

# Free Form® Habitat® Fire Safe®

Flame Rated Mix & Apply-By-Hand Epoxy Dough



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## PRODUCT OVERVIEW

**Free Form® Habitat® Fire Safe®** epoxy putty is a high density epoxy sculpting putty that is flame rated (E84, Class A). Habitat® Fire Safe® is solvent-free and contains no VOC's. Working time is 90 minutes and cure time is 16 hours at room temperature (73° F/23° C). Epoxy cures to a very hard, flame and heat resistant material that is easily painted. Habitat® Fire Safe® does not contain any carcinogens (cancer causing agents).

Free Form® Habitat® Fire Safe® is suitable for interior and exterior theming applications and general sculpting. It is also certified 'aquarium safe' and is used by aquariums and zoos to make hyper-realistic trees, vines, rocks, coral and other display elements.

**Use with Habitat® 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.

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® Fire Safe® will bond to cured Habitat® Fire Safe® without delamination. Habitat® Fire Safe® will not melt foam, and can be used as an EPS foam coating. Free Form® Habitat® Fire Safe® 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:** 90 minutes (ASTM D-2471)

**Cure Time:** 16 hours

**Specific Gravity, g/cc:** 1.44 (ASTM D-1475)

**Specific Volume, cu. in. /lb.:** 17.3 (ASTM D-1475)

**Color:** Neutral

**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® Fire Safe® will cover approximately 71.6 in<sup>2</sup> (462 cm<sup>2</sup>). The following table indicates coverage rate per size of Habitat® packaging.

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

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

Habitat® 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** – For releasing epoxy from non-porous surfaces such as resin, metal, glass etc., use Ease Release® 200 or 205 (available from Smooth-On) to prevent adhesion.

## MEASURING & MIXING

**Measuring - Free Form® Habitat® Fire Safe®** 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® Fire Safe® 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® 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® Fire Safe® 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® Fire Safe®** epoxy, wear dust mask or other apparatus to prevent inhalation of residual particles.

**Painting** – For outdoor display, cured **Free Form® Habitat® Fire Safe®** can be primed and then painted with acrylic enamel paints. Let paint fully dry before putting part into service.

**Removing Uncured Free Form® Habitat® Fire Safe®** - 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](http://www.smooth-on.com/habitat)**



**Call Us Anytime With Questions About Your Application.**

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The new [www.smooth-on.com](http://www.smooth-on.com) is loaded with information about mold making, casting and more.

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