



TECHNICAL INFORMATION

HARDMAN® Wet-Surface-Patching Epoxy DOUBLE/BUBBLE® Purple Package #04003

PRODUCT DESCRIPTION

HARDMAN Wet-Surface-Patching Epoxy is a two-component, room temperature cure epoxy system designed as a wet surface patching or gap filling adhesive. A unique feature of the system is that it will not only adhere to wet surfaces, but it will also set underwater. It can be used with fiberglass tape as a bonding impregnant and has good resistance to exterior exposure. The system contains no solvents and is virtually non-shrinking.

HARDMAN Wet-Surface-Patching Epoxy is recommended for the following substrates

| <u>Metal</u> | <u>Plastic</u> | <u>Other</u> |
|-----------------|----------------|--------------|
| Stainless Steel | Phenolic | Stone |
| Aluminum | Fiberglass | Glass |

TYPICAL USES

HARDMAN Wet-Surface-Patching Epoxy can be used as a wet crack sealant and plumbing patch. It can also be used to repair gutters, battery cases and boats. It is an excellent adhesive for use with fiberglass tape.

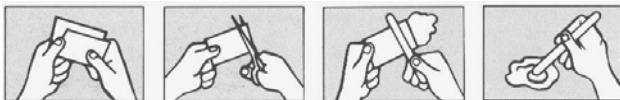
PACKAGING

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 Wet-Surface-Patching 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

| | <u>Part A</u> | <u>Part B</u> | <u>Mixed</u> |
|--------------------------|---------------|---------------|--------------|
| Color | Gray | Amber | Gray |
| Viscosity @ 25 °C,cps | 20,000 | 120,000 | 40,000 |
| Weight per Gallon, lbs. | 12 | 9.7 | 11.3 |
| Specific Gravity @ 25 °C | 1.44 | 1.16 | 1.35 |
| Flash Point, PMCC, °C | 110 | >121 | --- |
| Work time, minutes | --- | --- | 25 |
| Tack free time, minutes | --- | --- | 45 |
| Handling Strength, hours | --- | --- | 5 |
| 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 | 90 |
| Impact Strength, ft.-lbs. | 2.0 |
| Maximum Service temp. | 107 °C (225 °F) |
| Water Resistance | Excellent |

Lap Shear Strength (acid-etched aluminum to aluminum)

| Cure Schedule @ 25 °C | 5 hrs. | 24 hrs. | 72 hrs. | 1 week |
|-----------------------|--------|---------|---------|--------|
| Shear Strength, psi | 500 | 900 | 1,600 | 2,200 |

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

| Test Temperature | 25 °C | 66 °C | 93 °C | 121 °C | 149 °C |
|-------------------|-------|-------|-------|--------|--------|
| Hardness, Shore D | 90 | 85 | 40 | 30 | 30 |



TECHNICAL INFORMATION

TYPICAL CHEMICAL RESISTANCE PROPERTIES

(Tested at 25 °C unless otherwise indicated)

| <u>Total Immersion In:</u> | <u>Immersion</u> | <u>% Weight</u> | <u>Comments</u> |
|----------------------------|--|------------------------------|-----------------|
| | <u>n</u> <u>Time</u> <u>Days</u> | <u>Gain</u> <u>(Loss)</u> | |
| Water | 1 | 0.10 | |
| | 8 | 0.40 | |
| Ethyl Alcohol 50% Sol. | 1 | 0.37 | Specimen |
| | 8 | 1.06 | softens |
| Hydrochloric Acid (2N) | 1 | 0.13 | Surface |
| | 8 | 0.71 | discoloration |
| Gasoline | 1 | (0.03) | |
| | 8 | (0.01) | |
| Sulfuric Acid, 30% Sol. | 1 | 0.15 | |
| | 8 | 0.62 | |
| Toluene | 1 | 0.41 | Specimen |
| | 8 | 1.49 | softens |
| 1,1,1 Trichloroethane | 1 | 2.02 | Specimen |
| | 8 | 8.32 | softens |
| VM+P Naphtha | 1 | (0.01) | |
| | 8 | 0.02 | |

ADDITIONAL INFORMATION

Visit our web site at:

www.royaladhesives.com

Contact us at:

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NOTE

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STORAGE AND HANDLING

Store DOUBLE/BUBBLE 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.