



T E C H N I C A L D A T A



CYRO Industries
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Acrylite® OP-3

ACRYLIC SHEET

ACRYLITE® OP-3 acrylic sheet is a continuously manufactured acrylic sheet specifically formulated to offer excellent ultraviolet (UV) filtering characteristics. Its light weight, superior impact resistance, and ease of fabrication, make it an ideal choice for framing articles of value. ACRYLITE OP-3 sheet is also available with a matte P-99 finish to reduce glare. ACRYLITE AR OP-3 sheet combines the same UV protection with an abrasion and chemical resistant coating.

Why is it important to use a UV-filtering material?

Fabrics and paper become brittle, fade in color, or turn yellow when exposed to sunlight. Those changes are mainly due to exposure to the UV-light in solar radiation.

If a "Probable Relative Damage" (PRD) factor is assigned for different wavelengths of light, the shortest UV rays would rank highest and the factor would decrease exponentially with increasing wavelength. For example, the PRD factor for UV-light of 300 nanometers (nm) would be approximately eight, for UV-light of 380 nm, one, and for visible green light of 500 nm, .03. This illustrates the importance of filtering out UV-light to protect valuable framables.

How does UV-light damage documents and prints?

Natural high polymers from cellulose and protein are decomposed by solar irradiation with a high percentage of UV-light. Cellulose fibers, from which paper is made, are particularly sensitive to UV-radiation. In conjunction with water, which is always present in the fibers, and under UV-radiation, atmospheric oxygen reacts with the water to form hydrogen peroxide. This results in a gradual oxidative breakdown of the cellulose. This breakdown is the main factor causing decomposition of cellulose in light. Consequently, because oxygen and moisture cannot be eliminated, every precaution has to be taken to prevent the exposure of valuable articles of paper or cellulose fiber to UV-light. Similar reactions can be seen in some pigments, causing colors to fade.

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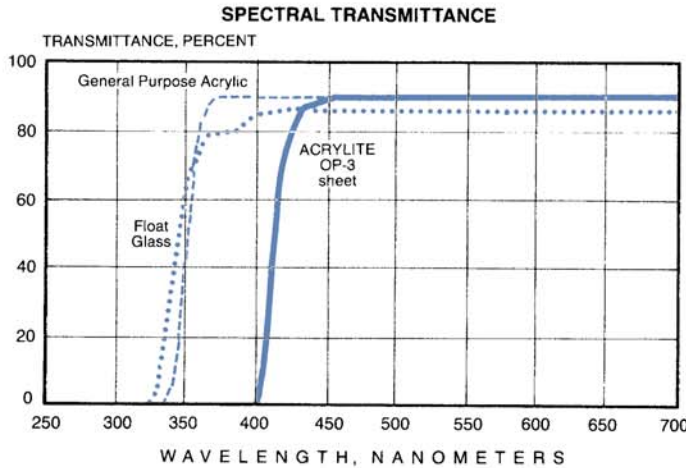
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Where is UV-light present?

UV-light is naturally present in sunlight. Approximately 6% of the total irradiated solar energy is in the UV range between 320 and 380 nm. But UV-light can also be present in artificial light. Specifically, halogen lamps emit a considerable amount of UV-light, and even common fluorescent lamps emit light in the UV range.

The following chart shows the light transmission of ACRYLITE OP-3 UV-filtering acrylic sheet, general purpose acrylic sheet, and float glass. It illustrates that general purpose acrylic sheet and float glass only filter out a small amount of the UV-light present in solar radiation, whereas ACRYLITE OP-3 sheet absorbs approximately 98% of the UV light. A further shift of the ACRYLITE OP-3 sheet curve to the right would cause absorption of blue visible light and cause a yellowish appearance of the framed object.



1/8" Nominal Thicknesses
Typical value, not a specification.

Fabrication and Formability

ACRYLITE OP-3 sheet can be easily fabricated. The same cutting, routing, drilling, and forming techniques used with ACRYLITE FF sheet can be performed on ACRYLITE OP-3 sheet. Refer to ACRYLITE FF sheet technical literature for specific details.

For prototype samples call: 800-631-5384

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