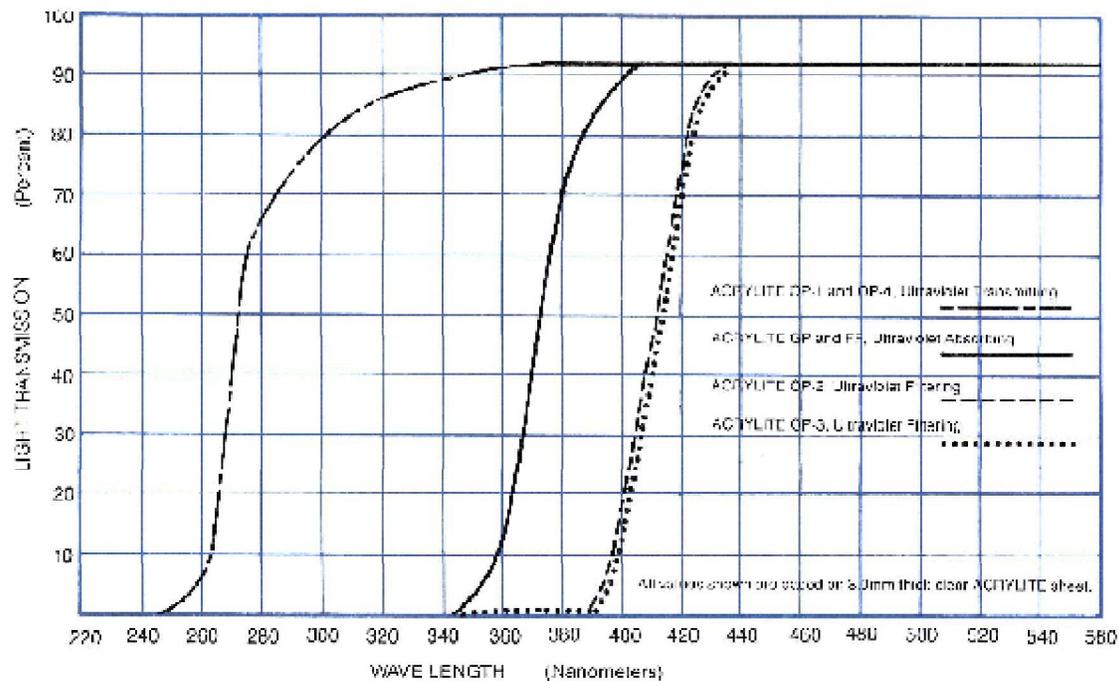


Ultraviolet Radiation

Graph 2: UV Light Transmission of Colorless ACRYLITE GP, ACRYLITE FF, ACRYLITE OP-1, ACRYLITE OP-2, ACRYLITE OP-3 and ACRYLITE OP-4 sheet (Approximation only – not a specification).



Although ultraviolet (UV) radiation amounts to only 3% of the total radiation that reaches the earth, it is energetic enough to cause chemical reactions, weathering of polymers, fading of certain dyes and even eye damage.

The UV spectrum is commonly divided into three ranges:

1. **UV-C, 200 – 290 nm**
2. **UV-B, 290 – 315 nm**
3. **UV-A, 315 – 400 nm**

Wavelengths in the UV-A range are responsible for tanning and pigmentation of the human skin. Wavelengths in the UV-B range cause the most photochemical degradation in plastics as well as sunburn. UV-C radiation is absorbed in the ozone layer and never reaches the earth's surface.

Colorless ACRYLITE GP (cell cast) and ACRYLITE FF (continuously manufactured) sheet have very small amounts of light transmission below 345 nanometers. In the range from 345 to 395 nanometers, the light transmission varies with sheet thickness. Between 395 and 1000 nanometers, all thicknesses transmit 92%. Smooth, colorless ACRYLITE GP and ACRYLITE FF sheet are warranted for ten (10) years to not undergo a change in light transmission exceeding 3%.

ACRYLITE® OP-1 (ultraviolet transmitting) acrylic sheet transmits much of the radiation in the range from 260 - 370 nanometers. Above 370 nanometers, it has light transmission properties similar to colorless ACRYLITE GP and ACRYLITE

FF sheet. ACRYLITE OP-1 sheet is typically used in scientific and instrument applications where maximum UV light transmission is required. Because this product contains no stabilizers, it will degrade under intense and prolonged UV light exposure. Therefore, it is not suitable for use in sun tanning beds.

ACRYLITE® OP-2 (ultraviolet filtering) acrylic sheet is a cell cast sheet product that absorbs approximately 98% of the incident UV light. It is used in museums to protect historical documents and artifacts from the harmful effects of ultraviolet rays.

ACRYLITE® OP-3 (ultraviolet filtering) acrylic sheet is a continuously manufactured sheet product that absorbs approximately 98% of the incident UV light. It is used in picture frames and shadow boxes to protect photos, posters and other valuables from damaging ultraviolet rays.

ACRYLITE® OP-4 (ultraviolet transmitting) acrylic sheet is a cell cast sheet designed for use in sun tanning beds. It transmits much of the radiation in the range from 260 – 370 nanometers. Above 370 nanometers, it has light transmission properties similar to colorless ACRYLITE GP and ACRYLITE FF sheet. It is specifically formulated to resist the degradation caused by continuous exposure to the high-intensity ultraviolet radiation from tanning bed bulbs.

The light transmission of ACRYLITE OP-1 and ACRYLITE OP-4 sheet will vary with thickness in the range from 260 – 370 nanometers. This is shown on the following page in Graph 3.