ReCrylic.nl
100% RECYCLED ACRYLIC

CAST ACRYLIC RECYCLED SHEETS

PRODUCT DATASHEET

Sheets are produced according to ISO 7823-1:2003 standard.

Recrylic sheets are produced exclusively from 100% recycled monomer of Methyl Methacrylate (r-MMA).

1. Dimensions

Standard Sizes

Thickness 3 – 20 mm, Dimension: 3050X2030 mm.

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

Thicknesses Tolerances (25°C)

Thickness variations are ± (0.4 + 0.1 X sheet nominal thickness) mm.

Width, Length and Diagonals Tolerances (25°C)

A - Sheets cut at production:
Width & Length: -0.0 /+3.0 mm
Diagonals:
Up to 4000 mm - up to 3.0 mm
Over 4000 mm - up to 4.0 mm

B - Sheets cut to size
Width ± 1.0 mm, Length ± 1.0 mm
Diagonals: up to 1.0 mm

Flatness:

The maximum allowable bow for Recrylic recycled sheets, as manufactured, will be 0.5% of linear dimensions.
Maximum bow allowed across the width of the sheet shall be ≤ 5 mm per meter of width.
Maximum bow allowed along the length of the sheet shall be ≤ 5 mm per meter of length.
Flatness is measured on one single sheet placed on a flat and rigid surface.

2. Optical Quality

Sheets are examined according to several parameters that determine their optical quality.
Recrylic recycled optical quality is according ISO 7823-1.
Maximum number of faults are as follows:

- Black specks, scratches, marks or other surface defects of 3mm2 size, with a minimum distance between them of 0.5m.
- Air bubbles, inclusions, cracks or other inclusion defects of 3mm2 in size, with a minimum distance between them of 0.5m.
  Fish eyes of 3mm2 in size, when there are no more than five (5) on an area of 0.4 m².

The colour of the sheets can slightly yellowish or change from batch to batch.

3. Shrinkage

As opposed to the extrusion process, cast PMMA sheets shrink isotropically (same in all directions). Recrylic recycled sheets may shrink up to 2% in each direction.

4. Colors

Recrylic recycled sheets are naturally colorless and clear, however they can be pigmented to obtain a wide range of tints and colors. They are available transparent and in a wide range of translucent colors, opaque colors, opals and diffusers. Recrylic recycled colored sheets maintain the same light transmission percentages regardless of thickness.

5. Typical Properties Values

Please note that the technical values given in the following tables are typical values for guidance and they are subjected to certain variability.

Typical Properties – Recrylic recycled – Cast Acrylic Sheets

Properties	*Method*	*Units*	*Recrylic recycled*
General			
Density	ISO 1183	g/cm3	1.2
Mechanical			
Tensile Strength	ISO 527-2	Mpa	70
Elongation at break	ISO 527-2	%	4
Tensile Modulus	ISO 527-2	MPa	3000
Flexural Strength	ISO 178	MPa	100
Rockwell Hardness	M scale		100
Impact Resistance (Izod notched)	ISO 180/1A	kJ/m2	1.5
Optical			
Refractive Index	ISO 489		1.49
Light Transmission (3mm transparent sheet)	ASTM D1003	%	90
Haze	ASTM D1003	%	1
Thermal			
Vicat Softening Temp.(50N)	ISO 306	°C	105-109
Coeff. of Linear Thermal Expansion		$°K^{-1}$	$7x10^{-5}$

Chemical Properties

Some chemical substances do not produce any effect on Recrylic recycled, some cause staining, swelling, crazing or weakening. Recrylic recycledD sheets have good resistance to water, alkalis, aqueous inorganic salt solutions and most common dilute acids. For information regarding specific chemicals please refer to the PLAZCAST Guidebook

Important Note:

Any substance that comes with contact with PMMA should be checked for compatibility. Even if the supplier confirms that the material is suitable for PMMA, please apply it first to a hidden area to see if there are any effects. However this will cover you for short-time effects only. To assess long-term effects of substances on PMMA, laboratory testing is required.

