



CYRO Industries
100 Enterprise Drive
Rockaway, NJ 07866

Acrylite® S10-453 HID

ACRYLIC MOLDING AND EXTRUSION COMPOUNDS

ACRYLITE® S10-453 HID acrylic molding and extrusion compound is the newest grade in an expanded ACRYLITE PMMA compounds product portfolio. This grade features superb UV resistance under demanding lighting conditions. ACRYLITE S10-453 HID compound demonstrates excellent UV resistance when exposed to a 400 watt metal-halide bulb at 90°C over 11,000 hours. ACRYLITE compounds for lighting applications are available in varying degrees of UV absorbancy. UV stabilizers serve to protect a material for long periods of time when subjected to intense exposure. UV absorbing acrylics are used in lighting covers and fixtures. ACRYLITE S10-343 compound is characterized as a medium-UV grade and complements the new ACRYLITE S10-453 HID compound to meet most UVA applications.

Typical Properties of ACRYLITE S10-453 HID compound

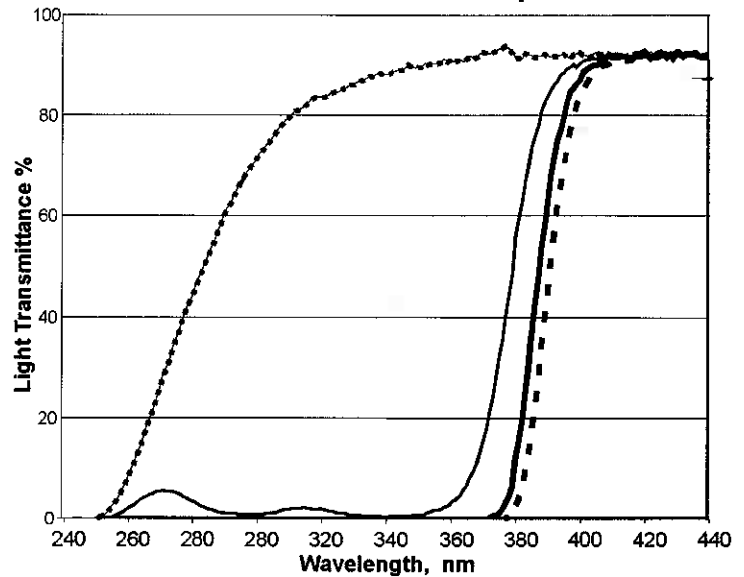
Property	ASTM Test Method	
Optical		
Refractive Index	D-542	1.49
Transmittance, %	D-1003	92
Haze, %	D-1003	<1
Mechanical		
Tensile Strength, psi (MPa)	D-638	11300 (78)
Tensile Modulus x 10 ⁶ psi (GPa)	D-638	0.47 (3.2)
Tensile Elongation @ yield, %	D-638	4-6
Tensile Elongation @ break, %	D-638	4-6
Flexural Strength, psi (MPa)	D-790	16200 (11.7)
Flexural Modulus x 10 ⁶ , psi (GPa)	D-790	0.5 (3.5)
Notched Izod, ft-lb/in (J/m) on 1/4 in thick bar @23°C	D-256	0.36 (19)
Compressive Strength, psi (MPa)	D-695	17000 (117.2)
Rochwell Hardness, M scale	D-785	95
Thermal		
DTL @ 264 psi, °F (°C)	D-648	212 (100)
Vicat Softening Point, °F (°C)	D-1525	243 (117)
Coefficient of Linear Expansion, in/in/°F (m/m/°C)	D-696	0.00004 (0.000072)
Miscellaneous		
Specific Gravity	D-792	1.19
Water Absorption, % max.	D-570	0.3
Mold Shrinkage, in/in (mm/mm)	D-551	0.004-0.007
Odor		None
Taste		None

UV Characteristics of ACRYLITE® acrylic molding and extrusion compounds

ACRYLITE compounds for lighting applications are available in varying degrees of UV absorbance (defined as the amount of UV light absorbed by a material). UV stabilizers serve to protect a material for long periods of time when subjected to intense exposure. UV absorbing acrylics are used in lighting covers and fixtures. Degradation may still occur under extreme conditions of temperature and/or time.

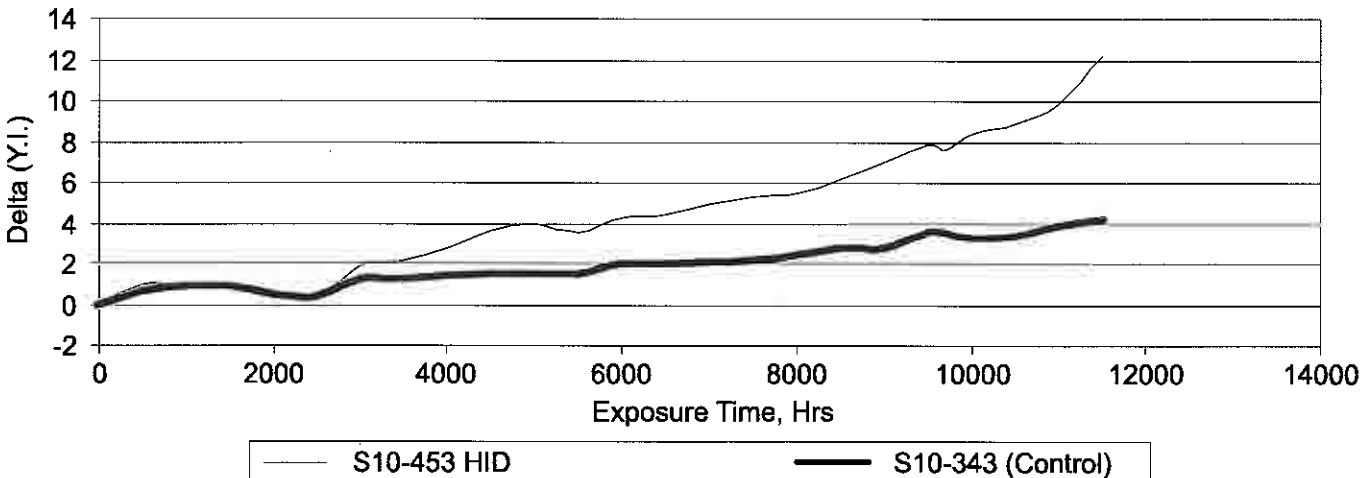
UV transparent (UVT) grades contain no UV absorbers. These materials absorb wavelengths up to approximately 255 nanometers after which light transmission begins. Standard UV absorbing (UVA) grades absorb wavelengths up to approximately 360 nanometers. New ACRYLITE S10-453 HID compound is the next generation HID (high intensity discharge) grade which absorbs up to approximately 385 nm. CYRO's first generation HID grade, ACRYLITE S10-343 compound, absorbs wavelengths up to 370. It should be noted that absorption is only one factor to consider in performance of the materials as illustrated by the actual performance shown at right.

Ultra Violet Transmittance Properties



ACRYLITE Compounds
 UVT Grades — UVA Grades - - - S10-343 - · - · S10-453 HID

Delta Yellowness Index vs. HID Exposure Time @ 90°C



ACRYLITE S10-453 HID compound, the second generation UV resistant material, demonstrates its superb UV resistance when exposed to a 400 W metal halide bulb @ 90°C over 11,000 hours. Color stability as measured by its change in Yellowness Index is about 4 units for the new ACRYLITE S10-453 HID compound compared to about 12 units for the previous HID grade, ACRYLITE S10-343 compound.

For more information or specific questions about your project, contact a CYRO Technical Service Representative, or contact the CYRO Sales Office.

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