

MODIFIED EPOXIES PRODUCING STRONG BONDS TO METAL, GLASS & PLASTICS ULTRA LIGHT-WELD® 3021 Series

INTRODUCTION

Dymax Ultra Light-Weld® adhesives are solvent-free and cure only upon exposure to UV or Visible light. Their ability to cure in seconds enables faster processing, greater output, and lower assembly costs. When cured with Dymax spot, focused beam, or flood lamps, they deliver optimum speed and performance while enhancing worker safety.

DESCRIPTION

Ultra Light-Weld® 3021 Series are clear, UV-curable adhesives designed for durable bonding of glass, metal and various plastics. These products were formulated for maximum resistance to yellowing and maintain their dimensions when thermally cycled. They give rise to high bond strength to glass and most metals.

SUBSTRATES BONDED:	• Metal • Glass • Various Plastics
FEATURES:	• Low Shrinkage UV Cure (<0.2%) • High Strength Bonds Resist Yellowing • Excellent Thermal Cycling With Minimal Degradation of Strength

TYPICAL UNCURED PROPERTIES

Solvent Content	None-100% Reactive Solids	
Composition	Acrylate – Epoxy Hybrid	
Appearance	Optically Clear	
Solubility	Alcohols/Ketones/Chlorinated Solvents	
Toxicity	Low	
Flash Point	Over 93°C (>200°F)	
Refractive Index, n ²⁰ _D	1.522	ASTM D-1218
Viscosity	500 cP (for 3021, nominal)	ASTM D-1084
	50,000 cP (for 3021-Gel, nominal)	ASTM D-2556

TYPICAL CURED PROPERTIES

Linear Shrinkage, after UV cure	0.2%	ASTM D-2566
Refractive Index, n ²⁰ _D	1.554	ASTM D-1218
Glass Transition, T _g	100°C (UV cure and heat 150°C for 1 hour))	ASTM E-831
Glass Transition, T _g	50°C (UV cure without heat)	ASTM E-831
CTE α ₁ (below T _g)	45 x 10 ⁻⁶ in/in/°C	ASTM E-831
CTE α ₂ (above T _g)	110 x 10 ⁻⁶ in/in/°C	ASTM E-831
CTE (-50°C to 200°C)	91 x 10 ⁻⁶ in/in/°C	ASTM E-831
Durometer Hardness	D80	ASTM D-2240
Tensile at Break	8,900 psi	ASTM D-638
Modulus of Elasticity	800,000 psi	ASTM D-638
Elongation at Break	2%	ASTM D-638
Tensile Compression Shear, glass to glass	2,200 psi (exceeds glass strength)	DSTM D-250*
Thermal Range (brittle/degrades)	-55° to +200°C (-65 to 400°F)	DSTM D-200*
24 hr Water Absorption	1.0 %	ASTM D-570
2 hr Boiling Water Absorption	1.2%	ASTM D-570

*DSTM Refers to Dymax Standard Test Method

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PRODUCT DATA SHEET

3021 Series, 2/2006

CURE DATA

Lamp	ADAC Cure Spot™ 50	2000-EC	5000-EC
Light Type	UV/Visible	UV/Visible	UV/Visible
Lamp Type	3/16" Spot	8" x 8" Flood	5" x 5" Flood
Maximum Lamp Intensity @ 365 nm	4,000 mW/cm ²	50 mW/cm ²	300 mW/cm ²
Intensity @ time of test @ 365 nm	2,500 mW/cm ²	20 mW/cm ²	150 mW/cm ²
Adhesive Absorption Range (nm)	300-400	300-400	300-400
Equipment Output Range (nm)	300-500	300-500	300-500
Typical Cure speed (seconds)			
Fixture between glass slides	1	1	1
Tack-free surface cure	1	1	1
1/16-inch bead	3	3	2

DISPENSING & HANDLING ADHESIVE

Dymax Ultra Light-Weld® 3021 Series is available in various packages such as syringes, cartridges, bottles, and pails. It may be dispensed with a variety of automatic bench-top syringe applicators or other equipment as required. Direct questions relating to dispensing and curing systems for specific applications, should be referred to the Dymax Technical Center at (860) 482-1010.

SAFETY

Wear impervious gloves and/or barrier cream. Repeated or continuous skin contact with liquid adhesive will cause irritation and should be avoided. Do not wear absorbent gloves. Remove adhesive from skin with soap and water. Never use solvents to remove adhesive from skin or eyes.

CAUTION

For industrial use only. Avoid breathing vapors. Avoid contact with eyes and clothing. In case of contact, immediately flush with water for at least 15 minutes; for eyes, get medical attention. Wash clothing before reuse. Keep out of reach of children. Do not take internally. If swallowed, vomiting should be induced at once and a physician called. For specific information, refer to the Material Safety Data Sheet before use.

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