

SILPAK SP-400-12 A/B

12 Pound Polyurethane Flexible Foam

SP-400-12 A/B is a liquid, two-component, self-skinning, non-CFC, polyurethane flexible foam system. It has a density of 12 lb./ft³. It offers excellent flow and fast demold time for increased production cycles. Thickness of the skin can be easily controlled by proper mold temperature settings and the amount of mixed product packed into the mold. This foam can be hand mixed or machine dispensed depending on batch size. Color can be customized with [Silpak CU Pigments](#).

Features

- 12 lb./ft.³ density
- Self-skinning
- Non-CFC flexible foam
- Excellent flow
- Fast demold time
- Customizable color

Applications

Ideal for making molded components for aircraft, automobile, recreation vehicle and furniture industries. Also recommended for special effects or any application where low density flexible foam is required.

- Prototype arm rests
- Prototype crash pads
- Prototype dashboards
- Prototype head restraints
- Prototype side panels
- Prototype steering wheels
- Puppets

Physical and Handling Properties

Property	Value
Color	White
Mix Ratio, by weight	1A : 2B
Initial Viscosity, Part A, cP	2,000 - 2,500
Initial Viscosity, Part B, cP	100
Density, lb./ft. ³	12
Expansion Rate, volume	5x
Cream Time, sec. at 77°F	60
Rise Time, sec. at 77°F	150 - 200
Demold Time, min. at 77°F	20 - 40

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

Accessories

- Colorant:** Use [Silpak CU Pigments](#), added to the Part B only at 1-2%. Castable urethanes are affected by direct and indirect sunlight and should be painted with oil-based paint to protect color and surface.
- Release:** Use PartAll Paste Waxes, Hi temp Wax or Paste #2 as a mold release for hard tooling molds. Or use PartAll Film #10, PVA liquid release, which can be cleaned with warm soap and water.

Proper Use and Safety

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

Mold Preparation

Polyurethane foams adhere to most surfaces and a release agent should be applied prior to casting. For non-silicone molds (Plaster, Urethane RTV Rubber, Metal) a suitable release is recommended - PartAll Paste Wax, PartAll Film #10 (PVA) or Vaseline (Petroleum Jelly). Mold should also be completely free of any moisture. For optimal castings, mold should be heated to 80-125°F for initial casting. Once heated and cycled, mold should maintain heat for continued production.

Mixing

Shake or stir the A & B components prior to pouring weighted amounts. Material should be at good working temperature, roughly 80°F. Mix materials by recommended weight of A and B; off ratio mixes can result in poorly formed parts and surface finish. A quick, high-speed mix using a Jiffy Mixer blade attached to a drill motor or air motor works best. A mix time of 10-15 seconds is required to thoroughly integrate A & B. Over mixing or under mixing can result in rejected parts. Pour immediately into mold cavity, swishing liquid over mold surface to improve product's surface skin and allow mold to remain undisturbed until foam has cured. Small batch mixes are easily achieved using fast, aggressive mixing methods. Several experimental parts will be needed to adjust the amount of material to achieve a satisfactory part.

Curing & Demolding

Leave mold undisturbed until part is fully cured, 15-25 minutes. As foam rises, avoid agitating or vibrating the mold, which may cause the foam cell structure to collapse. De-molding times with urethane flexible foams will change with size of cast piece and temperatures of materials and tools. Allow additional curing time for smaller size parts.

Over-packing foams by 3-5% over their free-rise density is recommended to achieve best surface detail and mold fill. Proper mold venting such as the use of bleeder paper or a vented lid (holes drilled in various areas) that allows air to escape as foam rises should be firmly clamped in place prior to material rise. Once rise begins, avoid agitating or moving molds, which may cause foam cells to collapse. Castings should remain in mold until cured.

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 before painting.

Storage and 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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