

PRODUCT BULLETIN

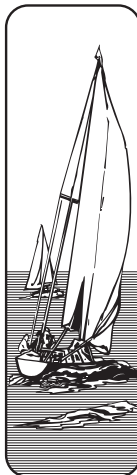
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TAP Premium Marine Grade Epoxy System

A two component laminating and repair system

100% solids
no solvents/no VOCs

Excellent wet out and high strength



Consists of Resin 314 and Three Hardeners:
Fast 102 • Medium 109 • Slow 143

Why Use Epoxy?

The vast majority of watercraft are made with polyester resin, which is excellent for initial construction but has drawbacks in repair work. Epoxy is a better adhesive than polyester and forms a better bond to cured polyester and fiberglass. Polyester shrinks during cure, creating stress at the point of repair; while epoxy has no significant shrinkage during cure and has a better water/chemical resistance. For these reasons, epoxy repairs are more durable, have better bond strength, and are longer lasting than are polyester repairs.

Why Use TAP Marine Grade Epoxy?

1. Superior moisture barrier.
2. Simple, easy-to-use mix ratios.
3. Virtually no exudation or amine blush (see definitions), no need to water wipe and sand surfaces between coats.
4. Faster through-cure than other types (faster demold, easier sanding).
5. Low toxicity, DOT noncorrosive, lower odor, lower skin irritation potential, and no VOCs.
6. Superior mechanical bond to a broad range of materials.
7. Ability to cure in cold weather • Fast 102 and Slow 143.
8. One system for all weather conditions • Slow 143.

Safety Notes

TAP Epoxy is not FDA approved for contact with food or potable water. However, it can be safely used in aquariums and ponds without harm to fish, provided it has cured at least 7 days and any amine blush has been thoroughly removed.

Gloves should always be worn when working with epoxies. TAP Marine Grade Epoxy has extremely low toxicity and is not corrosive. However, safe work habits are appropriate with all chemicals. TAP Marine Grade Epoxy is not a significant skin sensitizer, however some people may already have a sensitivity, so skin contact should be avoided.

Avoid breathing fumes emitted by the curing exothermal epoxy. Avoid breathing dust when sanding. Always wear a particle mask and eye protection when sanding.

Never use acetone, MEK, or other solvents to remove epoxy from your skin. Solvents may dissolve chemicals and carry them into the blood system. Clean skin, brushed, tools, etc. with Replacetone, soap and water.

Need More Information?

Your TAP store has a wide variety of books which address all aspects of marine construction and repair. Ask your TAP Salesperson for more information.

Visit our website: tapplastics.com

the fantastic plastic place



- ☐ Bellevue WA 12021 NE Northup Way 425 502-7225
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Properties

314 Resin is a *clear, low viscosity* epoxy designed for superior wood penetration and sealing, and extremely fast, efficient fiberglass wet-out. In combination with TAP Hardeners, it can be applied in a wide range of weather conditions with excellent strength, rigidity, and moisture resistance. 314 Resin has *excellent thin film cure* (through cure) which allows for sanding or removal from a mold in a minimum amount of time.

102 Hardener provides a *fast cure* for bonding, recoating, laminating, and fairing. It is mixed in a 4 to 1 ratio with the 314 Resin. 102 Hardener has excellent chemical resistance to most solvents, the *highest rigidity*, and is recommended for low temperature applications (40°F minimum).

109 Hardener: Medium cure, 5 to 5.5 hours. 20 to 30 minute pot-life. Clearest of the hardeners for a transparent finish. The mix ratio is 4 to 1. Use for adhesive, laminating, clear finishes. This hardener is the most sensitive to temperature. ideal cure temperature is 80°-85°F. Lower temperatures will produce blushing and potential incomplete cure.

143 Hardener provides a *slow cure* and is the best *all weather* hardener. It has the *lowest viscosity* and therefore is best for penetration. It is also the *most flexible*, has the best chemical resistance to acids, solvents and fuels. It has the *best adhesive* (bonding) properties. The words *all purpose* best describe this hardener.

