

# BIO-SEAL™

## 204

SATURATION EPOXY  
RESIN UNDERWATER  
APPLIED COMPOSITES



Thin Film Technology, Inc.

## PRODUCT DATA SHEET

**BIO-SEAL™ 204** is based on pure liquid epoxy polymers and proprietary polyamine curing agents. It is formulated for complete tolerance of wet surfaces which enables application to submerged surfaces.

**BIO-SEAL™ 204** is an ideal saturating resin for use with fiberglass, basalt or carbon fibers, its field-friendliness and lack of odor ensure the best possible worksite conditions combined with excellent saturation..

**BIO-SEAL™ 204** can be shipped by Ground "Non-Regulated" by USDOT. When shipped by Air or Ocean **BIO-SEAL™ 204** epoxy base is classified as "Not Regulated" unless packed in containers of larger than 1.32 gallons, (5L), when it is classified UN3082, PGIII. **BIO-SEAL 204** curing agent is classified as "Not Regulated" by Ground, Sea or Air.

## RECOMMENDED USES

**SATURATION RESIN FOR CARBON, BASALT OR GLASS FIBER. BIO-SEAL™ 204** is designed for ease of use in the field. It has excellent adhesion to metals such as stainless and carbon steel. When fully cured the resin has a wide resistance to industrial commodities such as gasoline, diesel fuel, crude oil and other hydrocarbons.

## TECHNICAL INFORMATION

COMPOSITION:	Vehicle Type.....	Epoxy/Polyamines
	Pigmentation.....	Phthalocyanine Green pigment
	Solids by Volume.....	100%
	Flash Point .....	Over 212°F
	VOC .....	Essentially Zero at normal ambient temperatures
APPEARANCE:	Gloss .....	Matte when fully absorbed, unabsorbed is full gloss
	Color.....	Transparent green.
APPLICATION:	Methods .....	Brush, roller, spatula or mechanical impregnation
	Rec. Dry Film Thickness.....	N/A
	Rec. Wet Film Thickness.....	N/A
	Coverage, (theor.) .....	N/A
	Induction Time .....	Not Required – may be used immediately after mixing
	Pot Life.....	Approx. 35' @ 77°F, (25°C)
	Dry Time – Dust Free .....	4 hours @ 77°F, (25°C)
	Dry Time - Service.....	12 -24 hours light service @ 77°F, (25°C). Fully cured in 3 days at 77°F
STORAGE:	Shelf Life.....	24 months under normal storage conditions
TRANSPORTATION.....		USDOT, IATA, & IMO "Non-Regulated" when shipped in 2 gallon or smaller kit sizes.

## APPLICATION NOTES

### ***SURFACE PREPARATION:***

***Bare Concrete:*** surfaces should be allowed to cure for a minimum of 20 days before coating. Excessive weak surface laitance must be removed by either acid etching or, preferably, abrasive sweeping before coating. Aged, uncoated concrete surfaces are best prepared by abrasive sweeping. Contamination by oil or grease should be removed, with an industrial degreaser before either high pressure water jetting or abrasive blasting.

***Steel surfaces:*** **BIO-SEAL™ 204** is most commonly used with reinforcing fiber on steel surfaces for reinforcing and sealing purposes. When used with carbon fiber it is recommended to apply an initial cathodic sealing coat of either BIO-DUR 290 epoxy coating or a first layer of non-conductive fiberglass or basalt composite to insulate the underlying steel from possible cathodic effects. Prepare the steel by abrasive blasting to SSPC-SP-10, "Near-White" standard with a 2 – 4 mil anchor profile for best results. Small areas may be prepared using mechanical tools such as needle scalers or abrasive disks.

***MIXING PROCEDURE:*** **BIO-SEAL™ 204** is supplied in 2 gallon kits of comprising epoxy base in a part filled 2 gallon plastic pail with curing agent packed in a part filled one gallon steel can. A "Jiffy" type mixer with a high torque motor is recommended for proper blending. Pour the curing agent into the base and mix for about 2 minutes taking care to stir in all base material from the edges and base of the plastic pail, *unmixed material will never harden*. No induction or "sweat-in" time is required and the mixed material may be used immediately.

When using with sand or other inert mineral aggregate as a mortar first thoroughly mix a two-gallon **BIO-SEAL™ 204** kit using a high torque type mixer then pour this mixed material into a larger container such as a clean five gallon pail. Using the same "Jiffy" mixer add the mineral aggregate while stirring until the desired viscosity is obtained. As a guide it will be found that a two-gallon kit of **BIO-SEAL™ 204** will accept about 66 lbs of sand to yield five gallons of a heavy but flowable mortar. This mortar can be used to smooth and level concrete, set safety railings into holes and so on even on wet surfaces or underwater. Fine sand makes a stiffer mortar than coarse sand. Sharp sand makes a stiffer mortar than rounded sand.

Pot life and reaction time is heavily dependent on temperature, as a general guide figure that each 18°F, (10°C), variation in temperature above or below 77°F, (25°C), will respectively halve or double the pot life and cure times.

***CURING AND TEMPERATURE RANGE IN SERVICE:*** At 25°C/77°F **BIO-SEAL™ 204** will cure to a hard film within 8 hours and is suitable for handling and light service after this time. Allow at least three (3) days at 77°F before subjecting to aggressive chemical service from industrial solvents and similar materials. After full curing **BIO-SEAL™ 204** can operate in the temperature range of -40°C/F to 180°F/82°C in wet service and -40°C/F to 275°F/135°C in dry service.



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SAFETY: This is a hazardous material if misused. Read and understand the Material Safety Data Sheet (MSDS) before use.

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