



ISO 9001:2000

TECHNICAL INFORMATION

EPOWELD® 13230

Structural Epoxy Adhesive System

PRODUCT DESCRIPTION

EPOWELD 13230 is a semi-rigid, two-component structural epoxy adhesive. It develops an excellent combination of shear strength and peel strength with only a room temperature cure. It has excellent shock resistance, vibration resistance and impact strength. It is recommended for bonding similar and dissimilar substrates such as wood, metal, ceramics, many thermoplastics and SMC. Other applications include repairs of sporting goods such as skis, snowboards and golf clubs.

EPOWELD 13230 is available in the unique DOUBLE/BUBBLE® job sized package as reorder no. 04007.

HOW TO USE

The individual components containing fillers should be stirred or agitated without introducing excessive air before use to ensure that all fillers are properly dispersed. To obtain the best cured properties, accurate proportioning and thorough mixing are essential.

MIXING AND CURING SCHEDULE

Ratio	Part A	Part B
By weight	100	140
By volume	100	150

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**
- 1 hour at 82 °C (180 °F).

TYPICAL UNCURED PROPERTIES

	Part A	Part B	Mixed
Color	Beige	Gray	Gray
Viscosity @ 25 °C, cps	60,000	50,000	50,000
Weight per Gallon, lbs.	11.3	10.2	10.6
Specific Gravity @ 25 °C	1.35	1.22	1.27
Gel time, minutes			
100 gm mass @ 25 °C	---	---	90
Filler Type	Non-Abrasive	Non-Abrasive	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	65

Lap Shear Strength

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

Cure Schedule	18 hours @ 25°C plus 2 hrs. @ 100°C	30 minutes @ 121 °C	1 hour @ 82 °C	2 hours @ 66 °C
Shear Strength, psi	2,940	2,610	2,940	3,150

Lap Shear Strength

(Al/Al, 2024-T3 acid etched; cure schedule 7 days @ 25 °C)

Test Temperature, °C	-55	-40	25	82	149
Shear Strength, psi	3,320	3,206	2,800	970	237

T-Peel Strength

(Al/Al, 2024-T3 acid etched; cure schedule 7 days @ 25 °C)

Test Temperature, °C	-40	25	82
Peel Strength, pli	3.8	24	2

Lap Shear Strength

(Al/Al, 2024-T3, acid etched; cure schedule 7 days @ 25°C)

After exposure to various environments.	Shear Strength, psi
1. Tap water immersion at 25 °C for 30 days.	1,220
2. Antifreeze immersion at 25 °C for 7 days.	1,730
3. JP - 4 Aviation Fuel immersion at 25 °C for 7 days.	1,730
4. Dry heat aging at 149 °C for 30 days.	3,400

TYPICAL CHEMICAL RESISTANCE PROPERTIES

(Tested at 25 °C unless otherwise indicated)

Total Immersion in:

Petroleum Sour Crude containing > 5% Hydrogen Sulfide

Immersion Time, Days	% Weight Gain (Loss)
1	0.21
7	0.37
30	0.85

Comments: Approximately a 6% loss in shore hardness after 30 days. No swelling or cracking of the test specimen occurs

Although the recommended mixing ratio for 13230 is 100A:140B by weight; the following properties were observed using a mixing ratio of 100A:100B by weight and curing for 7 days at 25 °C:

Hardness, Shore D	75
Al/Al Lap Shear Strength, psi	3,315
T-peel Strength, pli	17

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.