M-1® MARINE

Technical Data Guide

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Product Description

M-1 Marine is a moisture cure polyether adhesive/sealant formulated for applications above the water line or after curing below the water line and in areas where solvent based materials are not tolerated. The product is solvent free and contains no isocyanates. It will not shrink upon curing, will not discolor when exposed to ultra violet light, and will not "out-gass" or bubble on damp surfaces as urethane sealants often do. The sealant has resilient elastomeric properties and excellent adhesion to most substrates. It can be used effectively in many difficult conditions, cures rapidly in wet or dry climates, and low temperatures compared to urethane based materials.

Standards and Compliance

- Conforms to OTC Rule for Adhesives
- Meets requirements of California Regulations: CARB, SCAQMD, and BAAQMD
- Conforms to California Proposition 65
- VOC Content: Less than 15 grams per liter ASTM D-2369, EPA Method 24

Advantages

- 100% VOC Compliant
- Tough elastomeric bonds
- Solvent Free
- Fast Setting
- High adhesion
- Paintable within 24 hours
- Gun grade, no special tools or mixing required
- Can be applied at temperatures as low as 32°F (0°C)

Applications	Substrates
Wood to fiberglass	Teak deck planking
Portlights	Fiberglass
Deck fittings	Gelcoat
Fiberglass to fiberglass	Metal
Moldings	Glass
Struts and planking	Polycarbonate
Stern joints	Most plastics*

**Test all plastic substrates for bond strength and compatibility before application.*

Colors		
White	Gray	Black*

**Additional colors available by special order.*

Packaging

- **10.1 oz (300 ml)**
  12 cartridges/carton, 105 cartons/pallet
- **20 oz (600 ml) available by special order**
  12 sausages/carton, 45 cartons/pallet
- **5 gallon pails or 50 gallon drums available by special order**

Application Instructions

M-1 Marine Grade Structural Adhesive/Sealant is a gun grade material that is applied from caulking guns, high viscosity pump guns, or automated bead application equipment. This product sets rapidly upon exposure to moisture. Open containers must be quickly protected from atmospheric moisture.

Mask off areas that must be protected from adhesives. Allow the assembly to cure for 30 minutes to an hour before handling or machining. When bonding two impermeable materials, brief separation and reassembly of the bonding surfaces to expose the adhesive to atmospheric moisture will often accelerate the cure.

In extremely dry environments, local humidification may be needed to initiate curing. Low temperature will retard the cure reaction and heat will accelerate the cure reaction. Optimum application is between 60°F to 100°F (16°C to 38°C).

Substrate Preparation

Bonding surfaces must be clean, dry and free of oxidation, mill oils, wax, and release agents that may interfere with adhesion. Dry and fully cure painted surfaces before bonding. Alcohol and ammonia water are effective cleaners for surface preparation. Abraded or irregular surfaces are acceptable bonding surfaces but must be clean and sound. For use with teak, wipe with alcohol prior to application to remove surface oils

Storage

Store original, unopened containers in a cool, dry area. Protect unopened containers from water, heat and direct sunlight. Elevated temperatures will reduce shelf life. **M-1 Marine Grade Structural Adhesive/ Sealant** will not freeze.

Shelf Life

Twelve months from date of manufacture when stored at 70°F / 21°C with 50% relative humidity. High temperature and high relative humidity may significantly reduce shelf life.
Pails have a shelf life of six months.

Typical Physical Properties

Viscosity	1,200,000 +/- 400,000 cp at 72°F (22°C)	Brookfield RVF, TF spindle, 4 RPM
Density	11.8 +/- 0.2 lbs per gallon	ASTM D1475
Tack Free Time	20 +/- 10 min	45 +/- 5 % R.H.
Elongation at Break	275 - 325%	ASTM D412
Tensil Strength	325 - 375 psi	ASTM D412
Hardness Shore A	38 - 42	ASTM C661
Low Temp. Flex	-10°F (-23°C) Pass1/4 inch mandrel	ASTM D816
VOC Content	Less than 15 g/l	ASTM D2369
Shrinkage	No visible shrinkage after 14 days	
Service Temp.	-40°F to 200°F / -40°C to 93°C	

Limitations

- Not intended for engine compartment use
- Horizontal applications will require tooling.
- In areas where prolonged chemical exposure is anticipated, contact Technical Services for recommendations.
- Allow treated wood to “cure” for six months prior to application per APA guidelines.
- Do not store in elevated temperatures.
- Remove all coatings and sealers before application.
- Please contact customer service for application guidelines with temperatures below 32°F (0°C).
- Test and evaluate all paints before application. Polyurethane and oil based paints may dry slowly.

All properties described in this document are derived from testing conducted in laboratory conditions. Properties and performance will vary depending on environmental conditions and application technique. Test and evaluate to determine appropriate usage. Visit www.chemlink.com for the Safety Data Sheet, Technical Data Guides and full warranty for this product.

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