Care and Feeding Instructions for
EasyMount Chambers

The EasyMount chambers have been machined from high quality acrylic resin. While acrylic is known to be very tough – one might even say "bullet proof" – it is not indestructible and does require some precautions.

The general physical characteristics of acrylics are:
Transparency - In colorless form acrylic plastic is as transparent as the finest optical glass. Its total white light transmittance is 92%, the highest transmittance physically possible of any material.

Breakage Resistance - Acrylic sheet has from 6 to 17 times greater impact resistance than ordinary glass. It does chip, however, and when dropped onto a hard surface it is likely that the edges will be damaged. Also, because the part has been subjected to stresses during machining, it is possible that a sudden impact will cause the chamber to crack.

Chemical Resistance - Acrylic plastic has excellent resistance to most chemicals, including solutions of inorganic alkalis and acids such as ammonia and sulfuric acid, and aliphatic hydrocarbons such as hexane, octane and VM&P naphtha.

Acrylic is ***attacked*** by the following chemicals:

1. **Ethyl and methyl alcohol.**
2. Chlorinated hydrocarbons such as methylene chloride, a solvent cement widely used, and carbon tetrachloride.
3. Aromatic solvents such as turpentine, benzene, and toluene.
4. Gasoline
5. Organic acids such as acetic acid, phenols, and Lysol.
6. Lacquer thinners and other esters, ketones, and ethers.

The chambers have been annealed after machining to relieve stress in the material and to increase the resistance to attack by these chemicals. They are not, however, impervious and exposure to some of these above may cause the appearance of minute cracks or crazing throughout the material. We recommend that you avoid exposing the chambers to these solvents.

Dimensional Stability - Acrylic sheet is notable for its freedom from shrinking and deterioration through long periods of use.

Combustibility - Acrylic sheet is a combustible thermoplastic and should be treated as an ordinary combustible material such as wood. The self-ignition temperature (spontaneous combustion) of acrylic is between 850 degree F and 869 degree F. The temperature at which the material will ignite in the presence of a flame is between 550 degree F and 570 degree F. Bottom line - the chambers may be damaged by fire or drying them in a hot oven.

Heat Resistance - The maximum "continuous service temperature" of acrylic is about 180 degrees F. Procedures that may increase the temperature above this should be avoided. While the material can withstand higher temperatures for very short periods of time, it will soften and lose its form or shape if subjected to these higher temperatures for any period of time. Procedures to avoid would be placing the chambers in a microwave (the material contains enough moisture to heat considerably), drying the chambers in an oven, and sonicating at high power as this may cause

local heating above the melting point. While acrylics respond to heat, they are not affected by cold, and will not become cracked or brittle in cold.

Electrical Properties – The surface resistivity of acrylics is higher than that of most other materials making it a good material for isolating the two sides of an epithelium.

U-Factor - heat transfer through acrylic is approximately 20% less than through equivalent thickness of glass.

Cleaning the Chambers:

The chambers should be washed in warm water using a mild detergent and then rinsed rigorously with deionized water. We recommend air-drying while placed inverted on a rack or toweling.

WARNING: Sonicating the chambers at high energy levels and/or for long times can raise internal temperatures in the acrylic sufficiently to cause melting, deformation of channels, and cracking. Cleaning by sonication is, therefore, not recommended.

Note on stainless steel guide pins: Some of the stainless steel guide pins were made from type 416 stainless. Unfortunately, this type of stainless is less rust resistant than others and we have recently experienced problems with them "rusting" at their tips. Chambers shipped after Oct, 2001 all use type 18-8 stainless, which is more rust resistant and should not present any rust issues. Please contact us if you experience rust problems with any of our chambers.

Although stainless is more resistant to corrosion than mild steel, the name of the metal is a bit misleading. The basic corrosion resistance of stainless steel occurs because of its ability to form a protective coating on the metal surface due to the combining of oxygen with the chrome in the stainless to form chrome oxide (commonly called ceramic). This coating is a passive film that prevents oxidation of the iron in the steel (rusting). Unfortunately, this film is subject to attack by halogen salts, and chlorides are especially good at penetrating this passive film. Once broken, corrosive attack or "rusting" can occur. Since most physiological saline solutions contain chloride the guide pins are frequently exposed to chloride salts. Also, sterilizing the chamber with Clorox bleach will expose the pins to high concentrations of halide. We suggest routinely protecting the pins as follows. Firstly, remove any rust spots from the pins using a brass, silver, or chrome cleaner. Then, after normal use, rinse the pins with distilled water and dry them by wiping with a cloth containing a little silicone car wax. This will protect them and make them slide easily into the chamber.

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