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TECHNICAL INFORMATION

HARDMAN® General-Purpose Epoxy DOUBLE/BUBBLE® Blue Package #04005

PRODUCT DESCRIPTION

HARDMAN General-Purpose Epoxy is a two component, long work life, room temperature cure epoxy adhesive designed for general-purpose applications. It exhibits high cohesive strength combined with excellent impact and vibration resistance. The cured system is effective over an operating temperature range of -34 °C to 71 °C (-30 °F to 160 °F).

HARDMAN General-Purpose Epoxy is recommended for the following substrates:

<u>Metal</u>	<u>Plastic</u>	<u>Other</u>
Carbon Steel	PVC	Rubber
Stainless Steel	Polystyrene	Stone
Aluminum		Wood
Tin		Glass
		China
		Leather

TYPICAL USES

HARDMAN General-Purpose Epoxy is ideal for repairing tools, furniture and sports equipment. It is also an excellent adhesive for use with fiberglass cloth.

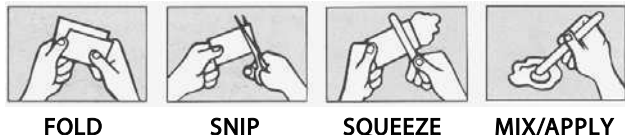
PACKAGING

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

TYPICAL UNCURED PROPERTIES

	<u>Part A</u>	<u>Part B</u>	<u>Mixed</u>
Color	Amber	Dk. Amber	Dk. Amber
Viscosity @ 25 °C, cps	35,000	23,000	30,000
Weight per Gallon, lbs.	9.5	8.4	9
Specific Gravity @ 25 °C	1.14	1.01	1.08
Work time, hours	---	---	2
Handling Strength, hours	---	---	8
Flash Point, PMCC, °C	240	71	---
Shelf Life, months	24	24	---

TYPICAL CURED PHYSICAL PROPERTIES

(Tested at 25 °C unless otherwise indicated)

<u>Test</u>	<u>Result</u>
Hardness, Shore D	80
Impact Strength, ft.-lbs.	5.46
Maximum Service Temp.	93 °C (200 °F)

Lap Shear Strength (acid-etched aluminum to aluminum)

Cure Schedule @ 25 °C	24 hours	1 week
Shear Strength, psi	2,765	3,280

Hardness (cure schedule 24 hours @ 25 °C)

Test Temperature	25 °C	66 °C	93 °C	121 °C	149 °C
Hardness, Shore D	80	50	30	25	20

TYPICAL CHEMICAL RESISTANCE PROPERTIES

(Tested at 25 °C unless otherwise indicated)

<u>Total Immersion:</u>	<u>Immersion Time, Days</u>	<u>% Weight Gain (Loss)</u>
Water	1	(0.02)
	8	(0.42)
Ethyl Alcohol, 50% Solution	1	(1.42)
	8	(8.86)
Hydrochloric Acid (2N)	1	0.82
	8	5.06
Gasoline	1	0.43
	8	3.94
Sulfuric Acid, 30% Solution	1	0.84
	8	3.34
Toluol	1	10.2
	8	35.3
1,1,1 Trichloroethylene	1	8.47
	8	52.91
VM+P Naphtha	1	0.08
	8	0.63

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

EPOSOLVE® 299-R is a versatile clean up solvent (non red label) for both cured and uncured epoxies and urethanes. Gloves made of nitrile rubber or other impervious matter must be used with this product. A separate data sheet is available upon request. Refer to Material Safety Data Sheet for this product before using

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.

NOTE

The statements made herein are based on our research and the research of others, and are believed to be accurate. No guarantee of their accuracy is made; however, and the products discussed are sold without warranty, expressed or implied, including warranty of merchantability and fitness for use of this material, and upon condition that purchasers shall take their own tests to determine the suitability of such products for their particular purpose. The user assumes all risk of use or handling, whether or not in accordance with any statements of the supplier. Supplier's liability, if any, for any action arising out of the material being supplied shall be limited to replacement of material. Statements concerning the possible use of these products are not intended as recommendations to use these products in infringement of any patent.