

How to cast smaller scale replicas from larger masters

Method 1 – Make the part shrink

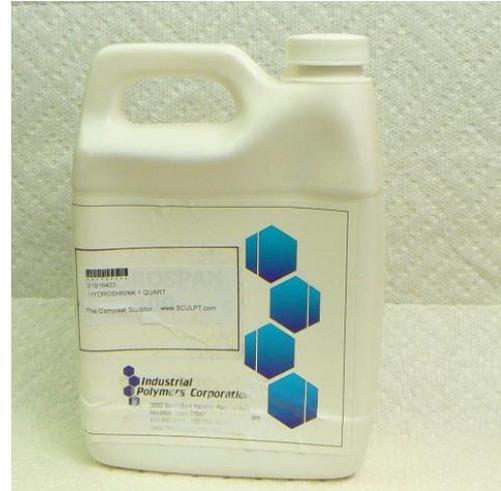
- **Cast a part with Hydrosan 400 (also known as Hydroshrink)**

Available from Industrial Polymers Corp. Houston, TX (800) 766-3832

Also available from The Compleat Sculptor New York, NY (800) 9-SCULPT or www.sculpt.com

Currently \$42.99 per quart

- **This material is very sensitive to moisture, so only use it during the heating season.**
- **Mix 3.5 to 5 parts chilled water with chilled Hydrosan 400**
- **Pot life is about 13 seconds so plan ahead!**
- **The set mixture has very little tear strength, so avoid details that stand off from the main casting.**
- **Mixture will set in about 30 seconds, after which it can be removed from the mold.**
- **The water will slowly evaporate back out of the casting, leaving a part that is 50-60 percent of the original size.**
- **A food dehydrator reduces the drying time but is not necessary.**
- **The dried part cannot be cut or sanded so a resin copy must be made from it.**
- **The dried part may have pock marks, lumps, or distortion.**
- **Details with thin cross sections will not be self-supporting.**



Method 2 – Make the mold shrink

- **Mix a volatile compound such as Naphtha with RTV**

The Naphtha will slowly evaporate back out of the RTV rubber, reducing the size of the mold. The mold will shrink in proportion to the amount of Naphtha used, down to about 77% of the original size is possible (see graph on back).

- **Naphtha is dangerous, so be careful!**
- **Consider using an accelerator to get the Naphtha/RTV to cure in a reasonable time. I use Smooth-On Accel-T with Mold-Max 30 RTV rubber.**
- **The dried-out mold will have lower tear strength, so use mold release and don't expect a lot of castings from it.**
- **A safer alternative is to use Smooth-On NOVOCs mixed with Mold-Max 14NV, however NOVOCS is still flammable and its reduction capability is reduced. A 50/50 mix of NOVOCS and Mold-Max 14NV resulted in a 15% size reduction.**



Volume Percent Naphtha vs Linear Reduction - Mold Max 30 RTV

