corian® solid surface to Corian® solid surface. Bonding Corian® solid surface to any other material, including other brands of solid surface should be done with flexible silicone adhesive except where explicitly approved by DuPont. Bonding Corian® brand solid surface sinks or lavatories to DuPont™ Zodiac® brand quartz surfacing is an approved application.

DuPont™ Joint Adhesive is provided in two sizes, 50 ml and 470 ml (bulk). All joint adhesive must be used by date printed on the container. Long term storage of tubes should be done with the cartridge on its side as this keeps the ingredients evenly distributed. No more than 30 minutes before use, the cartridge should be turned vertically upright with the plug sealing the cartridge at the top. This initial purge will allow any air to rise to the top where it can be removed. The adhesive will begin to cure as soon as it is mixed within the mixer tip. If not using the adhesive within five minutes (higher temperature will shorten this time) remove the mixer tip and replace the plug, taking care to wipe the opening carefully so the components are not mixed.

The adhesive should always be used within two years of manufacture. The expiration date is part of the production code as described in the table below.

Table B-1

EXP DATE USMMYY nnn	
MM	month of expiration 01-12
YY	year of expiration (20YY)
nnn	manufacturing information (use if needed to report quality issues) See note*

*Note: The space between YY and nnn was added in 2012 for clarity. Earlier cartridges will not have the space, but the information is the same.

For example, a cartridge with US1014 012 should be used by October, 2014.

HELPFUL HINTS:

Follow all instructions attached to the cartridge. Pay particular attention to the safety and first aid details.

Do not use adhesive that is past the use by date.

Vehicles can reach excessive temperatures on hot sunny days. Make sure the adhesive stays cool while transporting it to the job site.

If adhesive is cold, allow to warm to room temperature before using.

When using a manual dispenser, simulate the constant pressure of an air powered dispenser. Changes in pressure from pressurizing the cartridge will affect mixing and set time.

Adhesive cures faster in warmer temperatures. When applying adhesive in a warm room, be sure to have adequate help to clamp the pieces together before the glue begins to harden.

Always use lint free white cloths or white paper towels when using adhesive. The adhesive may extract dyes or pigments from colored materials.

470 ml (bulk) Cartridges

The larger 470 ml cartridges of DuPont™ Joint Adhesive are most effective where large volumes of glue are required. When planning to use the cartridge for multiple jobs remember to remove the mixing tip in-between uses.

To prepare for the use of the bulk system, ensure that you have all the parts required to make it run properly:

- pneumatic bulk adhesive gun
 - air hose
 - pressure gauge
 - air bottle (to make system portable)
 - mixer tips
- bulk adhesive manual gun
 - mixer tips

Cartridge preparation and use:

- Let cartridge stand on end for about 30 minutes at room temperature before using. This allows any trapped air to rise to the top where it can be purged.
- Remove retainer cap. Slip off slotted washer and remove the chamber plug. Set plug aside for later use.

Plate directly under threaded area fits into slot on front of dispenser. Be sure cartridge fits into chamber completely.

- Keeping cartridge upright, put into dispenser with small tube going in first.
- Make sure the pressure regulator is set to 0 psig before attaching the air hose.
- Connect dispenser to air source and adjust pressure to about 25 psig.

Dispenser regulator does not have a gauge. If air line does not have a gauge, turn regulator knob on gun counterclockwise until it stops. Then turn knob about three full revolutions clockwise to get approximately 25 psig.

- Keeping dispenser upright, hold end of cartridge over paper cup. While pointing dispenser away from anyone, pull trigger to allow any air trapped inside cartridge to escape and to fill chambers. Release trigger. If using manual dispenser, squeeze handle slowly until air is gone and chambers are full, then push tab on back of dispenser.
- Put mixer tip in place.

Mixer tip will only fit one way. Slip retainer nut over mixer tip, and lock it securely in place by giving quarter turn clockwise. Mixer tip fit is very snug. Be sure it is in proper position before using, or leaking around tip may occur.

- Adjust pressure to desired setting and run out a 4" (102 mm) bead of adhesive onto a paper towel. If flow begins slowly or adhesive looks thick, either run out adhesive until normal thickness is seen, or change tip. Depending on the temperature of the room, the dispenser can be set down for approximately 5 minutes before a tip change is needed. Since the adhesive will cure faster in warmer temperatures, a tip change may be needed in less than 5 minutes if you're working in a hot environment.
- To remove cartridge from air dispenser, press red button on back of hand grip until piston is completely retracted. Press small black button on underside of dispenser housing to dislodge cartridge.
- To remove cartridge from manual dispenser, press lever behind handle and, retract the plunger manually. Press small black button on underside of dispenser housing to dislodge cartridge.
- To store unused portions, first remove cartridge from dispenser, remove retainer cap and discard mixer tip. Replace plug in end of cartridge, screw on retainer cap and secure plug with slotted metal washer.