Liquid Properties: Fast Medium Slow

Resin/Hardener	314/102	314/109	314/143
Mix Ratio ...	4:1	4:1	2:1
...Resin to Hardener (volume)			
Viscosity, cps mixed	550	500-700	450
Pot Life (77° F, 25° C)	12-15	20-30	25-30
Recoat Time, hours	2	4	5
Recommend min. use temp.	40°F	75-80°F	40°F
Suggested Uses	F L A	L A	F L A

•F - Fairing •L - Laminating •A - Adhesive

Cured Properties of System

Heat Distortion Temp. (°F)	145°	125°	120°
Flexural Strength, psi	16,000	14,800	10,500
Tensile Strength, psi	9,000	6,000	7,000
Flexural Modulus, psi	360,000	403,100	400,000
Tensile Modulus, psi	475,000	362,500	360,000
Elongation, %	7.5	5.0	9.5

Which Do I Use?

TAP Marine Epoxy System has a variety of applications.

Fiberglass Laminating • Glass, Carbon/Graphite, Kevlar

Fast: 314/102 Good speed, through cure, physical properties
Med: 314/109 Summer use, longer pot-life
Slow: 314/143 Long pot-life, good penetration and adhesion

Wood to Wood Adhesive • Fast: 314/102 Slow: 314/143

Wood Penetrant/Restoration • Slow: 314/143

Sealing Wood, 'Hot Coating' • Fast: 314/102

Electrical Potting:	Med: 314/109
Dielectric Constant	4.1
Dielectric Strength	400 watts/mil
Volume Resistivity	77 x 10 ¹⁴

Gel Coat Blister Repairs:

Small areas/cold weather	Fast: 314/102
Smaller areas in hot weather	Med: 314/109
Larger areas in all weather	Slow: 314/143

Fairing or Filleting Compounds: made by mixing epoxy with Cab-O-Sil and Microspheres

Fast curing, small batches, cold weather	Fast: 314/102
weather and small batches	Med: 314/109
batches in all weather	Slow: 314/143
Bonding to metal	Slow: 314/143

Comparison With Others?

- Lower toxicity, DOT noncorrosive, lower odor, lower skin irritation potential
- Virtually no exudation or amine blush, 102 and 143; very low exudation, 109 (no need for water wipe and sanding surfaces prior to recoating)
- Faster through-cure (faster demold times, easier sanding)
- Better release of air bubbles for fewer surface imperfections and void-free laminates
- Ability to cure in cold weather (102, 143)
- One system for all weather conditions
- Better chemical resistance
- More economical (TAP Hardeners are full measure!)

Brand Comparisons

West System® 105/205 (fast) use TAP 314/102
West System® 105/206 (slow) use TAP 314/109
System 3® use TAP 314/143 (all weather system)

Surface Preparation

Thoroughly prepare the surface to be worked on. The type of preparation required depends on the surface. Most surfaces, wood, fiberglass, metal, etc., will require a thorough sanding and removal of any wax, paint, or other foreign substances which might impair epoxy adhesion to the surface.

Concrete should be more than 90 days old and it should be acid etched, bead blasted, or sand blasted (bead blasting is preferred). Dust and other particles should be vacuumed. Concrete should be dry.

Suitability and adhesion to other surfaces should be determined by experimentation.

Tools and Supplies

Have all required tools and supplies ready before you start mixing. The following tools are recommended and available at your local TAP store:

- Mixing cups with measure increments
- Gloves
- Wipe-Alls
- Fillers
- Replacetone
- Knytex
- Dispensing pumps (TAP pumps provide accurate and easy measuring)
- Stir sticks
- Safety glasses
- Sanding block
- Disposable brushes
- Fiberglass fabric (Mat, Roving, Tape)
- Carbon Fiber or Kevlar Fiber Fabrics