

# Redco™ POLYCARBONATE



## Redco™ POLYCARBONATE

Redco™ Polycarbonate is easily worked, molded, and thermoformed; as such, polycarbonate is very widely used in modern manufacturing. Features such as temperature resistance, impact resistance and optical properties make Redco™ Polycarbonate the perfect choice for industrial and commercial applications.

Redco™ Polycarbonate provides the crystal clarity you associate with glass, without the heavy weight, high cost and risk of breakage.

Available in a variety of formulas to best suit your application:

- Abrasion Resistant
- Advanced UV Protection
- Containment Grade
- Bullet Resistant
- Twin Wall

STANDARD COLOR: Transparent  
(Bronze, Green, Gray & Black Available)

STANDARD SHEET SIZE: 2' x 4' to 6' x 12'  
STANDARD SHEET THICKNESS: .020" to .500"

### TYPICAL APPLICATIONS:

Automotive instrument panels, boat hatch covers, bowls and cutting wheels for food processors, business machine housings, computer disk packs, connectors, door and window hardware, face plates, food service wear, grill for fans and air conditioners, indoor and outdoor lighting diffusers, kidney dialyzers, meter covers, microwave wear, patio door thresholds, power-tool housings, RV windshields, safety and vandal-resistant windows for schools, banks, public building, gas stations, trains and armored cars, safety and prescription eyewear, safety helmets, skylights and outdoor signs, solar cell covers, storage modules, etc.



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| PHYSICAL PROPERTIES                                    | ASTM or<br>UL TEST | TYPICAL VALUE<br>(3.0 MM THICKNESS) |
|--|--------------------|-------------------------------------|
| PHYSICAL   |                    |                                     |
| SPECIFIC GRAVITY                                       | ASTM D 792         | 1.20                                |
| TENSILE STRENGTH, psi                                  | ASTM D 638         | 9,000                               |
| ELONGATION AT BREAK, %                                 | ASTM D 638         | 130                                 |
| TENSILE MODULUS, psi                                   | ASTM D 638         | 345,000                             |
| ROCKWELL HARDNESS                                      | ASTM D 785         | R118                                |
| IMPACT STRENGTH (NOTCHED) (ft-lb/inch)                 | ASTM D 256         | 17.0                                |
| FLEXURAL STRENGTH, psi                                 | ASTM D 790         | 14,200                              |
| FLEXURAL MODULUS, psi                                  | ASTM D 790         | 3.4x 10~                            |
| WEAR FACTOR AGAINST STEEL 40 psi 50fpm                 |                    | 2500x10~10                          |
| COEFFICIENT OF FRICTION 40psi 50fpm                    |                    | 0.38 Dynamic                        |
| COMPRESSIVE STRENGTH, psi                              | D695               | 12,500                              |
| COMPRESSIVE MODULUS, psi                               | D695               | 345,000                             |
| THERMAL  |                    |                                     |
| MELTING POINT, °F                                      |                    | 310                                 |
| HEAT DEFLECTION AT 66 psi, °F                          | ASTM D 648         | 285                                 |
| HEAT DEFLECTION AT 264 psi, °F                         | ASTM D 648         | 270                                 |
| MAXIMUM TEMP. FOR SHORT TERM, °F                       |                    | 275                                 |
| MAXIMUM TEMP. FOR LONG TERM, °F                        |                    | 240                                 |
| THERMAL CONDUCTIVITY (Btu-inch/hr-ft~2- ° F)           | ASTM C 177         | 1.35                                |
| SPECIFIC HEAT (Btu/lb- ° F)                            |                    | 0.30                                |
| COEFFICIENT OF LINEAR THERMAL EXPANSION                | ASTM D 696         | 3.7x10~5                            |
| APPLICABLE TEMPERATURE RANGE FOR THERMAL EXPANSION, °F |                    | 0-200                               |
| FLAMMABILITY   | UL 94              | V-2                                 |
| ELECTRICAL   |                    |                                     |
| DIELECTRIC CONSTANT AT 60Hz (73° F, 50% RH)            | ASTM D 150         | 3.2                                 |
| DISSIPATION FACTOR AT 60Hz (73° F)                     | ASTM D 150         | 0.001                               |
| VOLUME RESISTIVITY                                     | ASTM D 257         | 10~17 ohm-cm                        |
| DIELECTRIC STRENGTH (v/MIL)                            | ASTM D 149         | 380                                 |
| OTHER  |                    |                                     |
| WATER ABSORPTION - 24 HOURS, %                         | ASTM D 570         | 0.15                                |
| WATER ABSORPTION - SATURATION, %                       | ASTM D 570         | 0.35                                |
| DENSITY (lb/inch~3)                                    | ASTM D 792         | 0.0434                              |
| WEATHERING RESISTANCE                                  |                    | Limited resistance (UV Sensitive)   |

