Free Form® Habitat® Black

Mix & Apply-By-Hand Epoxy Dough

SMOOTH-ON SINCE 1895

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PRODUCT OVERVIEW

Free Form® Habitat® Black Epoxy Putty is a mix-by-hand putty that is used to create textured or highly detailed display pieces. Habitat® Black is solvent-free and contains no VOC's. Working time is 60 minutes and cure time is 16 hours at room temperature (73°F/23°C). Epoxy cures to a very hard, heat resistant material that is easily painted.

Use with Habitat® Black Folding Powder – fold powder into epoxy putty to thicken and reduce sag when applied to a vertical surface. Folding Powder also reduces stickiness and makes the epoxy more handle-able.

Habitat® Black is suitable for interior and exterior use. It is certified 'aquarium safe' and used by aquariums to create hyper-realistic coral and other aquarium displays. Habitat® Black is also used for general sculpting and theming applications.

Once putty is applied, it can be stamped with a silicone rubber stamp to create repeating patterns with intricate detail over a large surface area. Surface can be smoothed with alcohol or water. New Habitat® Black will bond to cured Habitat® Black without delamination. Habitat® Black will not melt foam, and can be used as an EPS foam coating.

Free Form® Habitat® Black is also an excellent repair cement and bonds permanently to itself, PVC, Plexiglas® (acrylic), wood, many metals, plastics and foams.

TECHNICAL OVERVIEW

Mix Ratio: 1A:1B by weight or volume	
Mixed Viscosity: Dough	(ASTM D-2393)
Pot Life: 60 minutes	(ASTM D-2471)
Cure Time: 16 hours	
Specific Gravity, g/cc: 1.6	(ASTM D-1475)
Specific Volume, cu. in. /lb.: 17.3	(ASTM D-1475)
Color: Black	
Shore D Hardness: 85D	(ASTM D-2240)
Heat Deflection Temp. (ASTM D648) If cured at room temperature: 160°F/74°C if post cured according to heat curing schedule: 212°F/100°C	

* All values measured after 7 days at 73°F/23°C
** Depending on mass

PROCESSING RECOMMENDATIONS

Safety – Use in a well-ventilated area ("room size" ventilation). Generally, if you use any epoxy system on a regular basis, wearing a NIOSH approved respirator is advised. Wear safety glasses, long sleeves and rubber gloves to minimize skin contact. Wear nitrile or vinyl gloves only.

Rate Of Coverage - Assuming a thickness of 0.25 in. (6.3 mm), 1 lb. (454 g) of Free Form® Habitat® Black will cover approximately 71.6 in^2 (462 cm^2). The following table indicates coverage rate per size of Habitat® Black packaging.

Habitat® Black Unit Size	Coverage Rate
1-Gallon (20 lb./9.08 kg.)	10 ft^2 (0.92 m^2)
5-Gallon (100 lb./45.36 kg.)	50 ft^2 (4.6 m^2)
Drum (1100 lb./498.96 kg.)	525 ft^2 (50.6 m^2)

How Much Folding Powder Do I Need? - Amount of powder recommended per unit of Habitat® Black is as follows:

Habitat® Black Unit Size	Folding Powder Recommended
1-Gallon (20 lb./9.08 kg.)	1.5 lb. (680 g)
5-Gallon (100 lb./45.36 kg.)	8 lb. (3.6 kg)
Drum (1100 lb./498.96 kg.)	80 lb. (25 kg)

Preparation – Materials should be stored and used at room temperature (73°F/23°C). This product has a limited shelf life and should be used as soon as possible. Mixing should be done in a well-ventilated area. Wear safety glasses, long sleeves and rubber gloves to minimize contamination risk. **Before mixing materials, apply Folding Powder to work surface** in a 1/4" (6.3 mm) layer. Powder gloves with Folding Powder to eliminate sticking. **Because no two applications are quite the same, a small test application to determine suitability for your project is recommended if performance of this material is in question.**

Safety First!

