Crystalbond™ Adhesives
Product Numbers 821-1, 821-2, 821-3, 821-4, 821-6

Description

Crystalbond™ 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 by simply melting with heat. When processing is complete, reheating and cleaning with one of the recommended cleaning agents remove these adhesives.

Typical Applications

- *Machining advanced ceramics.*
- *Lapping and polishing optical components.*
- *Dicing ceramic substrates and semiconductor wafers.*
- *Dicing ferrites, glasses and piezoelectrics.*
- *Dicing metal and optical single crystals.*
- *Mounting cross-sections for electron microscopy.*
- *Backfilling components for temporary mechanical support.*

821-1 Crystalbond™ 509 Amber and 821-3 Crystalbond™ 509 Clear

Provides excellent adhesion and minimizes clogging of diamond tools compared to Waxes. It is transparent in thin cross-sections and soluble in Acetone. Color is clear (821-3) or light amber (821-1).

821-2 Crystalbond™ 555 and 821-6 Crystalbond™ 555HMP

Low melting point adhesive systems for moderate-stress machining processes. Transparent in thin cross-sections and soluble in hot water. 555 has a Flow Point of 120ºF (54ºC); 555-HMP is 150ºF (66ºC);

821-4 Crystalbond™ 590

High strength, resilient adhesive system, ideal for dicing miniature and tall parts. Soluble in methanol.

Product No.	821-1/ 821-3	821-2/ 821-6	821-4
Trade Name	Crystalbond™ 509	Crystalbond™ 555/ 555HMP	Crystalbond™ 590
Form	Stick	Stick	Stick
Size	7/8" Ø x 7"	1/2" x 1" x 7"	5/8" x 1-1/4" x 7-1/2"
Weight	≈.2 lbs/stick	≈.19 lbs/stick	≈.5 lbs/stick
Flow Point °F (°C)	250 (121)	120 (54)/ 150(66)	302 (150)
Viscosity cps	6,000	500	9,000
Color	Amber /Clear	White	Brown
Solvent	Acetone	Hot Water	Methanol

Table 1: Product Specifications

TED PELLA. INC.
Microscopy Products for Science and Industry
P.O. Box 492477, Redding, CA 96049-2477, U.S.A.
Telephone: 530-243-2200; 800-237-3526 (U.S.A. or Canada) • FAX: 530-243-3761
Email: sales@tedpella.com • Web Site: http://www.tedpella.com

Application and Removal Procedures

1) Using a hot plate or oven, heat a ceramic or glass mounting block to the flow temperature of the selected Crystalbond™ adhesive. Make sure to work in a well-ventilated area, and do not overshoot the flow temperature, otherwise, the adhesive will begin to decompose, degrading its strength.

2) Apply a uniform layer of adhesive to the heated mounting plate and place the substrate over the adhesive. * Using a weight, apply even pressure to the substrate to remove air bubbles and to ensure that the substrate is parallel to the plate. Apply a fillet of adhesive around the perimeter of the substrate to increase the holding strength.

3) Remove the mounting plate from the heat source and allow it to cool slowly to room temperature until the adhesive is hardened. Cool for 20-30 minutes before processing.

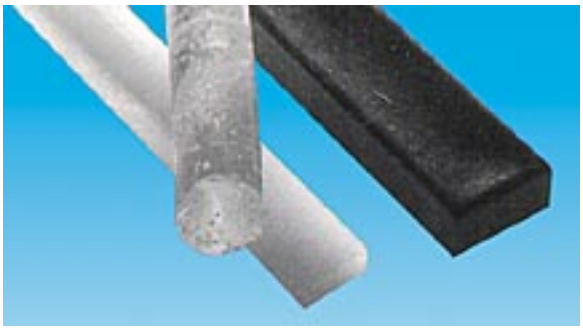
4) Dice or process the substrate as required, then remove the parts by reheating the mounting block to the flow temperature. Use a tool to slide the substrate off the mounting plate.

5) Clean off the adhesive using the solvent specified in Table 1. Immerse parts for a minimum of 5 minutes until the Crystalbond™ dissolves. Use an ultrasonic system for best results. As adhesive residue begins to concentrate in the stripper, 20% of the stripper should be replaced with fresh material.

6) Rinsing: After removing the adhesive, a step-wise warm rinsing process is recommended. Use an ultrasonic system for best results. Rinse in a dilute, non-ionic surfactant or liquid detergent system, followed by a final rinse in de-ionized water to eliminate water spots due to hard salts and contaminant redeposition.

***Crystalbond™ 509** can be applied as a thin, uniform film by dissolving it into a sprayable liquid. This can be accomplished by crushing the adhesive stick into a powder and mixing it into a solution of 80 parts acetone to 20 parts 509 by weight. Spray the solution onto the parts and allow the solvent to evaporate for a minimum of 5 minutes. Use a heat gun for one minute at less than 250 °F to evaporate further, then press the parts together and cool at room temperature for at least 30 minutes.

Ordering Information



Product No.	**Description**
821-1	Crystalbond™ 509, Amber 90g, each
821-2	Crystalbond™ 555, 86g, each
821-3	Crystalbond™ 509, Clear 90g, each
821-4	Crystalbond™ 590, 227g, each
821-6	Crystalbond™ 555HMP, 86g, each

TED PELLA. INC.
Microscopy Products for Science and Industry
P.O. Box 492477, Redding, CA 96049-2477, U.S.A.
Telephone: 530-243-2200; 800-237-3526 (U.S.A. or Canada) • FAX: 530-243-3761
Email: sales@tedpella.com • Web Site: http://www.tedpella.com