

Expandable Rubber & Reducible Resin

Poly 34-218-1 Reducible Resin

Poly 34-218-1 is a one-part polyurethane rubber designed to reduce the size of three-dimensional parts while maintaining the surface detail of the original part. A mold must be made of the original part and then properly prepared to accept Poly 34-218-1 Reducible Resin. Platinum-cured silicone rubbers are the most suitable mold material for this process; however, a polyurethane mold rubber can be used when the proper release agent is applied prior to casting Poly 34-218-1.

Mix 75 parts Poly 34-218-1 Reducible Resin with 25 parts hydrocarbon solvents such as xylol, toluene, mineral spirits or glycol ethers. Then mix 100 parts resin/solvent mix with 300 parts water. Using very cold water can help to extend the working time of this fast-setting resin. Mix and pour within 25 seconds. Pot life is 60 seconds. Within ~5 minutes, the rubber will cure to a Shore OO30 rubber.

Full reduction of parts can be achieved in 1 to 14 days depending on the thickness of the part. The part may be placed in a 140°F or lower oven to accelerate the shrinkage time. Accelerated shrinkage in an oven for large mass parts may cause the part to split. For best results, allow part to shrink slowly. The rubber is expected to shrink 90%, or 1/10, its original size based on area; 60% its size in linear dimension. Thicker cross sections take longer while thinner cross sections require less time. You must monitor the shrinking process until the desired size is reached. If part is not allowed to shrink fully, the part may be distorted whereas, thinner sections of the part will shrink faster than thicker sections of the part. Shrinkage can be controlled by mixing the prepolymer/solvent mixture with lower amounts of water.

Once the desired shrinkage is reached, a final mold should be made of the part.

Poly 25-114-10 Expanding Rubber

Poly 25-114-10 is a two-part, room temperature curing polyurethane rubber designed to expand the size of three-dimensional parts while maintaining the surface detail of the original part. A mold must be made of the original part and then properly prepared to accept Poly 25-114-10 Expanding Rubber. Platinum-cured silicone rubbers are the most suitable mold material for this process; however, a polyurethane mold rubber can be used when the proper release agent is applied prior to casting Poly 25-114-10.

The mix ratio by weight is 1A to 1B. Combine proper amounts of A and B in a clean mixing container. Close container tightly after use. Mix well, scraping sides and bottom several times. Pour into a properly prepared mold or model as soon after mixing as possible. Demold after 24-48 hours at room temperature. Place cured rubber in water until rubber has completely expanded.

Full expansion of parts can be achieved in 1 to 14 days depending on the thickness of the part. Thicker cross sections take longer while thinner cross sections require less time. If part is not allowed to expand fully, the part may be distorted whereas, thinner sections of the part will expand faster than thicker sections of the part. Cured rubber is expected to grow 5 times, or 550%, its size based on area and 2 times, or 100%, its size in linear dimension.

Once the Poly 25-114-10 parts have expanded to the desired size, a final mold should be made as soon as possible. Expanded parts will shrink back to their original size if allowed to dry out.