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TECHNICAL DATA SHEET

Performance 80 D

Performance 80D is a high-strength urethane elastomer designed for durable, impact-resistant parts. Formulated with aromatic urethane chemistry, it delivers exceptional tear resistance and toughness. It can be hand-poured or used with dispensing equipment for versatile applications and is easily pigmented for custom coloring.

PRODUCT SPECIFICATIONS	
Mix Ratio	1:1 by volume
Mixed Viscosity	290 cps
Working Time	4.0 minutes
Demold Time	60.0 minutes
Heat Deflection	200ºF
Hardness	80-D
Full Cure Time	3 Days
Tensile Strength	2100 psi
Elongation Strength	40%
Shelf Life	1 year
Color	Clear

BEFORE USE: Thoroughly read Safety Data Sheets, product labels and the “SAFETY” section in this Technical Data Sheet.

BEFORE YOU BEGIN

Work Environment: The ideal working temperature is around 65-75°F in a clean, dry, dust-free environment. Avoid working in high humidity. If you are pouring in large volumes of 2 or more gallons, we suggest keeping room temperature closer to 65°F. We highly recommend keeping fans on your project to help dissipate heat.

Coverage: You can use the coverage calculator on our website to determine the volume of mixed resin that you will need before you begin your project. Please remember, this is not an exact science, as each project is different and each substrate will absorb the epoxy differently. As the product fills the cracks and crevices in your mold, the level may drop. Be prepared to add more epoxy as needed. The calculator does not take into account embedded objects. It is always best to have more than enough material on hand to ensure completion of your project.

Materials: Be prepared with all necessary materials and tools before beginning your project.

- Powders & dyes
- Stir-sticks
- Utensils to shape material
- Molds for artistic creation
- Misc. handling tools – scissors, pliers, a drill or Dremel tool, heat gun, blow torch, etc.

MIXING & POURING

Mold Preparation: Before mixing and pouring the resin into your mold to achieve a cast resin piece there are a few things you can do to prepare your mold that will greatly enhance the physical properties and curing of your cast resin piece.

The first thing you can do is to preheat your mold. Warm the mold in a conventional oven at 120-150 deg ees F for 15 minutes or warm your mold in a microwave for 1 minute/lb of rubber on high. This will only warm your mold and will not affect the microwave or your mold adversely. It will however help the thin sections of your casting cure more evenly with larger sections and reduce your demold time. It will also help the resin set up uniformly to give you a consistent fully cured cast piece. (It is highly recommended to warm your molds when using the Slow Set, Water Clear, Clear, Flex, Amazing Clear Cast, or parts under a 1/2” in thickness to ensure proper curing.)

Eliminating Air Bubbles: To release surface tension and help with minimizing unwanted air bubbles in difficult to fill areas, ba y powder your mold prior to casting. Painting or sprinkling baby powder on all the surfaces inside your mold will greatly reduce the amount of surface tension in the mold. As the resin flows into the mold it will physically pick up each particle of the baby powder and will help keep the air bubbles away from the surface of the mold where they can be seen in your finished part. The powder will not change the appearance of your casting. Since the resin picks up and absorbs the baby powder, the white color of the powder will not show up in your finished piece. If you have a small paint brush,

simply paint in the baby powder and knock out the excess before casting your part. (Baby powder not recommended when pouring clear parts.)

Mixing: Before mixing make sure you know the proper mix ratio of the material you are using. Double check the mix ratio. The mix ratio of the Performance 80D is 1:1 by volume. It's important to note and understand mix ratio by weight (with a scale) or by volume using a graduated cup. Please check each individual material you use as some are mixed only by weight or by volume. Varying the mix ratio of Alumilite resins will alter the cure and change the physical properties in a negative way and is NOT recommended. Alumilite resins have been formulated to crosslink completely and altering the mix ratio may leave uncured components in your cast piece that could come out at a later time.

We recommend you mix at least a half an ounce of each side to ensure you have a proper mix ratio. If you measure out 1/4 of an ounce of A in one cup and 1/4 ounce of B in another and dump the A into the B you will be off ratio due to the residue left in the A side cup. In larger amounts of resin batches, this will not be enough to throw off the mix and cause an issue with the resin setting up. But with small amounts of resin (1/4 oz of each side) this will be enough to affect the mix ratio and will typically result in parts that appear darker in color and remain soft (never harden).

Once the materials have been measured out in separate cups, the preferred method of pouring one into another, to decrease the amount of air introduced, is to pour the A side into the B side.

Pouring: Once the material is thoroughly mixed, pour the resin slowly down the side of your mold cavity. Tilting your mold will prevent the resin from splashing in the bottom of your mold and creating unwanted air bubbles that would then need to find their way to the top of the mold. Similar to tilting your glass as you pour a beverage rather than letting it splash/cavitate off the bottom creating air bubbles. Squeezing the brim of the cup to form a point allows you to pour a smaller/slower stream of resin into your mold controlling the flow and reducing the chance of unwanted air bubble entrapment against the surface of the part.

