

Technical Bulletin

S/M 684

EPIBOND® SURFACE MOUNT ADHESIVES

Epibond® 7275 and 7275-1 epoxy surface mount adhesives are formulated to meet the exacting performance and quality requirements of printed circuit board manufacturers. Epibond is an epoxy adhesive which cures extremely fast on exposure to heat. The shear-thinning viscosity characteristic properties make it suitable for SMT stencil printing and dispensing while maintaining excellent drop-shape control.

These versatile adhesives feature a unique combination of physical characteristics including:

- Consistent, high dot profile
- Excellent green strength
- Fast curing
- Six-month shelf life at room temperature
- Nine-month shelf life at 5°C
- Non-slumping, non-stringing with high (>6.0) thixotropic index

EXTENDED WORK LIFE

Epibond® 7275 and 7275-1 adhesives are formulated for extended work lives of six months at room temperature. In screen printing, this long life accommodates repeated application of adhesive to minimize material waste. For dot dispensing, the Ciba Specialty Chemicals adhesive retains its properties at room temperature to facilitate storage and handling of syringes.

NATIONWIDE DISTRIBUTION

Epibond® 7275 surface mount adhesives are available through a nationwide distribution network to ensure fast response to customer needs and timely, on-schedule product delivery.

Typical Uncured Properties

	7275	7275-1	7275 Yellow
Composition	Epoxy	Epoxy	Epoxy
Specific Gravity, ASTM-D-792, g/cc	1.28	1.29	1.30
Viscosity, ASTM-D-1824 (RVT spindle #7) cps @ 1 rpm cps @ 10 rpm	3,200,000 420,000	2,500,000 320,000	3,200,000 400,000
Color	Red	Red	Yellow
Thixotropic index, ASTM D-1824	>6.0	>6.0	>6.0
Dot profile, width/height	<2.0	<2.0	<2.0
Particle Size (μ)	<25	<25	<25

Typical Cured Properties

	7275	7275-1	7275 Yellow
Glass Transition Temperature, ASTM D-696, T _g (by TMA)°C (°F)	66 (151)	65 (149)	65 (149)
Thermal Coefficient of Expansion, ASTM D-696 (by TMA) alpha 1 alpha 2	48 x 10 ⁻⁶ 170 x 10 ⁻⁶	57 x 10 ⁻⁶ 176 x 10 ⁻⁶	50 x 10 ⁻⁶ 177 x 10 ⁻⁶
Thermal Conductivity (Cal/Sec•cm•°C)	6.5 x 10 ⁻⁴	6.4 x 10 ⁻⁴	6.7 x 10 ⁻⁴

Industry Standards

	7275	7275-1	7275 Yellow
Bellcore - TR-NWT-000078	Compliant	Compliant	Compliant

Typical Electrical Properties

	7275	7275-1	7275 Yellow
Dielectric Strength, ASTM D-149 volts/mil	420	420	420
Dielectric Constant, ASTM D-150 @ 1MHz	3.87	3.87	3.87
Dissipation Factors, ASTM D-150 @ 1MHz	0.025	0.025	0.025
Volume Resistivity, ASTM D-257 Ω cm	2.1 x 10 ¹⁵	2.1 x 10 ¹⁵	2.1 x 10 ¹⁵
Surface Resistivity, ASTM D-257 Ω cm ²	1.1 x 10 ¹⁵	1.1 x 10 ¹⁵	1.1 x 10 ¹⁵

Curing Options

	7275	7275-1	7275 Yellow
Time @ 80°C	12 min.	12 min.	12 min.
Time @ 120°C	2.5 min.	2.5 min.	2.5 min.
Time @ 150°C	1.5 min.	1.5 min.	1.5 min.

Note: Actual oven cure is dependent upon board design.

Cure Speed vs. Temperature

The following graph shows the rate of torque strength developed with time at different temperatures. These times are defined from the moment the adhesive reaches cure temperature. In practice, total oven time may be longer to allow for heat up period.

Guidelines for Handling Epibond® 7275 Surface Mount Adhesives

REWORKING

Once cured, Epibond® 7275 and 7275-1 adhesives can be removed from a printed circuit board by heating the board to approximately 80°C (176°F to 185°F). When the temperature of the surface mount component reaches 80°C (176°F), the adhesive will be soft enough to permit component removal using a "lift and twist" method.

After removing the component, reapply heat to any remaining adhesive until it is soft. Residual material can then be scraped off the board surface.