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# Redco™ POLYCARBONATE

## Twin Wall & Multi Wall Polycarbonate

Redco™ Twin Wall & Multi Wall Polycarbonate possesses high impact strength with light transmission combined with weather and UV resistance. Weighing only 15% of double-pane glass, Redco™ Multi Wall insulates up to 40% better than single-pane glass, and transmits up to 83% of visible light.

### STANDARD SHEET STRUCTURES:

Twin-Wall Rectangular, Triple-Wall Tunnel, Twin Wall “N”, Four Wall Rectangular, Five-Wall Rectangular, Six-Wall Rectangular.

### TYPICAL APPLICATIONS:

Industrial roofs and sidewalls, shopping center and football stadium roofing, sunrooms, greenhouses, etc.

## Abrasion Resistant Polycarbonate

Redco™ Abrasion Resistant Polycarbonate offers a hard-coated, non-stick surface, coated on both sides, that resists abrasion with excellent UV resistance against yellowing and hazing. Typically used in high traffic areas such as school and transportation glazing, security and detention windows, arcade games and street level windows.

## Advanced UV Protection Polycarbonate

Redco™ Advanced UV Protection offers the impact resistance of polycarb and UV resistance of acrylic. Ideal for skylights and covered walkways.

UV coating on one side, polished on both sides.

## Bullet Resistant Polycarbonate

Redco™ Bullet Resistant Polycarbonate offers protection when attack from handguns is a concern. Applications include armored vehicles, banks, 24 hour markets and government facilities.

## Containment Grade Polycarbonate

Redco™ Containment Polycarbonate is virtually unbreakable for installation where specific containment levels are required in prisons and other detention facilities.

# Redco™ POLYCARBONATE

## EXCELLENT UV RESISTANCE

Redco™ Polycarbonate sheet is exceptionally resistant to weathering. Redco™ Polycarbonate sheet is manufactured with an integral layer protecting the sheet from the damaging effects of sunlight. It will remain clear and non-yellowing for many years with minimal deterioration. Light transmittance for clear Redco™ Polycarbonate sheet--the most important criterion for growers--remains at 90% even through accelerated Q.U.V. tests.

## REDUCED ULTRAVIOLET TRANSMISSION

Redco™ Polycarbonate sheet is grower friendly. While it transmits a high portion of visible light, it is essentially opaque to ultraviolet light at wave lengths below 385 nanometers. Redco™ Polycarbonate sheet blocks out the harmful UV light.

## HIGH LIGHT TRANSMISSION

Redco™ Polycarbonate sheet transmits visible light equal to glass, providing an optimal growing environment. Up to 90% of visible light (as measured by ASTM standards )is transmitted through clear Redco™ Polycarbonate sheet to your crop.

## HIGH IMPACT STRENGTH

With 20 times the impact resistance of fiberglass and over 30 times the impact resistance of glass or acrylic , Redco™ Polycarbonate sheet resists hail, wind and vandalism. At a thickness of .033", Redco™ Polycarbonate sheet can withstand over 240 inch-pounds of impact. This equates to a 3/4" hailstone falling at 96 miles per hour! Redco™ Polycarbonate sheet maintains this superior impact resistance at temperatures ranging from 40° F to 250° C.

## THERMALLY INSULATING

Redco™ Polycarbonate sheet can help save energy because of its thermal insulating capability. Compared to fiberglass, which has a U value of 1.56, Redco™ Polycarbonate sheet insulates with a U value of 1.2.

