



## Lead X-Ray Glass vs. Lead Plastic Acrylic

MarShield is often questioned as to which product should be applied. To aid you in your purchasing decision we have included the list below of the differences between the two products:

- Lead Glass is very fragile and can/will break or shatter if not handled with care.
- Lead-Acrylic is a rugged shatter-resistant product.
- Lead Glass may have a hand polished surface that is scratch resistant, however lead glass can and will scratch - although not easily.
- Lead-Acrylic has the ability to scratch while cleaning because of its softer surface, which also reduces its light transmittance and clarity. Scratches can usually be polished out with some skill.
- For the same lead equivalent, Lead-Acrylic has to be approximately 5 times thicker than Lead Glass, significantly reducing observation capabilities. Example 2.0 mm Lead Glass would be 5/16" thick and Lead-Acrylic would be approximately 1-1/2" thick for the same protection.
- Lead-Acrylic discolors when exposed to ultraviolet rays. Lead-Acrylic is also susceptible to discoloration from chemicals in everyday use, such as cleaning materials... or even smoke. Lead Glass has a high chemical resistance as well. Lead Glass suffers little or no discoloration due to radiation. While this may be true – it is the ionizing radiation generated by the x-ray imaging equipment that has been known to darken or deteriorate the Lead Glass over time. It usually ends up much darker overtime than Lead-Acrylic.
- Lead-Acrylic is supplied in a light amber tint that has a calming/relaxing effect on patients and medical personnel. There will be no noticeable darkening in the color of the Lead-Acrylic.
- When looking at the weight factor for the same size of Lead Glass or Lead-Acrylic with equal lead equivalencies, the Lead-Acrylic has nearly twice the weight of Lead Glass (approximately 1.8 times).
- For comparing light transmittance using the same lead equivalent, Lead Glass transmits more light than Lead-Acrylic. The refractive and reflective indices of Lead-Acrylic are less than Lead Glass. Therefore, Lead Glass will create more annoying reflections causing eye strain to medical personnel. When a light beam passes through a plate with optically polished planes, reflection occurs at both surfaces. Since Lead-Acrylic has a lower refractive index than Lead Glass, it has much less reflection.
- Lead glass is an incombustible material because its glass. Lead-Acrylic is combustible when it burns, it will emit toxic fumes. When Lead-Acrylic is cut, it may emit toxic fumes. This does not happen with Lead Glass.
- Lead-Acrylic contains 30% lead by weight.
- Maximum sheet sizes for Lead-Acrylic are 72" wide x 96" long and Lead Glass is 48" wide x 96" long.
- When shipping Lead glass is more prone to breakage than Lead-Acrylic. Lead glass must be shipped on its edge and never laid flat. Crates must not be stacked upon or dropped. Lead-Acrylic can be shipped flat or upright and if necessary can be stacked upon.