If your mold has undercuts, pour enough resin into the mold to fill it half way. Then, tilt and rotate the mold in the opposite direction of the undercut to allow the air to escape up the side of the mold. Squeezing or burping the mold at the same time will also help relieve the air trapped in the undercut and allow the bubbles to release from the mold surface. Once you see air bubbles come to the surface of the resin and you can be confident you have removed the air from the undercut, simply top off the mold by pouring the remaining resin into the mold.

Open Time: Performance 80D has an Open Time of 5-6 minutes at 75 Degrees F (100g mass). Larger amounts of mixed resin will shorten your work time. Warmer ambient room temperature will also shorten work time. To increase the open time of Alumilite resins, simply chill the "A" & "B" sides of the Alumilite in the refrigerator or in a bucket of ice for approximately 30 min. before pouring. This will increase the open time of the Performance 80D by 30-60 seconds. When cooling your resin, we highly recommend preheating your mold to ensure a proper cure.

Coloring: Alumilite Performance 80D urethane can be dyed or pigmented using a non-water base dyes.

Alumilite offers a line of translucent dyes in standard colors that react/crosslink chemically with the resin to achieve beautiful colored resin cast pieces with no worry of leaching or color ever coming out of the cured piece. The dyes are extremely concentrated and color the Performance 80D extremely easily. A maximum of .5% into the A side is needed to completely color the Performance 80D. We do not recommend preloading the dye into the A sides as it can affect the shelf life of the Performance 80D. If you are looking to use a dye, pigment, or filler that you have not used before, we highly recommend making a small test sample to ensure compatibility before using or preloading into the resin.

Shelf Life: The shelf life of Performance 80D is 1 year in an unopened container but a much longer shelf life can be expected even after being opened as long as it is sealed and stored in an area free from moisture contamination (humidity and changing of temperatures such as a garage).

Storage: Urethane resins are sensitive to moisture and must be kept dry at all times. It's best to blanket open drums and bottles with nitrogen or Alumilite's Bloxygen before storing. Keep unused materials tightly sealed in a dry environment. Store drums between 70° and 90° F. Should the components freeze, they can be heated to 100° F and remixed prior to use. Storage of the B component below 65° F will lead to reduced product performance.

Moisture Contamination: Relative humidity or moisture will react with the B side of Performance 80D and crystalize. You may notice crust, crystals, or chunks around the tip or cap or in the bottom of the bottle. If the B side shows signs of moisture contamination, you may need to strain the chunks or crystals with a paint filter or screen to remove them from the resin. Once strained, the B side can be used as normal. However, if the A side has been contaminated by moisture, it will not show any signs of contamination until you cast your piece in which you will notice an excess amount of bubbles or perhaps even a froth or foam on the top side of your casting. Once the polyol side (A side of Performance 80D) has been contaminated with moisture it is extremely difficult to restore. Vacuuming the resin for a long period of time may vaporize and pull the moisture out or a molecular sieve can be mixed in and allowed to react and settle to the bottom with some success.

CLEAN UP & DISPOSAL

Tools can be cleaned with T-12, Isopropyl Alcohol 99% or a residue-free cleaner. Do not use soap and water. Dispose of product and container according to Federal, State and local regulations. Store any remaining product in the original bottles, tightly sealed and locked up in a cool, dry environment.

SAFETY

Safety: Before use, thoroughly read Safety Data Sheets and product labels. Follow safety precautions and directions.

- Wear gloves
- Safety glasses
- Protect clothing with a work smock or other outer garment
- For cleaning surfaces, containers – use Acetone, rubbing alcohol or nail polish remover

- When stored separately, epoxy & hardener have long shelf lives – store in a cool dry area in tightly sealed containers

Resin: Keep out of reach of children. If needed, a NIOSH-approved respirator with organic vapor cartridge may be used. Wear impervious gloves, such as butyl rubber or nitrile rubber. Wash skin thoroughly with soap and water after handling. Take off contaminated clothing and wash it before reuse. If skin irritation occurs, get medical help. Wear eye protection, such as chemical safety glasses/googles. If in eyes, rinse cautiously with water for several minutes, removing contact lenses if present and easy to do. If eye irritation persists, get medical help.

Hardener: Keep out of reach of children. Do not eat, drink, or smoke when using this product. If swallowed, rinse mouth and get medical help. Use with adequate general or local exhaust ventilation to minimize exposure levels. If needed, a NIOSH-approved respirator with organic vapor cartridge may be used. If inhaled, remove victim to fresh air and keep at rest in a position comfortable for breathing. Wear impervious gloves, such as butyl rubber or nitrile rubber. Wash skin thoroughly with soap and water after handling. Wear eye protection, such as chemical safety glasses/googles. If in eyes, immediately rinse with water for several minutes, removing contact lenses if present and easy to do. If eye irritation persists, get medical help.

WARNING: THE CURE REACTION IS EXOTHERMIC. Do not apply in thicknesses greater than the recommended maximum application thickness for the product.

DISCLAIMER: The information contained herein is considered accurate; however, Alumilite makes no warranty regarding its accuracy. The user must determine the suitability of the product for the intended use and accepts all risk and liability associated with that use.