Technical Data Sheet

Crystalbond™ and Wafer-Mount™

Catalog #50400-50404

Our Crystalbond™ and Wafer-Mount™ wash away adhesives are ideal materials for temporarily mounting products that require dicing, polishing, and other machining processes. These adhesives exhibit high bond strength and adhere readily to metals, glass and ceramics. When processing is complete, Crystalbond™ and Wafer-Mount™ adhesives are easily removed by applying heat and cleaning with the appropriate solvent.

Typical applications include:

- Matching advanced ceramics.
- Lapping and polishing optical components.
- Mounting cross-sections for electron microscopy.
- Dicing alumina and aluminum nitride ceramic substrates.
- Dicing germanium and silicon semiconductor wafers.
- Dicing ferrites and LCD glass.
- Dicing metallurgical specimens.
- Dicing metal and optical single crystals.
- Dicing piezoelectric transducers.
- Backfillng components for temporary mechanical support.

Product Specifications:

Product #	**509**	**555**	**590**	**559**	**562**
Trade name	Crystalbond™	Crystalbond™	Crystalbond™	Wafer-Mount™	Wafer-Mount™
Description	Excellent adhesion to metals, glass, and ceramic. Transparent in thin cross sections. Minimizes clogging of diamond tools.	Low melting point adhesive. Soluble in hot water. Good for low shear processes. Transparent in thin cross sections.	Excellent adhesion for cutting sub-miniature parts. Slightly flexible. Soluble in methanol or non hazardous 590-S stripper.	Semi-rigid solvent resistant plastic film with pressure sensitive soluble. Ideal for scribing wafers with vacuum hold down.	Thermoplastic film adhesive with good adhesion to metals, glass, and ceramic and excellent for mounting fragile thin substrates.
Form	Stick	Stick	Stick	Sheet	Sheet
Size	7/8"x7"	½"x7"x1"	5/8"x1-¼"x7½"	.005"x10"x10"	.003"x8"x10"
Weight	.2 lbs/stick	.15 lb/stick	.5 lb/stick	n/a	n/a
Flow Point, °F(C°)	250 (121)	120 (54)	302 (150)	n/a	200/ (93)

Viscosity, cps	6,000	500	9,000	n/a	n/a
Color	clear/amber	white	brown	clear	white
Solvent	Acetone or MEK	Hot water	590-S or Methanol	Acetone or MEK	Trichloroethylene or Toluene

Application Procedures:

Crystalbond™ 509, 555, 590

1. Heat a ceramic or glass mounting block to the flow temperature of the selected Crystalbond™ adhesive using a laboratory hot plate. The flow temperature for 509 is 170 °F, 555 - 120 °F, 590 - 320 °F. This ceramic is ground, flat and parallel, and ideal for dicing applications since the block tends to 'dress' or prepare the blade.
2. Apply a uniform layer of the adhesive by pressing it on the heated backup block. Make sure the Crystalbond™ flow temperature is not exceeded, otherwise a degradation of the adhesive properties will result.
3. Position the substrate on the backup block, allowing the substrate to heat up to the temperature of the block. Apply a small weight to ensure that the substrate settles evenly and that air bubbles are not drawn back under the substrate. Apply more Crystalbond™ around the edges of the substrate to create a fillet and increase strength.
4. Remove the block/substrate assembly from the hot plate and allow it to cool slowly until the Crystalbond™ is hard. The weight can then be removed and the assembly cooled quickly to room temperature.
5. Machine or process the substrate as required, then remove the parts by reheating the block to the Crystalbond™ flow temperature. Use a tool to slide the substrate or parts off the backup block. Since the block is now hot, the next substrate can be mounted.
6. Clean the parts using the appropriate solvent in a three tank cleaning system: a dissolving tank to remove the bulk of the Crystalbond™, a wash tank to remove additional residue, and a final rinse tank. Ultrasonic cleaning may be used to facilitate cleaning. Conserve solvent by transferring from clean to contaminated tanks.
7. When using 590-S stripper, mix 6-8 oz. of stripper per gallon of water. Heat to 160 degrees F. Immerse parts a minimum of 5 minutes until Crystalbond™ 590 dissolves. Rinse in clear water.

Safety Note: 590-S is caustic. Use eye protection and in the event of exposure , flush area immediately with water and see physician.

Wafer-Mount™ 559:

1. Peel clear plastic from backing paper.
2. Position the substrate, face down, on the backing paper.
3. Place the plastic film with the adhesive side down, over the part. Press firmly to assure good adhesion, then peel the backing paper away.
4. After processing, remove the parts from the Wafer-Mount™ by heating at 300 degrees F for 2-3 minutes until the adhesive softens.
5. Refer to Crystalbond™ step 6 for cleaning instructions.

Wafer-Mount™ 562:

1. Cut the Wafer-Mount™ film adhesive to the required preform.
2. Heat the backup block on the hot plate to 195-210 degrees F and melt the adhesive. Use multiple preforms if required to fill gaps created by warped substrates.
3. Press the substrate down firmly and remove the heat. Once the adhesive is set, the assembly can be cooled in air or by water quenching, but care must be taken to avoid thermal shock cracking of the substrate.
4. After processing, remove the parts from the Wafer-Mount™ by reheating the backup block to the flow temperature.
5. Refer to Crystalbond™ step 6 for cleaning instructions.

General Safety Note:

Melting of Crystalbond™ and Wafer-Mount™ adhesives should be performed in a well ventilated area or fume hood.