OPTIX R XT EXTRUDED ACRYLIC RECYCLED SHEET

OPTIX R XT sheet is manufactured from PLASKOLITE's own recycled PMMA recycled PMMA, in compliance with ISO 7823-2:2003 standards. Suitable for both indoor and outdoor use, these sheets support a wide range of domestic and industrial applications. Available in clear and in a variety of thicknesses, OPTIX R XT offers excellent transparency, clarity, and resistance to weathering and aging. The material can be easily machined or thermoformed using standard fabrication techniques.

TYPICAL PROPERTIES

PROPERTIES	METHOD	UNITS	OPTIX RMMA
PHYSICAL			
Density	ISO 1183	gr/cm^3	1.19
Water Absorption	ISO 62 (1)	%	0.3
MECHANICAL			
Tensile Strength	ISO 527-2	MPa	72
Elongation at Break	ISO 527-2	%	4
Tensile Modulus	ISO 527-2	MPa	3300
Flexural Strength	ISO 178	MPa	106
Flexural Modulus	ISO 178	MPa	3350
Compressive Strength	ISO 604	MPa	117
Rockwell Hardness (M scale)	ISO 6508-1	HRM	95
Impact Resistance (Charpy unnotched)	ISO 179/1fu	kJ/m^2	15
Impact Resistance (Charpy notched)	ISO 179/1eA	kJ/m^2	2
Impact Resistance (Izod notched)	ISO 180/1A	kJ/m^2	1.5
OPTICAL			
Refractive Index	ISO 489	-	1.49
Light Transmission (thickness dependent)	ASTM D1003	%	92
Haze (3 mm transparent sheet)	ASTM D1003	%	< 1
THERMAL			
Vicat Softening Temperature (50N)	ISO 306	°C	105
Heat Deflection Temperature (1.82 MPa)	ISO 75-1	°C	95
Coefficient of Linear Thermal Expansion (0-50°C)	DIN 53483	µm/m°C	65
Thermal Conductivity	ASTM C177	W/mK	0.19
Maximum Continuous Service Temperature	-	°C	70
Maximum Short Time Service Temperature	-	°C	90
Minimum Temperature	-	°C	-40
ELECTRICAL			
Dielectric Strength	DIN 53481	kV/mm	20-25
Dielectric Constant (50Hz)	DIN 53483	-	3.7
Dissipation Factor tanδ (50Hz)	DIN 53483	-	0.04
Surface Resistivity	IEC 60093	Ohm	>10^{14}
Volume Resistivity	IEC 60093	Ohm.cm	>10^{15}

DIMENSIONS

THICKNESS, mm	WIDTH, mm	LENGTH, mm
2.0 – 10.0	1000, 1220 and 2050	600 – 6000

** Sheets are also available cut to size, according to customer requirements.*

TOLERANCES FOR DIMENSIONS

SHEET THICKNESS, mm	THICKNESS TOLERANCES, %	WIDTH TOLERANCES, mm	LENGTH TOLERANCES, mm	DIAGONALS TOLERANCES, mm	FLATNESS TOLERANCES
≥ 2.0, < 10.0	± 3	Sheet cut in production: -0.0 /+3.0 Sheet cut to size: ± 0.50	Sheet < 4.0 Meter cut in production -0.0 / + 3.0 Sheet ≥ 4.0 Meter cut in production -0.0 / + 0.1 * Sheet length Sheet cut to size ± 0.50	Sheet cut in production: Length < 4000 mm - ≤ 2 Length ≥ 4000 mm - ≤ 4 Sheet cut to size: ≤ 0.5	Max. allowed bowing - 0.5% from linear dimensions. Max. allowed bowing across the width of the sheet - ≤ 5 mm per meter of width. Max. allowed bowing along the length of the sheet - ≤ 5 mm per meter of length.

COLORS

OPTIX R XT sheet is naturally colorless and exceptionally clear, however pigments can be added to obtain a wide range of tints and colors. OPTIX R XT colored sheet maintains the same light transmission percentages regardless of thickness (except for opals and diffusers). For a list of updated colors, please contact PLASKOLITE Technical Support.

RECYCLED VOLUME

OPTIX R XT sheet contains between 70% to 90% recycled material. above 6 mm, recycled content is up to 50%.

DEFINITIONS

SHRINKAGE

After heating acrylic extruded sheet will shrink during the cooling process, the shrinkage is higher in the extrusion direction.

This characteristic of OPTIX R XT should be taken into account when planning the final sheet dimensions.