CLEANING

Uncured adhesives can be easily removed from printed circuit boards, screens or stencils using BIOACT SC-10. acetone, NMP and a wide variety of other solvents and cleaning fluids also provide adequate cleaning. We are constantly working with manufacturers of solvents and cleaning fluids to test and identify new materials that meet the needs of our customers. For an updated list of suggested cleaning materials, please contact our Product Information Hotline at 800-331-6810.

ROOM TEMPERATURE STABILITY AND EXTENDED SHELF LIFE

Epibond's unique room temperature stability reduces waste, saving both time and money. Epibond's shelf life is 9 months at 5°C (41°F) and 6 months at 23°C (75°F). Alpha Metals stores all Epibond products at 5°C prior to shipment.

HANDLING AND SAFETY PRECAUTIONS

- Read material safety data sheet (MSDS) prior to using product.
- May cause eye irritation.
- Prolonged or repeated exposure may cause skin irritation or allergic skin reactions.
- Harmful if inhaled or swallowed.
- For industrial use only.
- Avoid contact with eyes, skin or clothing.
- Wear eye protection and impervious gloves when handling.
- Avoid breathing vapor or dust.

- Keep container closed when not in use.

FIRST AID

Eyes: Flush with cold running water for a minimum of 15 minutes. Contact a physician immediately.

Skin: Wash thoroughly with soap and warm water. Dab/air dry. Remove and wash contaminated clothing prior to reuse.

Inhalation: Remove subject to fresh air.

Swallowing: Dilute by drinking water. Never give anything to drink to an unconscious person.

Equipment Compatibility/Packaging Selection Guide

Equipment	Syringe Style	Package Size
Amistar	7275/EFD 7275/PAN	5cc, 10cc or 30cc 20cc
Asymtek	7275/EFD	10cc or 30cc
Camelot	7275/EFD	5cc, 10cc or 30cc
Creative Automation (ADM 221-1851, ADM 2200, Champion 910, 2000, 3000, 7100, 7150)	7275/EFD	5cc, 10cc or 30cc
DEK	7275/PYLES	150cc
Dynapert (MPS 318, MPS 525)	7275/EFD	30cc
Dynapert (MPS 118, MPS 525)	7275/EFD	10cc
EFD (1000XL, 1500XL, 1500DV, 2000XL-VR, etc.)	7275/EFD	5cc, 10cc or 30cc
Fuji (GL-II & GL-V)*	7275/FUJI	30cc
Fuji (GI-I with O-ring adapter)*	7275/SEM	35cc
Henry Mann (SMT-4807-1/2, SMT 8800)	7275/EFD	5cc
Intelligent Dispensers (AD-7000Z)	7275/IWA	30cc
ISMEC (Moduline & Miniplacer)	7275/EFD	10cc
Iwashita (Autoshooter7, ASC 7000)	7275/IWA	30cc
KME	7275/IWA	30cc
Mamiya (Superhand ECM-8300)	7275/EFD	5cc
MPM	7275/SEM	300cc
MPM	7275/PYLES	150cc
Panasert (M-1, M-2, MK, MQ)	7275/PAN	20cc
Panasert (MV-150, HD, HDP2, HPP2C, HDPG1)	7275/IWA	30cc
Phillips (CSM-46, CSM-60, CSM-260)	7275/EFD	10cc
Quad (Star, Star-T, 4000)	7275/EFD	5cc
Sanyo (TD-30, 40, 60, 63, 65)	7275/IWA	30cc
Siemens (MD-90, Sp-120, HS-180)	7275/EFD	5cc
Equipment	Syringe Style	Package Size
TDK (RX4260 with retrofit)	7275/EFD	10cc or 30cc
TDK (with retrofit)	7275/IWA	30cc
TDK (non-disposable syringes models)	7275/SEM	300cc
Universal Instruments (4713, 4716, 4768) (kits available)	7275/EFD	5cc, 10cc or 30cc

for use with Iwashita & Panasert style syringes)		
US Robotics (LD-10, LD-80)	7275/EFD	10cc
Zevatech (including Placemat 360)	7275/EFD	5cc
Zeta (1400)	7275/EFD	5cc, 10cc or 30cc
Bulk cartridges for all screen printers and units with non-disposable syringes	7275/PYLES	150cc

* Disposable plungers for Fuji 7275 syringe dispensers available.