

# R-Cast® sheet



## Applications

- Aquariums
- Displays
- Fountains
- Projection screens
- Furniture
- Optical lenses
- Port hole windows
- Sight glass
- Scientific applications
- Point of purchase
- Vacuum chambers
- Bio-safety chambers
- and more...

## Attributes

- Outstanding optical clarity
- Excellent UV properties
- High impact resistance - 17x greater than glass and 4x greater than concrete
- Superb weatherability - won't yellow or show signs of aging
- Structural & can be engineered to support weight
- UVT available

## Color Availability

- Clear
- Standard colors stocked (thin gauge only)

*Custom colors available by special order.*

## Surface Finishes

- Frosted finish
- Gloss finish
- Etched finish

*Additional finishes available through our R-Cast® Ice & Textures line.*

## Edge Finishes

- Saw cut
- Polished edge
- Radius
- Chamfer
- Beveled

## Fabrication Options Available

- Forming
- Bonding
- Drilling
- Various surface finishes
- Cutting
- Routing
- CNC machining

# R-Cast® sheet



AquaDom • Radisson Blu • Berlin, Germany

## Warranty

10 years

## Care & Cleaning

To polish out scratches and restore original lustre, we recommend our R-Cast® Care Kit to maintain your acrylic panels.

Standard soap and water is also acceptable.

Avoid using solvent-based cleaners on R-Cast® Sheet.

Please contact us with any questions regarding cleaners.



Tubkaak Krabi Boutique Resort • Krabi, Thailand

# R-Cast® sheet

## Thick Gauge

R-Cast® acrylic thick gauge sheet is available trimmed or untrimmed and is oversized. Many R-Cast® acrylic users prefer untrimmed oversized sheet because it allows for maximum yield.

## Standard Size Stock Sheet

**M panel: 48" x 96"** (1.22m x 2.44m)

**S panel: 72" x 96"** (1.83m x 2.44m)

| Thickness<br>in (mm) | Tolerance<br>in (mm)            |
|----------------------|---------------------------------|
| <b>1.00</b> (25)     | <b>0.888 - 1.048</b> (23 - 27)  |
| <b>1.25</b> (32)     | <b>1.156 - 1.302</b> (29 - 33)  |
| <b>1.50</b> (38)     | <b>1.341 - 1.577</b> (34 - 40)  |
| <b>1.75</b> (45)     | <b>1.570 - 1.842</b> (39 - 46)  |
| <b>2.00</b> (51)     | <b>1.798 - 2.108</b> (46 - 54)  |
| <b>2.50</b> (64)     | <b>2.319 - 2.579</b> (59 - 66)  |
| <b>3.00</b> (76)     | <b>2.792 - 3.102</b> (71 - 79)  |
| <b>3.50</b> (89)     | <b>3.261 - 3.621</b> (83 - 92)  |
| <b>4.00</b> (102)    | <b>3.732 - 4.142</b> (95 - 105) |

## Oversized Stock Sheet

**P panel: 96" x 128"** (2.44m x 3.25m)

**L panel: 72" x 186"** (1.83m x 4.72m)

| Thickness<br>in (mm) | Tolerance<br>in (mm)            |
|----------------------|---------------------------------|
| <b>1.00</b> (25)     | <b>0.900 - 1.100</b> (23 - 28)  |
| <b>1.25</b> (32)     | <b>1.125 - 1.375</b> (29 - 35)  |
| <b>1.50</b> (38)     | <b>1.350 - 1.650</b> (34 - 42)  |
| <b>1.75</b> (45)     | <b>1.575 - 1.925</b> (40 - 49)  |
| <b>2.00</b> (51)     | <b>1.800 - 2.200</b> (46 - 56)  |
| <b>2.50</b> (64)     | <b>2.250 - 2.750</b> (57 - 70)  |
| <b>3.00</b> (76)     | <b>2.700 - 3.300</b> (69 - 84)  |
| <b>3.50</b> (89)     | <b>3.150 - 3.850</b> (80 - 98)  |
| <b>4.00</b> (102)    | <b>3.600 - 4.400</b> (91 - 112) |

Special order sizes are also available in:

**60" x 96"** (1.52m x 2.44m)

**48" x 128"** (1.22m x 3.25m)

**72" x 120"** (1.83m x 3.05m)

2" minimum thickness to special order sizes.