SHEET THICKNESS, mm	STANDARD GRADE		SPECIAL GRADES *	
	SHRINKAGE M.D** %	SHRINKAGE T.D** %	SHRINKAGE M.D** %	SHRINKAGE T.D** %
≥ 1.80, < 2.30	6 – 7	0.5	3 – 4	0.5
≥ 2.30, < 3.50	5 – 6	0.5	2 – 3	0.5
≥ 3.50, < 4.00	3 – 4	0.5	1 – 2	0.5
≥ 4.00, < 6.00	2 – 3	0.5	0 – 1	0.5
≥ 6.00	2	0.5	0 - 1	0.5

** *M.D. – Machine (extrusion) direction*
T.D. – Transverse (perpendicular to extrusion) direction

FIRE TEST PERFORMANCE

PMMA is a combustible material and will burn if ignited, however, unlike other polymers, does not produce toxic or corrosive gases and produces very little smoke which is an important safety benefit.

OPTIX R XT extruded acrylic sheet is classified:

» HB according to UL94

» E according to UNE-EN ISO 13501

NOISE REDUCTION

OPTIX R XT sheet is used widely as noise-reduction barriers along roads and highways. For more information, see OPTIX Acoustic Walls Guidebook.

CHEMICAL RESISTANCE

OPTIX R XT sheet has good resistance to water, alkalis, aqueous inorganic salt solutions and most common dilute acids. Some substances do not have any effect on OPTIX R XT however some can cause staining, swelling, crazing, weakening or even complete dissolving of the material.

Please contact PLASKOLITE Technical Support for information regarding special applications.

** Any substance that comes with contact with PMMA should be checked for compatibility.*

ENVIRONMENTAL STRESS CRACKING

Environmental Stress Cracking (ESC) is a result of the combination of stress and chemical exposure. The level of stress needed for ESC is lower than the normal failure mechanical stress of PMMA in a chemicalfree environment. Stresses can be created during fabrication and forming and can be controlled by an annealing process. Stresses can also be created by improper installation. Cold bended sheets under permanent induced stress or sheets under periodic stress (fatigue) are also susceptible to ESC.

GENERAL GUIDELINES

STORAGE

OPTIX R XT is a rigid sheet, incorrect handling can cause breakage, leaving sharp edges. Sheet must be stored with it's original protective masking in a cool, dry and well-ventilated room, away from direct sunlight, excessive humidity, rain or solvent vapors. Sheet is best stored horizontally it's delivery pallets. Pay attention to avoiding pressure on the unsupported areas. Never leave sheet or pallets uncovered.

PROTECTIVE FILM

Both surfaces of OPTIX R XT sheet are protected by a fully recyclable polyethylene (PE) film. Keep this film in position as long as possible and remove only and immediately after installation.

There are two kinds of protective film for the sheet:

» Universal film that is suitable for machining

» Easy-removal film that is suitable for sheets where the film will be removed before processing. This type of film is not suitable if machining of the sheet is required to be done with the protective film on the sheet.

Both of the above types of film are suitable for thermoforming and laser cutting.

Printed film must be removed before thermoforming in order to avoid transfer of the printing ink to the sheet surface.

CLEANING AND MAINTENANCE

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ENVIRONMENTAL ADVANTAGES

OPTIX R XT sheet is environmentally friendly. LCA (Life Cycle Assessment) and eco profiles of PMMA sheet production show a low impact on the environment.

The outstanding chemical stability and long-time resistance to aging and weathering of OPTIX R XT sheet often ensures a long service time. The sheet and their polyethylene protective layers are fully recyclable. They do not contain any toxic materials, halogens or heavy metals, which may cause environmental damage or health risks. OPTIX R XT sheet does not contain Bisphenol-A. Ozone Depleting Substances (ODP) are not used in the manufacturing and they do not release pollutant substances into the environment. They do not produce toxic or corrosive gases when burning, and fires can be extinguished with water.

OPTIX R XT scrap is not classified as hazardous waste small amounts can be disposed as household refuse. Large quantities should be disposed by recycling.

RE-WORKING

» **HANDLING**
Machining, Assembling, Forming, Glazing and Signage Installation recommendations can be found in the OPTIX Guidebook.

» **COLD BENDING**
Unlike thermoforming, cold-bended OPTIX R XT will not keep its form unless installed into a frame. The sheet must be with perfect edges to avoid breakage during bending. The radius of the bend should not be below the minimum value in order to avoid high permanent stress, which can eventually cause small cracks or even break the sheet.
Minimum recommended bend radius is 300 times the thickness of the sheet.
For higher thicknesses, up to 12 mm, the recommended minimum bend angle is 135°.
Hard coated sheets cannot be bent.

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