## CHEMICALLY STABLE

Redco™ Polycarbonate sheet is unharmed by many chemical substances, but it is important to avoid contact with adhesives, paints or solvents which are incompatible with polycarbonate. Chemicals to avoid include benzene, gasoline, acetone, and carbon tetrachloride, among others. Only recommended cleaners should be used to clean Redco™ Polycarbonate sheet.

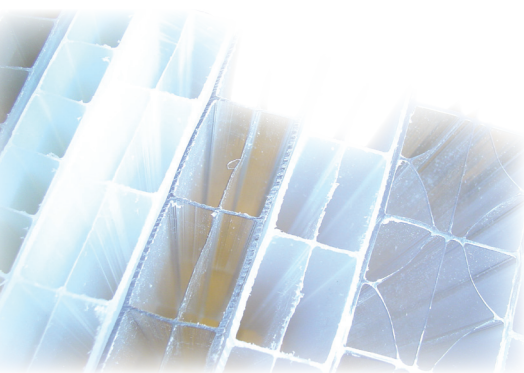
## LOW FLAMMABILITY

Redco™ Polycarbonate sheet meets the requirements of an approved light-transmitting plastic as described by all three model building codes (ICBO, BOCA and SBCCI). These include ASTM D 635, D 1929 and D 2843. Redco™ Polycarbonate sheet exhibits superior flammability performance when compared to typical fibre reinforced polyester (FRP) and acrylic sheet materials.

## LIGHT WEIGHT

Redco™ Polycarbonate sheet reduces labor costs because its light weight simplifies handling, transportation and installation particularly of long spans in high places.

Redco™ Polycarbonate sheet is only one-quarter the weight of greenhouse glass on a square-foot basis. Redco™ Polycarbonate sheet can be used on both gable and quonset-style greenhouses. Easy-to-install panels can be attached directly to the greenhouse frame using one of the recommended fastener methods.



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## Redco™ POLYCARBONATE GREENHOUSES

Redco™ Polycarbonate is the most optimal material for greenhouse construction. Providing a safe and beautiful housing solution for your plants. The UV-resistant polycarbonate walls provide clarity while eliminating the safety concerns with glass. Redco™ Polycarbonate is one of the strongest polymers known and all-weather durable. This means it will not rust or rot.

- All-weather durable polycarbonate walls are UV-resistant and will not break or shatter like glass nor tear like poly sheets
- Contemporary material will beautify your backyard or garden
- Excellent impact strength - 30 times that of acrylic
- Light transmittable 85% - 89%
- Excellent insulator and almost unchanged by temperature & humidity conditions
- Arc resistance - lower than that of many other plastics
- Generally unaffected by oils, greases, and acids but like acrylics, some cleaners and solvents will cause a haze on the material
- Like acrylics, available with mar-resistant coatings



Redco™ Polycarbonate Hot House



# Redco™ POLYCARBONATE

## FABRICATION & MACHINING RECOMMENDATIONS

### CUTTING

Redco™ Polycarbonate sheet can be cut with a variety of common hand-held and table-mounted equipment. In general, sharp tooling with fine cutting teeth should be used to minimize vibration and chatter sheets should be properly supported along the trim line before cutting.

### CIRCULAR SAWS

Use a fine-tooth, hollow ground panel blade with 10-12 teeth per inch. Sabre saws equipped with a fine-tooth blade can also be used, but proper support is recommended.

### DRILLING

Drill with a high-speed steel or carbide-tipped twist drill. Drill holes slightly larger than the fastener to allow for expansion and contraction (e.g., drill a 1/4" hole for a 3/16" screw). Place holes at twice the fastener diameter or 1/2" from the edge of the sheet, whichever is greater.

## CARE & MAINTENANCE RECOMMENDATIONS

### CLEANING

Clean Redco™ Polycarbonate sheet with any mild soap or detergent and warm water, using a soft cloth or sponge. Abrasive cleansers, brushes or squeegees should not be used. The manufacturer's recommendations and instructions should be followed.

### STORAGE

Redco™ Polycarbonate sheet should be stored on a flat surface out of direct sunlight. Do not stand or place heavy objects on the sheet.