- Custom gauges and sheet sizes available upon request
- Custom colors available upon request

# R-Cast® sheet

## Thin Gauge

### Standard Sheet

**50" x 97"** (1.27m x 2.46m)

**51" x 100"** (1.30m x 2.54m)

| Thickness<br>in (mm) | Tolerance<br>in (mm)             |
|----------------------|----------------------------------|
| <b>0.060</b> (1.5)   | <b>.040 - .072</b> (1.0 - 1.8)   |
| <b>0.080</b> (2.0)   | <b>.060 - .093</b> (1.5 - 2.4)   |
| <b>0.100</b> (2.5)   | <b>.079 - .121</b> (2.0 - 3.1)   |
| <b>0.118</b> (3.0)   | <b>.095 - .132</b> (2.4 - 3.4)   |
| <b>0.177</b> (4.5)   | <b>.145 - .194</b> (3.7 - 4.9)   |
| <b>0.236</b> (6.0)   | <b>.201 - .254</b> (5.1 - 6.5)   |
| <b>0.354</b> (9.0)   | <b>.314 - .367</b> (8.0 - 9.3)   |
| <b>0.472</b> (12.0)  | <b>.420 - .496</b> (10.7 - 12.6) |
| <b>0.708</b> (18.0)  | <b>.639 - .735</b> (16.2 - 18.7) |
| <b>0.985</b> (25.0)  | <b>.869 - .972</b> (22.1 - 24.7) |

### Thin Gauge Sheet Colors Stocked

- Clear
  - Colors below
- Custom colors available by special order*

### Standard



Black  
2025



Blue  
2114



Lt Blue  
2648



Green  
2108



Red  
2157



White  
2447  
7328  
7420



Yellow  
2037

### Transparent



Gray



Bronze

### Fluorescent



Fl Red  
9095



Fl Blue  
9092



Fl Amber  
2422



Fl Green  
53200

# R-Cast<sup>®</sup> sheet

## R-Cast<sup>®</sup> Physical Properties

### Property

### ASTM Method

### US Customary Units

### Average Value

### Metric Units

### Average Value

### MECHANICAL

|                                              |           |             |        |                    |                      |
|----------------------------------------------|-----------|-------------|--------|--------------------|----------------------|
| Tensile Strength                             | ASTM-D638 | psi         | 10800  | Kg/cm <sup>2</sup> | 759                  |
| Tensile Modulus                              | ASTM-D638 | psi         | 450000 | Kg/cm <sup>2</sup> | 31 x 10 <sup>3</sup> |
| Tensile Elongation                           | ASTM-D638 | %           | 4.0    | -                  | -                    |
| Flexural Strength                            | ASTM-D790 | psi         | 16000  | Kg/cm <sup>2</sup> | 1125                 |
| Compression Strength                         | ASTM-D695 | psi         | 17500  | Kg/cm <sup>2</sup> | 1230                 |
| Shear Strength                               | ASTM-D732 | psi         | 10000  | Kg/cm <sup>2</sup> | 703                  |
| IZOD Impact Strength, notched @ 1/8"         | ASTM-D256 | ft-lbs/inch | 0.414  | J/m                | 22.1                 |
| Rockwell Hardness (M Scale)                  | ASTM-D785 | -           | 103    | -                  | -                    |
| Deformation Under Load<br>@ 4,000 psi @ 73°F | ASTM-D621 | %           | 0.85   | -                  | -                    |

### OPTICAL

|                                              |            |   |      |   |   |
|----------------------------------------------|------------|---|------|---|---|
| Light Transmittance (0.1" nominal thickness) | ASTM-D1003 | % | 92   | - | - |
| Haze                                         | -          | % | < 1  | - | - |
| Refractive Index @ 77°F                      | ASTM-D542  | - | 1.49 | - | - |

### THERMAL

|                                 |           |          |                        |          |                      |
|---------------------------------|-----------|----------|------------------------|----------|----------------------|
| Heat Deflection Temperature     | ASTM-D648 | °F       | 226                    | °C       | 108                  |
| Coefficient of Expansion @ 60°F | ASTM-D696 | in/in/°F | 4.0 x 10 <sup>-5</sup> | mm/mm/°C | 7.2x10 <sup>-5</sup> |

### MISCELLANEOUS

|                                                 |           |   |      |   |   |
|-------------------------------------------------|-----------|---|------|---|---|
| Water Absorption, Equilibrium,<br>24 hrs @ 73°F | ASTM-D570 | % | 0.2  | - | - |
| Specific Gravity                                | ASTM-D792 | - | 1.19 | - | - |

# R-Cast® sheet



## **Manufacturing**

R-Cast® Sheet is monolithically cast polymethyl methacrylate (PMMA). R-Cast® Sheet is manufactured to meet strict internationally accepted structural standards.

## **Short Term Loading**

Impact, live, and seismic loading conditions are short term and infrequent conditions. All R-Cast® Sheet panels can be designed to handle these conditions.

## **Safety Glazing**

Meets ANSI Z 97.1 for safety glazing material used in buildings.

Approved for safety glazing according to model building codes.

Suitable for use in Consumer Products Safety Commission, Safety Standard for Architectural Glazing Material under 16 CFR 1201, Categories 1 & 11.

## **Hockey Rink Glazing**

R-Cast® Sheet is suitable for use as a glazing material for hockey rinks per ASTM F-1703 (Standard Guide for Ice Hockey Playing Facilities). Thickness should be 0.50" (12.7mm) for sides of rink, 0.625" (15.88mm) for ends of rink.

## **FDA Approval**

R-Cast® Sheet is approved by the U.S. Food and Drug Administration for use as a surface suitable for food preparation.

