

TECHNICAL DATA

Clarity, quantified.

Made with 80% post-consumer repolymerized PMMA by total sheet weight. GRS certified.



PRODUCT OVERVIEW / PHYSICAL / OPTICAL

ClearCycle™ Cast Acrylic Sheet is Redco™’s premium cast acrylic sheet line for Canadian projects, made with 80% post-consumer repolymerized PMMA by total sheet weight and certified to the Global Recycled Standard (GRS). Designed for signs, displays, exhibits and interior applications, the sheet can be cut, CNC routed, polished, bonded, printed and thermoformed using appropriate acrylic fabrication practices.

The standard sheet size is 1,219 × 2,438 mm (48 × 96 in). Standard stock thicknesses: 3 mm (0.118 in), 4.5 mm (0.177 in), 6 mm (0.236 in), 9 mm (0.354 in), 12 mm (0.472 in), 18 mm (0.709 in), 24 mm (0.945 in). Available colours: Clear 0000; Light White 2447; Solid White 3015; Sign White 7328; Bronze 2412; Bronze 2370; Grey 2064; Grey 2074; Black 2025; Light Black XXXX; Yellow 2037; Blue 2051; Red 2039. Confirm colour and thickness combinations, quantities and delivery timing before issuing a purchase order.

Physical			
Property	Test method	Imperial / result	Metric / result
Relative density	ASTM D792	1.19 (dimensionless)	1.19 (dimensionless)
Rockwell hardness, M scale	ASTM D785	95 (M scale)	95 (M scale)
Poisson ratio	—	0.35 (dimensionless)	0.35 (dimensionless)

Optical			
Property	Test method	Imperial / result	Metric / result
Refractive index, 73 °F / 22.8 °C	ASTM D542	1.49 (dimensionless)	1.49 (dimensionless)
Light transmission	ASTM D1003	91%	91%
Optical haze	ASTM D1003	<2.0%	<2.0%

Metric equivalents are calculated from the imperial values and rounded. Dimensionless values, percentages, indices and classifications apply in both systems. Reference thickness: 6.0 mm (0.236 in).

Values measured on ClearCycle™ Cast Acrylic Sheet, 80% post-consumer grade, 6.0 mm. Typical values are not specifications. Autoignition value is reported in the governing SDS.

Redwood Plastics and Rubber
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Performance in practice.

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MECHANICAL / THERMAL

Mechanical			
Property	Test method	Imperial / result	Metric / result
Maximum tensile strength	ASTM D638	10,000 psi	68.9 MPa
Tensile yield strength	ASTM D638	10,000 psi	68.9 MPa
Tensile elongation	ASTM D638	2.7%	2.7%
Tensile stiffness (modulus)	ASTM D638	450,000 psi	3,103 MPa
Maximum flexural strength	ASTM D790	14,000 psi	96.5 MPa
Flexural stiffness (modulus)	ASTM D790	450,000 psi	3,103 MPa
Notched Izod impact, 73 °F / 22.8 °C	ASTM D256	0.3 ft-lb/in	16.0 J/m
Unnotched Charpy impact, 73 °F / 22.8 °C	ASTM D256	7 ft-lb; 0.5 × 1 in section	9.49 J; 12.7 × 25.4 mm section

Thermal			
Property	Test method	Imperial / result	Metric / result
Heat deflection temperature, 264 psi (unannealed)	ASTM D648	200 °F	93.3 °C
Linear thermal expansion, 60 °F / 15.6 °C	ASTM E831	3.5 in/in/°F × 10 ⁻⁵	6.3 mm/mm/°C × 10 ⁻⁵
Thermal conductivity	ASTM C177	1.3 BTU·in/(hr·ft ² ·°F)	0.187 W/(m·K)
Thermal transmittance (U-value), summer/winter	—	0.89–0.96 BTU/(hr·ft ² ·°F)	5.05–5.45 W/(m ² ·K)
Specific heat capacity, 77 °F / 25 °C	—	0.35 BTU/(lb·°F)	1.47 kJ/(kg·K)
Recommended continuous-use temperature	—	170–190 °F	76.7–87.8 °C
Recommended thermoforming temperature	—	275–350 °F	135–176.7 °C

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CHEMICAL RESISTANCE / FIRE & BUILDING CODE

Chemical resistance			
Property	Test method	Imperial / result	Metric / result
Craze resistance, isopropyl alcohol	MIL-P-6997 (modified)	1,300 psi	8.96 MPa
Craze resistance, aromatic/alcohol blend	MIL-P-6997 (modified)	1,200 psi	8.27 MPa

Fire & building code			
Property	Test method	Imperial / result	Metric / result
Horizontal burning rate	ASTM D635	1.1 in/min	27.9 mm/min
Smoke density	ASTM D2843	1.2%	1.2%
Autoignition temperature	ASTM D1929	790 °F	421 °C
Flame spread index	CAN/ULC-S102.2-07	110 Index; 0.125-0.250 in	110 Index; 3.18-6.35 mm
Smoke developed index	CAN/ULC-S102.2-07	>500 Index; 0.125-0.250 in	>500 Index; 3.18-6.35 mm
Flammability classification	UL 94	HB; 0.060 in	HB; 1.52 mm
Outdoor suitability	UL 746C	f2 (colorless); 0.060 in	f2 (colorless); 1.52 mm
Building-code classification	IBC 2606.4	CC2; 0.080-0.354 in	CC2; 2.03-8.99 mm
Safety glazing performance	ANSI Z97.1	PASS; 0.080 in	PASS; 2.03 mm
Motor-vehicle glazing classification	ANSI Z26.1	AS-5 / AS-6 / AS-7	AS-5 / AS-6 / AS-7
Acrylic sheet classification	ASTM D4802	Category B-1, Finish 1	Category B-1, Finish 1

Redco™ offers a Certificate of Conformance to these standards upon request. Ratings apply only at the thicknesses tested.

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