HELPFUL HINTS:

If you have not used the entire cartridge and you wish to store for further use: remove the tip and retaining nut, wipe any residue with a white cloth or paper towel, seal the cartridge with the plug, replace the retaining nut and replace slotted washer.

The 470 ml (bulk) cartridge is equivalent to approximately 10 small tubes and is efficient and convenient.

As the 470 ml (bulk) cartridge is normally used for large glue jobs, it is important that all preparation is complete before gluing commences.

The manual cartridge gun eliminates the need to use the air hose system, as it works by hand pressure only. For best operation, simulate the smooth continuous pressure of an air-operated dispenser.

50 ml Cartridge

The smaller 50 ml cartridges of DuPont™ Joint Adhesive are ideal for smaller jobs or where less common adhesive colors are needed. If not using the entire cartridge remember to remove the mixing tip between uses.

Cartridge preparation and use:

- Let cartridge stand on end for approximately 30 minutes at room temperature before using. This allows any trapped air to escape.
- Remove cap and save.
- Pointing cartridge up, place cartridge in dispenser and close the black latch. The cartridge only fits in one way.
- Install mixer tip and twist to lock in place.

Mixer tip will only fit one way. Line up the raised point on mixer tip. The cap fits into the v-notch on cartridge. Spin the cap a quarter of a turn clockwise to lock tip into place.

- Squeeze dispenser handle slowly and dispense a bead about 1/8" (3 mm) wide and the length of the tip onto a paper towel or scrap piece of paper, cardboard, etc. If flow begins slowly or adhesive looks thick, either run out adhesive until normal thickness is seen, or change tip.
- Depending on the temperature of the room, the dispenser can be set down for approximately 5 minutes before a tip change is needed. Since the adhesive will cure faster in warmer temperatures, a tip change may be needed in less than 5 minutes if working in a hot environment.
- To remove cartridge from dispenser, press tab on back of dispenser and retract plunger and lift black latch.
- To store unused adhesive, remove tip, wiping any residue with a white cloth or paper towel and replace cap.

DuPont™ Joint Adhesive Storage

To insure the longest shelf life, the adhesive should be stored in the dark, at room temperature (70°F or 21°C) or lower. In hot climates a refrigerator may be used but is not necessary. A dark, air-conditioned room will suffice. Both the 50 ml and 470 ml cartridges should be stored on their sides.

Storing cartridges with tip in place may cause blockage or even curing of the adhesive within a cartridge. Always remove the tip and replace the plug for storage.

DuPont™ Joint Adhesive Disposal

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Do not flush to surface water or sanitary sewer system. Do not incinerate in closed containers.

C. SILICONE ADHESIVES/SEALANTS

A flexible bond that allows movement is required when bonding Corian® solid surface to other materials or when the design requires expansion. The flexibility of silicone adhesive allows movement due to thermal expansion or contraction. When bonding to substrates or support frames where the silicone will not be visible, 100% silicone adhesive is recommended. If there is a concern that the silicone may “show through”, such as with light colors of 1/4" (6 mm) Corian® sheets, then clear or translucent may be the best color choice. For visible expansion joints, either between Corian® surfaces or to other materials, such as adjoining walls, use a DuPont™ Surfaces Sealant in a color that complements the solid surface color.

Silicone adhesives require some bond thickness to allow movement. They are best applied as a bead that retains some thickness after clamping.

Silicone cures by reacting with water in the air and exposure to air is required to cure. Avoid applying in large dabs or enclosed “picture frames” as this will slow cure.

Cure is most rapid between 40-60% relative humidity (RH). Cure will be slower both at very high and very low humidity. While some bonding occurs quickly, full cure generally takes more than a week. If clamping or bracing is not practical, hot-melt adhesives may be used to hold the materials in place until the silicone cures.

ADHESIVES

DuPont™ Surfaces Sealant Storage

Store in a dry area in original unopened container at less than 80°F (27°C). Use by the “Use by” date on the tube. Use entire contents within six months of opening. The tube must be resealed properly to prevent curing within the tube.

DuPont™ Surfaces Sealant Disposal

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Do not flush to surface water or sanitary sewer system. Do not incinerate in closed containers.

D. HOT-MELT ADHESIVES

Hot-melt adhesives are useful for TEMPORARY bonds, either to hold material in place until the main adhesive cures or for bonding blocks for clamping. They should NEVER be used for permanent bonds. Use an adhesive that is recommended for plastics. An “open” or “set” time of one minute is desirable. The adhesives will cool quickly once they come in contact with DuPont™ Corian® solid surface.

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