Description

HydroSpan 100 is a unique two component, Flexible, 100% solids (contains no V.O.C.), polyurethane elastomeric compound. HydroSpan 100, when fully cured provides a simple method for expanding three dimensionally molded parts. Expanding parts is done by simply molding the part with HydroSpan 100 to from a rubber master. After curing 24 hours at room temperature the molded HydroSpan 100 part is soaked in room temperature water and allowed to expand. Full expansion is 161% larger than the original part. Full expansion of parts can be achieved in 5 to 14 days depending on cross section thickness of the part. Thicker cross sections take longer while thinner cross sections require less time.

Application

HydroSpan 100 is packaged in convenient 3-quart, 3-gallon or 15-gallon kits. Liquid containers should be maintained at 72° F for best results. Warmer temperatures will decrease working life; cooler temperatures will increase application time. Choose a work area that is free from visible moisture and capable of maintaining a temperature range of 70° F to 90° F. After temperature stabilizing the liquid component A and component B to 70° F to 80° F, remove the lids of each container and stir Component B thoroughly using a flat hand held spatula or jiffy mixer and electric drill (both are available from Industrial Polymers, Inc.). Gloves, eye protection and respirators must be worn during spray application (see Industrial Polymers material safety data sheet for more details).

Mix Ratio

Mix two (2) parts of component A to one (1) part of component B by weight (use maximum batch size of no more than two (2) quarts of component A to one (1) quart of component B [2/3-gallon total mix]). Pour both components into a clean one (1) gallon plastic pail and quickly mix using a spatula for batch sizes of ½ gallon or less or jiffy mixer and electric drill for larger batch sizes, take care to scrape side of pail with a flat spatula to include all of the unmixed liquid (do not use square or round rod as mixers). Mix for about 1 minute and quickly pour into the prepared mold. After about 6 to 8 minutes HydroSpan 100 thickens to a gel like consistency. It is important to have all pouring completed before this occurs.

Mold preparation

HydroSpan 100 can be molded in almost any kind of mold as long as it is fully prepared before filling with uncured polymer. Release agents used in the molding process inhibit the absorption of water thus slow down the expansion of the part. All waxes and release agents should be thoroughly removed with mineral spirits or acetone before the part is soaked in water. Parts molded in silicone mold require no preparation before soaking. All surfaces should be free of dirt and visible moisture. Depending on relative humidity and temperature, parts can be handled in 1 to 2 hours. Full cure is attained in 24 hours at 72° F.

Expanded Parts

Once the HydroSpan parts have expanded to the desired size a final mold should be made as soon as possible. If mold is made from flexible RTV urethane or silicone rubber, a light layer of Vaseline petroleum jelly should be applied to prevent any unwanted reaction of the absorbed water in the HydroSpan 100. Expanded HydroSpan 100 parts will shrink back to their original size if allow to dry out.

Typical Properties

	Viscosity	Specific Gravity	Weight Per Gallon
Component A	2000 cps	1.103	9.20 lb.
Component B	600 cps	1.0207	8.51 lb.
Mixed	1200 CPS	1.0747	8.96 lb.

Mixing Ratio	
By volume	100 parts A to 54 parts B
By weight	100 parts A to 50 parts B

Work life	6 to 8 minutes @ 72° F
Cure time	24 hours @ 72° F
Cure time and demold depend on temperature and relative humidity	

Physical Properties

	Test Method	Value
Hardness	ASTM 2240-85	40 Shore A
Elongation	ASTM D 412	100 %
Expansion Rate	@ 14 day/ 72° F	161 %

Storage
Shelf Life

HydroSpan 100 liquids should be stored in the original, unopened containers in temperature between 75° F and 85° F (24° C and 29° C). Shelf life of materials when kept in unopened sealed containers, at the recommended storage temperature is six months. Containers should not be opened until ready for immediate use. When resealing opened containers purge with dry gas, **Dry-It** (available from Industrial Polymers, Inc.). To avoid air entrapment, undue agitation of containers should be avoided.

Packaging

HydroSpan 100 is available in convenient 3-quart, 3-gallon and 15-gallon kits.
HydroSpan 100 has a non-hazardous rating for shipping.

Problem Solver

Problem	Reason	Solution
Material Sets too quickly	Liquid components too warm before using	Condition liquid to 72° F
		Purge liquid containers with Dry-It after days use
Uneven color color rubs off	Color is not completely dispersed	Stir color into component B before adding component A
Surface bubbles	Moisture contamination	Application surface should be dry
		Must be allowed to cure overnight in a dry environment
Cured HydroSpan 100 will not expand	Mold release agent on surface	Clean cured parts with mineral spirits or acetone before soaking in water or Use Silicone molds
Sticky spots	Uneven mixing	Premix exactly 2 part A to 1 part B by Weight
		Do not mix more than ½ gallon by hand, larger batch sizes require a Jiffy mixer and electric drill
		Use a flat spatula