



EPOXY RESIN SYSTEMS

"Dedicated to QUALITY, SERVICE, SAFETY, and INNOVATION"

TC-1614 A/B
HIGH SOLIDS CONTENT EPOXY PENETRATING
SEALING AND COATING RESIN SYSTEM

PRODUCT DESCRIPTION:

TC-1614 A/B is an unfilled high solids content epoxy resin system. It is designed to seal porous to semi-porous substrates developing remarkable strength. As the penetrative depth increases the TC-1614 A/B also has exceptional adhesive characteristics and is capable of continued use at temperatures up to 350°F. It can be used at temperatures up to 400°F intermittently.

PRODUCT HIGHLIGHTS:

- Easy to use and apply
• Penetrates and seals porous surfaces with excellent adhesion
• Withstands temperatures in excess of 350°F.

PHYSICAL PROPERTIES:

Table with 2 columns: Property Name and Value. Properties include Hardness, Density, Cubic Inches per Pound, Color/Appearance, Tensile Strength, Tensile Modulus, Elongation, Flexural Strength, Flexural Modulus, Shrinkage, and Izod Impact.

Note: Reported physical properties based on elevated temperature cured test specimens.

HANDLING PROPERTIES:

Mix Ratio (by weight):

Table showing mix ratios for Part A (100 parts by weight) and Part B (20 parts by weight).

Mix Ratio (by volume):

Table showing mix ratios for Part A (100 parts by volume) and Part B (23 parts by volume).

HANDLING PROPERTIES (continued):

Specific Gravity @ 77°F (25°C):	
Part A	1.13
Part B	0.98
Viscosity, (cps) @ 77°F (25°C) Brookfield:	
Part A	550
Part B	250
Mixed.....	600
Work Time, (100-gram mass) @ 77°F (25°C).....	2 hours
Gel Time	2.5 hours
Demold Time @ 77°F (25°C).....	24 hours
*Application Procedures – see page 3	

POST CURING:

All physical property results are based upon post-curing this system. The following procedure provides the best results:

- 150° F (66° C) for 1.5 to 2 hours
- 250° F (121° C) for 2 hours
- 300° F (149° C) for 1 hour
- 350° F (177° C) for 1 hour

Allow to cool in the oven. This procedure provides further stabilization and eliminates possible thermal shocks for cavity tools that are temporarily clamped together for curing purposes.

PACKAGING:

5-Gallon Kits.....	40 lbs. A, 8 lbs. B
Drum Kits	400 lbs. A, 80 lbs. B

STORAGE:

Store in a cool dry place. Unopened containers will have a shelf life of 12 months from date of shipment when properly stored at room temperatures. Purge opened containers with dry nitrogen before re-sealing.

SAFETY PRECAUTIONS:

Use in a well-ventilated area. Avoid contact with skin using protective gloves and protective clothing. Repeated or prolonged contact on the skin may cause an allergic reaction. Eye protection is extremely important. Always use approved safety glasses or goggles when handling this product.

IF CONTACT OCCURS:

- Skin:** Immediately wash with soap and water. Remove contaminated clothing and launder before reuse. It is not recommended to remove resin from skin with solvents. Solvents only increase contact and dry skin. Seek qualified medical attention if allergic reactions occur.
- Eyes:** Immediately flush with water for at least 15 minutes. Call a physician.
- Ingestion:** If swallowed, call a physician immediately. Remove stomach contents by gastric suction or induce vomiting only as directed by medical personnel. Never give anything by mouth to an unconscious person.

Refer to the Material Safety Data Sheet before using this product.

NON-WARRANTY "Except for a warranty that materials substantially comply with the data presented in Manufacturer's latest bulletin describing the product (the basis for this substantial compliance is to be determined by the standard quality control tests generally performed by Manufacturer), all materials are sold "AS IS" and without any warranty express or implied as to merchantability, fitness for a particular purpose, patent, trademark or copyright infringement, or as to any other matter. In no event shall Manufacturer's liability for damages exceed Manufacturer's sale price of the particular quantity with respect to which damages are claimed."

Product Application Procedure for 3D Printed Parts

Material: TC-1614 Epoxy

Purpose of Procedure: To impregnate rigid, porous 3D Printed Parts with epoxy. Infusing epoxy into the surface is a beneficial procedure to increase strength, improve handling qualities and in some parts improve aesthetics. Some systems will absorb more material than others.

Procedure:

- Pre-warm A&B material in separate containers to 90°-100°F maximum (32°-37°C max) in a temperature controlled industrial oven. This will help to lower the viscosity and increase the absorption rate of epoxy into the part (never use a household oven that may be in contact with food).
- You can also pre-warm the 3D printed part to aid in epoxy infiltration. 100°-120°F (37°-49°C) is a good range but refer to your 3D printed material recommendations for heat resistance in an effort to avoid distortion.
- Place a small 3D Printed Part into a self-sealing (zipper lock) plastic bag and fill with an appropriate amount of epoxy. A bag that is too large will require more volumetric amounts of epoxy. Squeeze out as much of the extra air in the bag to assure part is fully submerged and coated with epoxy then seal bag.
- Allow the part to soak in the epoxy for roughly 20-25 minutes. A recommended optional procedure would be to place bag with soaking 3D Printed part into 100°-120°F (37°-49°C) oven in a leak-proof, metal container, and allow to soak for 15-20 minutes. Check part at 5 minute intervals to monitor viscosity levels and for any exothermic reaction. Larger batches of mixed epoxy will have a shorter reaction time.
- Once part has soaked for allotted time, pull part out of bag and drain excess epoxy off of part.
- For larger parts, mix enough A&B together so you have sufficient material to brush an even coat over the part. Continue brushing drips and runs to keep part coated for 20-30 minutes. Then drain off excess epoxy and wipe down surface with clean, dry paper towels. Avoid using any solvents since it will affect the curing properties.

***Note that mixing a large mass of epoxy can produce an increase in chemical reaction shortening work time and increasing exotherm (heat) as it sits. Do not leave a large, concentrated mass of epoxy in a container unattended. After soaking the part, it may be best to split up a large batch (over 200-300g) by draining the bag into 2-3 separate small containers and allow to harden.**

- Hang part with wire over a cup or bucket to allow continued drainage of excess epoxy. Wipe off any areas of pooled epoxy with a gloved finger or brush. Monitor any sags or drips for the next hour or until epoxy has gelled.
- You can expedite curing of the epoxy in an oven at 100°-120°F (37°-49°C) and promote better physical properties of the finished material. You can also allow the epoxy to cure at room temperature but an elevated post cure will achieve the best results.