

SILPAK HARDCAST

100% Solid, Castable, Polyurethane Resin System

Hardcast A/B is an unfilled, 100% solid castable urethane plastic system. It is an odorless, low shrink plastic that exhibits low reactivity temperature (170F - 77C maximum) with excellent durability, impact resistance, excellent rigidity, and high heat resistance. Once cured, it can be machined, sanded, and drilled. Material can either be hand or meter mixed. Fillers can be added to adjust cost, appearance, and function.

Features

- 100% solid
- Low shrink
- Excellent durability
- Excellent rigidity

Applications

Use to create parts that where durable plastic parts are needed including the following:

- Model kits
- Production parts
- Prototypes
- Plastic parts
- Roto-casting
- Picture frames

Physical and Handling Properties

Property	Value
Color	Tan
Mix Ratio, by weight	1A : 1B
Initial Viscosity, Part A, cP	80
Initial Viscosity, Part B, cP	90
Initial Mixed Viscosity, at 77°F, cP	85
Hardness, Shore D	75
Gel Time, min	3
Demold Time, min	15-20
Specific Gravity	1.04
Tensile Strength, psi (ASTM D-412)	4800
Elongation, % (ASTM D-412)	7.5
Izod Impact—Notched, ft-lb/in (D-256)	0.75
Flexural Modulus, psi (D-790)	160,000
Flexural Strength, psi (D-790)	6300
Heat Deflection Temperature, °F (D-648)	176

Values listed above are typical and not intended for use in specifications.

Proper Use and Safety

Read all instructions and safety data sheets prior to use. Consult safety data sheets for all recommended safety precautions.

Mixing

Parts A and B should be at room temperature, above 75°F, prior to use. Use appropriate plastic mixing containers and spatulas (tongue depressors and paint sticks are acceptable) that are clean and moisture free. Part B should be shaken or properly stirred prior to use. Weigh or measure appropriate amounts of A and B in container. Combine components and immediately mix, thoroughly scraping sides and bottom for 20-30 seconds before pouring into silicone mold. If mold is non-silicone, use an appropriate release agent such as **Silpak ER 2300**. If using filler, ensure that filler is moisture free and premix into Part A using a high shear mix head such as an airless Jiffy Mixer Blade. It is important to note mixing this product off ratio can cause oily surfaces, which will limit paint adhesion.

Curing

Do not disturb the mold until part is ready to be demolded. Prematurely demolding parts may cause deformation, especially in thin areas. Preheating molds to 100°F, prior to casting, will expedite cure, especially for thin section parts. Low temperatures will slow curing time and extend the demold time. Curing & gel times are influenced by many variables, including size of mix, part's shape, filler content, ambient temperature, and age of material.

Finishing

Unfinished castings are subject to discoloration, yellowing, and chalking when exposed to direct or indirect sunlight and should be painted, coated, or sealed. Oil-based paints work well. Using an oil-based primer will improve paint adhesion. If release was used, wash the surface with grease dissolving soap or mineral spirits before painting. It is best to perform any finishing when parts are fully cured, 24-72 hours at 75°F.

Storage & Shelf Life

Part A and B must be stored in their original, tightly closed containers to protect from moisture and foreign materials. Storage area should be maintained at temperatures between 64-86°F. Shelf life of materials when kept in unopened, sealed containers, at the recommended storage conditions, is six months. Containers should not be opened until ready or use. Once opened, storage life can be extended with the use of purging gas, such as nitrogen.

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