



## TECHNICAL INFORMATION

### EPOWELD® 8200 Epoxy Adhesive System

#### PRODUCT DESCRIPTION

EPOWELD 8200 is a two component, room temperature cure epoxy adhesive with excellent cohesive strength, pull out strength and torque resistance. The system offers a convenient mix ratio and is recommended for bonding golf clubs, striking tools, grinding wheel hubs, metal doors and windows. The EPOWELD 8200 Adhesive System has been an industry standard for over 20 years for golf club head to shaft bonding. EPOWELD 8200 is a modified form of the EPOWELD 3243 system and has better adhesion to thermoplastics such as ABS and polycarbonates.

#### MIXING AND CURING SCHEDULE

Ratio	Part A	Part B
By weight	100	70
By volume	100	100

The cure schedule is dependent upon the temperature. The recommended cure schedule will vary with the desired properties. The recommended schedules to achieve the typical properties are shown below:

- 7 days at 25 °C (77 °F)
- OR
- 2 hours at 66 °C (150°F)
- OR
- 10 minutes at 149 °C (300 °F).

#### TYPICAL UNCURED PROPERTIES

	Part A	Part B	Mixed
Color	Off White	Amber	Ivory
Viscosity @ 25 °C, cps	24,000	20,000	22,000
Weight per Gallon, lbs.	11.5	8.1	9.8
Specific Gravity @ 25 °C	1.38	0.96	1.17
Gel time, minutes			
225 gm mass @ 25 °C	---	---	180
Filler Type	Non-Abrasive	None	Non-Abrasive
Shelf Life (in separate sealed containers), months	12	12	---

#### TYPICAL CURED PROPERTIES

(Tested at 25 °C unless otherwise indicated)

Test	Result
Hardness, Shore D	85
Tensile Strength, psi	7,310
Compressive Strength, psi	9,460
Impact Strength, ft. – lbs.	15

#### Lap Shear Strength

(Al/Al, 2024-T3 acid etched, various cure schedules)

Cure Schedule	24 hours @ 25 °C	7 days @ 25 °C	2 hours @ 66 °C
Shear Strength, psi	3,000	2,700	4,000

#### TYPICAL THERMAL PROPERTIES

(cure schedule = 18 hours @ 25 °C plus 2 hours @ 100 °C)

	Result
Coefficient of Thermal Expansion (in./in./°C x 10 <sup>6</sup> )	140

#### GOLF CLUB PULL OUT STRENGTH

Graphite shafts were abraded to remove the polyurethane finish, followed by solvent wipe using 1,1,1- Trichloroethane. Adhesive was applied to both bonding surfaces and cured 20 minutes at 80 °C plus 7 days at 25 °C before testing.

	Result
Pull out strength @ 25 °C, lbs.	2,800

#### STORAGE AND HANDLING

These materials should be stored in a dry environment within a temperature range of 16 °C to 27 °C (60 °F to 80 °F). Extremes of temperature beyond this range may result in crystallization or polymerization of the materials. Introduction of a nitrogen blanket into the containers before closing will improve the storage life of the products.

A wide variety of cleaning solutions are available for cured and uncured epoxies and polyurethanes. For more information on proper recommendations and procedures, contact the Technical Department.

#### SAFETY

These materials are intended for industrial use only, and the practices of good housekeeping, safety and cleanliness should be followed before, during and after use.

Although the system contains low volatility materials, care should be taken in handling. Use adequate ventilation in the work area. These materials may cause dermatitis in susceptible individuals. Keep off skin and out of eyes.

In case of accidental skin contact, wash thoroughly with soap and water. In case of eye contact, flush eyes thoroughly with water and consult a physician immediately.

Refer to Material Safety Data Sheet for additional information.

#### ADDITIONAL INFORMATION

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NOTE

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