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TECHNICAL INFORMATION

HARDMAN® Water-Clear Epoxy
DOUBLE/BUBBLE® Green Package #04004

PRODUCT DESCRIPTION

HARDMAN Water-Clear Epoxy is a two–component, room temperature cure epoxy system. It offers a unique feature of being a water–clear and transparent adhesive. This system contains no solvents and can also be used as a coating. With its solventless feature, it can be applied over old coatings without raising them. It is self–leveling and blush–free so that it will cover and fill scratches.

HARDMAN Water-Clear Epoxy is recommended for the following substrates:

Metal	Plastic	Other
Stainless Steel	Epoxy	Glass
Aluminum	Phenolic	China

TYPICAL USES

HARDMAN Water-Clear Epoxy is designed to repair printed circuit boards (it does not electrically corrode copper), optical fibers, lenses and other optical equipment, jewelry, art objects and other applications where a clear bond is desired.

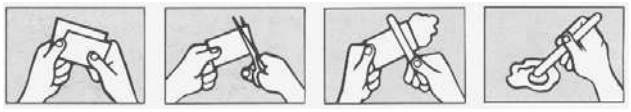
PACKAGING

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 Water-Clear 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	Clear	Clear	Clear
Viscosity @ 25 °C, cps.	15,000	10,000	14,000
Weight per Gallon, lbs.	9.7	9.2	9.5
Flash Point	470 °F 243 °C	410 °F 210 °C	– – –
Work time, minutes	– – –	– – –	60
Tack free time, minutes	– – –	– – –	180
Handling Strength, hours	– – –	– – –	8
Shelf Life, months	24	24	– – –

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

Test	Result
Impact Strength, ft.–lbs.	18
Maximum Service Temp.	82 °C (180 °F)
Water Resistance	Excellent

Lap Shear Strength (acid-etched aluminum to aluminum)

Cure Schedule @ 25 °C	5 hours	24 hours	72 hours	1 week
Shear Strength, psi	500	1,200	1,800	2,400

Hardness: (cure schedule 7 days @ 25 °C)

Test Temperature	25 °C	66 °C	93 °C	121 °C	149 °C
Hardness, Shore D	85	80	20	15	15

TYPICAL CHEMICAL RESISTANCE PROPERTIES
(Tested at 25 °C unless otherwise indicated)

Total Immersion In:	Immersion Time, Days	% Weight Gain (Loss)	Comments
Water	1	0.2	
	8	0.6	
Ethyl Alcohol 50% Solution	1	1.85	Specimen softens
	8	3.45	
Hydrochloric Acid	1	0.67	
	8	1.91	
Gasoline	1	0.08	
	8	0.16	
Sulfuric Acid	1	1.09	Specimen softens
	8	1.68	
Toluol	1	4.97	Specimen softens
	8	10.38	
1,1,1 Trichloroethane	1	21.92	Specimen softens
	8	– – –	& Degradation occurs
VM and P Naphtha	1	0.13	
	8	0.24	

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.