The Material Safety Data Sheet (MSDS) for this or any Smooth-On product should be read prior to use and is available upon request from Smooth-On. All Smooth-On products are safe to use if directions are read and followed carefully.

Keep Out of Reach of Children

Be careful. Use only with adequate ventilation. Contact with skin and eyes may cause irritation. Flush eyes with water for 15 minutes and seek immediate medical attention. Remove from skin with waterless hand cleaner followed by soap and water.

Important: The information contained in this bulletin is considered accurate. However, no warranty is expressed or implied regarding the accuracy of the data, the results to be obtained from the use thereof, or that any such use will not infringe upon a patent. User shall determine the suitability of the product for the intended application and assume all risk and liability whatsoever in connection therewith.

Applying A Release Agent – This product is adhesive and will bond to many surfaces. For epoxy to epoxy applications where adhesion is not desired, an application of paste wax followed by Ease Release® 2125 PVA available from Smooth-On may be used. For other surfaces such as metal or plastic, a release such as Ease Release® 200 also available from Smooth-On may be used to prevent adhesion.

MEASURING & MIXING

Measuring - **Free Form® Habitat® Black** comes as two parts. Dispense equal amounts of Part A and Part B. These products have a limited shelf life and should be used as soon as possible.

Mixing - This product is mixed by hand. **You must wear gloves when mixing this material**, wearing vinyl gloves reduces inhibition risk. Knead parts together while folding powder into mixture. The amount of powder to add depends on desired working consistency. The more powder you add, the thicker the mixture becomes. Fold mixture into itself repeatedly until desired consistency is attained (3-5 minutes or a minimum of 20 folds).

APPLYING

Apply by gloved hand to horizontal, vertical or inverted surface. Important; pot life and cure time are reduced with elevated temperatures.

Stamp, Sculpt or Mold - Once in place, putty can be stamped using a rubber stamp (Rebound 25 silicone). Apply alcohol to stamp detail before using for precise detail and to keep stamp clean. Sculpt using gloved hands or tools. Putty can also be pressed into a silicone rubber mold to reproduce detail.

Smoothing Surface – Epoxy surface can be smoothed with water or isopropyl alcohol. ***Option;*** cover putty surface with clear plastic food wrap and smooth or sculpt with hand or tool. Leave wrap in place until material cures and remove. Cured surface will have a high gloss finish.

CURING, POST CURING & HEAT RESISTANCE

Curing and Heat Resistance – Habitat® Black will cure in 16 hours at room temperature. Elevated heat will cure epoxy faster. At an ambient temperature of 150°F/60°C, the material will cure in as little as 30 minutes. A heat gun may also be used, as long as the surface temperature of the Habitat® Black does not exceed 212°F/100°C. Putty cured at room temperature with a minimum thickness of ½" (1.27 cm) will resist temperatures up to 165°F/74°C.

Post Curing - For higher heat resistance, cured Habitat® Black can be heat post-cured in a dedicated industrial oven. Cure at 175°F/80°C for two hours, followed by three hours at 212°F/100°C. Thin sections may need to be supported during post curing. Allow material to cool to room temperature before use.

MACHINING, PAINTING & CLEAN UP

Machining – Cured castings are rigid and durable. They resist moisture, moderate heat, solvents, dilute acids and can be machined, primed/painted or bonded to other surfaces (any release agent must be removed). If machining cured **Free Form® Habitat® Black** plastics, wear dust mask or other apparatus to prevent inhalation of residual particles.

Painting – Cured **Free Form® Habitat® Black** can be primed and then painted with acrylic enamel paints. Let paint fully dry before putting part into service.

Removing Uncured Free Form® Habitat® Black - Remove as much uncured material from the surface as possible. Clean any residue with soap and water. **Optional** - Use **E-POX-EE KLEENER®** available from Smooth-On.

For helpful mixing and application tips, visit www.smooth-on.com/habitat

Call Us Anytime With Questions About Your Application.
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