# R-Cast® sheet

## Chemical Resistance

### R = Resistant

R-Cast® acrylic withstands this substance for long periods and at temperatures up to 120° F (49° C).

### LR = Limited Resistance

R-Cast® acrylic only resists the action of this substance for short periods at room temperature. The resistance for a particular application must be determined.

### N = Non Resistant

R-Cast® acrylic is not resistant to this substance. It either swelled, was attacked, dissolved or was damaged in some manner.

Plastic materials can be attacked by chemicals in several ways. The methods of fabrication and/or conditions of exposure of R-Cast® acrylic as well as the manner in which the chemicals are applied, can influence final results even for "R" coded chemicals. Some of these factors are listed below.

Fabrication - Stress generated while sawing, sanding, machining, drilling, polishing, and/or forming.

Exposure - Length of exposure, stresses induced during the life of the product due to various loads, changes in temperatures, etc.

## Chemical

|                               |    |
|-------------------------------|----|
| Acetic Acid (5%)              | R  |
| Acetic Acid (Glacial)         | N  |
| Acetic Anhydride              | LR |
| Acetone                       | N  |
| Acrylic Paints & Lacquers     | LR |
| Ammonia (aqueous solution)    | R  |
| Ammonium chloride (Saturated) | R  |
| Ammonium Hydroxide (10%)      | R  |
| Ammonium Hydroxide (Conc.)    | R  |
| Aniline                       | N  |
| Battery Acid                  | R  |
| Benzaldehyde                  | N  |
| Benzene                       | N  |
| Bituminous Emulsion           | N  |
| Bromine                       | N  |
| Butanol                       | LR |
| Butyl Acetate                 | N  |
| Calcium Chloride (Saturated)  | R  |
| Calcium Hypochlorite          | R  |
| Carbon Tetrachloride          | N  |
| Cement                        | R  |
| Chlorine Water                | LR |
| Chloroform                    | N  |
| Chromic Acid (40%)            | N  |
| Citric Acid (10%)             | R  |
| Cottonseed Oil (Edible)       | R  |
| Detergent Solution            | R  |
| Diesel Oil                    | R  |
| Diethyl Ether                 | N  |
| Dimethyl Formamide            | N  |
| Diethyl Phthalate             | N  |
| Ethyl Acetate                 | N  |
| Ethyl Alcohol (50%)           | LR |
| Ethyl Alcohol (95%)           | N  |
| Ethylene Dichloride           | N  |
| Ethylene Glycol               | R  |
| 2-Ethylhexyl Sebacate         | R  |
| Formaldehyde (40%)            | R  |
| Formic Acid (2%)              | R  |
| Formic Acid (40%)             | LR |
| Gasoline (Regular, Leaded)    | LR |
| Glycerine                     | R  |
| Glycerol                      | R  |
| Glycol                        | R  |
| Heptane                       | R  |
| Hexane                        | R  |
| Hot Bitumen                   | LR |

## Code

## Chemical

|                           |    |
|---------------------------|----|
| Hydrochloric Acid         | R  |
| Hydrofluoric Acid (40%)   | N  |
| Hydrogen Peroxide (3%)    | R  |
| Hydrogen Peroxide (28%)   | N  |
| Isooctane                 | R  |
| Isopropyl Alcohol         | LR |
| Kerosene                  | R  |
| Lacquer Thinner           | N  |
| Lactic Acid (80%)         | LR |
| Methane                   | R  |
| Methyl Alcohol (50%)      | LR |
| Methyl Alcohol (100%)     | N  |
| Methyl Ethyl Ketone (MEK) | N  |
| Methylene Chloride        | N  |
| Mineral Oil               | R  |
| Mortar                    | R  |
| Motor Fuel (benzene-free) | R  |
| Motor Fuel (with benzene) | N  |
| Muriatic Acid (20%)       | R  |
| Nitric Acid (10%)         | R  |
| Nitric Acid (40%)         | LR |
| Nitric Acid (Conc.)       | N  |
| Oil Paints (pure)         | R  |
| Olive Oil                 | R  |
| Oxygen                    | R  |
| Ozone                     | R  |
| Phenol Solution (5%)      | N  |
| Phosphoric Acid (10%)     | R  |
| Plaster of Paris          | R  |
| Soap Solution (Ivory)     | R  |
| Sodium Carbonate (2%)     | R  |
| Sodium Carbonate (20%)    | R  |
| Sodium Chloride (10%)     | R  |
| Sodium Hydroxide (1%)     | R  |
| Sodium Hydroxide (10%)    | R  |
| Sodium Hydroxide (60%)    | R  |
| Stearic Acid              | R  |
| Sulfuric Acid (3%)        | R  |
| Sulfuric Acid (30%)       | R  |
| Sulfuric Acid (Conc.)     | N  |
| Thinners (general)        | N  |
| Toluene                   | N  |
| Trichloroethylene         | N  |
| Turpentine                | LR |
| Urine                     | R  |
| Water (Distilled)         | R  |
| Xylene                    | N  |

## Code



*Way Beyond Ordinary®*

**reynoldspolymer.com**