

Douglas and Sturges, Inc.

SCULPTURE TOOLS, MATERIALS AND SUPPLIES

Warehouse and Store: 1023 Factory St. Richmond, CA 94801
Store: 730 Bryant St. San Francisco, CA 94107
Ph.: (510)235-8411 Fax: (510)235-4211

Ultraflex

Ultraflex is a thermoplastic elastomer created for casting highly elastic and tear resistant parts. Ultraflex is available in a variety of hardnesses for specific applications. These thermoplastics are remeltable and reusable and can be reprocessed several times without meaningful loss of properties. This means that scrap material or rejected parts can be reprocessed which gives Ultraflex a significant advantage over other elastomers such as silicone, polyurethane and latex. These products are water clear and can be readily colored using heat stable organic dyes or pigments to give brilliant transparent colors or mixed with conventional inorganic pigments and fillers to give opaque colors. Pure white and delicate pastels to strong vibrant colors can be achieved using dry pigments or pigment dispersions in DOP or oil based carriers.

Molded products made from Ultraflex elastomers can be made by simply casting into open-faced molds or by the utilization of low pressure injection molding equipment. Steel, aluminum or nickel metal molds can be created by spray metal forming, electro forming, casting or machining. Other typical rigid mold materials include plaster, rigid urethanes, epoxies and fiberglass. It is possible to cast Ultraflex into other flexible mold materials such as silicone and polyurethane elastomer as well. Products molded from Ultraflex elastomers release well from a variety of mold surfaces and generally do not require the use of mold release agents.

We are currently offering three different Ultraflex products to give a range of properties. Firm Ultraflex is approximately a Shore A hardness of 15, the medium grade is a Shore A of 7 and the Soft is 00 and is very flesh like. It is possible to blend various grades of Ultraflex to achieve a product of a specific hardness if so desired. It is also possible to layer these products to give other kinds of effects.

Ultraflex comes in block form and is easily melted in readily available melting or cooking equipment. Probably the simplest way to melt the Ultraflex for small casting applications and/or research and development would be to use an electric powered frying pan. These are generally available with a temperature control device to define the temperature range of the pan. Ultraflex products melt in the range of 250-390 degrees F. To use, simply place the slab of Ultraflex in the melter and set at 350 degrees to start. If you want to melt small quantities of Ultraflex, the slabs can be cut into small strips using a good pair of scissors. Once the melt has begun, the melter can be adjusted up or down depending on the amount of product being melted. Keep the pan covered to minimize the loss of heat and plasticizers from the Ultraflex. Once the Ultraflex has become fluid, it can be poured into the mold and allowed to cool into the solid form.

If the Ultraflex is to be colored it is best to add your color of choice while the Ultraflex is in the molten state. There will be no significant change in color intensity of hue from the molten state to the cooled, solidified state, so it is possible to adjust the color "on the fly".

Once the Ultraflex has reached a molten state and the desired color is achieved it may be simply gravity poured into your mold. It is important to protect oneself from the potential of getting a thermal burn so it is recommended that the user wear protective gloves and aprons to prevent direct skin contact with the molten Ultraflex. Treat the Ultraflex as you would any hot cooking oil.

After your mold has been filled, it is simply a matter of waiting until the Ultraflex cools to a solid state. This can be accelerated by placing the Ultraflex filled mold into a refrigerator, or by simply waiting until the material cools to a "cool to the touch" state. As stated before, no release agents are generally needed to create Ultraflex parts from a wide variety of mold materials. Of course it is imperative that the mold material used be able to withstand the temperature of the molten Ultraflex without introducing gasses or other detrimental conditions/effects to the cast part.

"The information and data contained herein are based on information we believe reliable. Each user of the material should thoroughly test any application and independently conclude satisfactory performance before commercializing. Suggestion of uses should not be taken as inducement to infringe on any particular patent."

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