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TECHNICAL INFORMATION

HARDMAN® High-Peel-Strength Epoxy
DOUBLE/BUBBLE® Orange Package #04007

PRODUCT DESCRIPTION

HARDMAN High-Peel-Strength Epoxy 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.

HARDMAN High-Peel-Strength Epoxy is recommended for the following substrates:

Metal	Plastic	Other
Carbon Steel	PVC	Rubber
Stainless Steel	Polystyrene	Stone
Aluminum	Nylon	Wood
Copper/Brass		Glass
Tin		China
Zinc		Leather

TYPICAL USES

HARDMAN High-Peel-Strength Epoxy can be used to repair sports equipment, marine, aircraft, auto, truck and tractor parts. It is an excellent adhesive for grinding wheel hubs, industrial parts, and door and window gaskets.

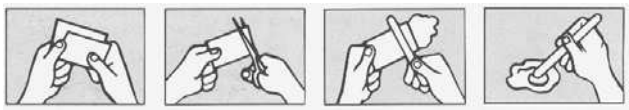
PACKAGING

The DOUBLE/BUBBLE package is a handy, dual-pouch, one-shot, job-size packaging concept. It reduces the waste typically associated with the use of larger quantities of two-component adhesives. This unique packaging ensures that DOUBLE/BUBBLE adhesives are always factory fresh and accurately portioned for optimum adhesive performance.

HARDMAN High-Peel-Strength Epoxy is also available in poly bottles, 1-gallon cans, 5-gallon pails and 55- gallon drums.

HOW TO USE

Surface must be clean and dry before application. Remove all chemicals, dirt, wax and oil.



FOLD SNIP SQUEEZE MIX/APPLY

Fold the DOUBLE/BUBBLE package along the center seal, snip the end, squeeze out the contents, mix thoroughly and apply.

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
Work time, hours	– – –	– – –	3
Handling strength, hours	– – –	– – –	18
Shelf Life, months	24	24	– – –

TYPICAL CURED PHYSICAL PROPERTIES
(Tested at 25 °C unless otherwise indicated)

Test	Result
Hardness, Shore D	65
Maximum Service Temp.	121 °C (250 °F)

Lap Shear Strength
(acid-etched aluminum to aluminum/various cure schedules)

Cure Schedule	18 hrs. @ 25 °C + 2 hrs. @ 100 °C	30 min. @ 121 °C	1 hr. @ 82 °C	2 hrs. @ 66 °C
Shear Strength, psi	2,940	2,610	2,940	3,150

Lap Shear Strength
(acid-etched aluminum to aluminum/cure schedule 7 days @ 25 °C)

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

T-Peel Strength
(acid-etched aluminum to aluminum/cure schedule 7 days @ 25 °C)

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

Lap Shear Strength
(acid-etched aluminum to aluminum/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:	Immersion Time, Days	% Weight Gain (Loss)	Comments
Petroleum Sour Crude	1	0.21	Approximately a 6% loss in shore hardness after 30 days. No swelling or cracking of the test specimen occurs.
Containing > 5%	7	0.37	
Hydrogen Sulfide	30	0.85	

Although the recommended mixing ratio 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

Store DOUBLE/BUBBLE adhesives at room temperature in a dry environment. Extreme low temperatures may cause crystallization. Extreme high temperatures may degrade the properties.

A wide variety of cleaning solutions are available for cured and uncured epoxies and polyurethanes

SAFETY

These materials are intended for commercial and 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.