ESC (Environmental Stress Cracking)

ESC (Environmental Stress Cracking) is a well-known phenomenon in plastics including PMMA, and a common reason of product failure. ESC is a result of the combination of stress and chemical exposure. Under harsh chemical environment, stressed sheets will fail by cracking and crazing. The level of stress needed for ESC is lower than the normal failure mechanical stress of PMMA in a chemical-free environment.

Stresses can be induced during forming and fabrication. These can be eliminated by an annealing process (see Plazcast Guidebook for machining and forming instructions). Stresses can be induced also by improper installation (see Plazcast Guidebook for installation instructions). Cold bended sheets under permanent induced stress or sheets under periodic stress (fatigue) are also susceptible to ESC.

6. Handling Recrylic recycled Sheets

Recrylic recycled is a rigid sheet, which with wrong handling can break, leaving sharp edges. Handling Recrylic recycled must be done with care, always using protective gloves and shoes. Due Recrylic recycled sheets are produced from 100% recycled raw material (recycled MMA monomer) the smell of the sheets can be significantly different from standard Plazcast sheets

Burning Behavior

Recrylic recycled sheets are combustible, and if not extinguished, will burn to completion once ignited, Due Recrylic recycled is produced by casting process, it burns without producing molten droplets. When burning, in the presence of sufficient air, Recrylic recycled releases CO2 and water however if there is a lack of sufficient air, CO can be formed. When storing or working with Recrylic recycled, the necessary fire precautions must be considered, taking into account the burning behavior of Recrylic recycled.

Sheets Storage

Recrylic recycled sheets must be stored with their original protective masking in a cool, dry and well-ventilated room, at a reasonable constant temperature, away from direct sunlight, excessive humidity, rain or solvent's vapors. Failing to store Recrylic recycled in adequate conditions can produce distortions in the sheets and other effects, which will make later fabricating, a more difficult task.
Long term exposure to the sun or other heat sources can cause fusing of the protective polyethylene film to the sheet surface, impeding its removal.
Recrylic recycled sheets are best stored horizontally on their delivery pallets. Pay attention to avoid pressure on the unsupported areas. Never leave uncovered sheets or pallets. It is advisable to replace the original packaging over the stack after a sheet is removed from stock to avoid moisture absorption. If stored for long time, the use of dry-packaging is highly recommendable.

Protective Film

Both surfaces of Recrylic recycled 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.
Sharp objects, sharp particles or even small chips can penetrate the protective PE masking, and damage the surface, therefore always lay Recrylic recycledD on a clean smooth surface. Recrylic recycled protective film in glossy sheets is suitable for thermoforming and laser cutting.

Machining and Forming with PE Film

It is preferable to leave the protective film in position throughout machining to keep the sheet surface in perfect condition. Normal thermoforming temperatures do not affect the adhesive used for the film on Recrylic recycled glossy sheets and can therefore be left in place during most heating and forming operations. However, care should be taken to ensure there are no defects in the film (holes, scratches, bubbles), which could mark the part during the forming process. High-heat deep-draw thermoforming applications can cause the PE film to adhere more strongly. Printed film must be removed before thermoforming, to avoid transfer of the printing ink to the sheet's surface.

Cleaning Recrylic recycled Sheets

Recrylic recycled sheets are produced in clean room environment and do not need to be cleaned before use. However, cleaning may be needed after fabrication, before sensitive processes like vacuum metallization or printing or for maintenance during use. In the case that Recrylic recycled sheets needs to be cleaned, wash the sheet surface with clean fresh water with a mild soap. Be sure that the soap you are using is compatible with PMMA. Test a hidden area before cleaning. Use a clean, soft cloth or sponge and rinse well. Do not scrub or use brushes. Dry with a soft cloth. Do not rub dry. The use of window cleaning fluids or solvents such as alcohols, turpentine, acetone, etc., can cause damage to the sheet.

Recrylic recycled Environmental Advantages

Recrylic recycled sheets are environmental friendly. They are produced exclusively from 100% recycled monomer of Methyl Methacrylate (r-MMAmonomer) and can be recycled indefinitely. They do not contain any toxic materials, halogens or heavy metals which may cause environmental damage or health risks.

Recrylic recycled sheets do not contain Bisphenol-A. Ozone Depleting Substances (ODP) are not used in the manufacture of Recrylic recycled sheets. Recrylic recycled do not release pollutant substances to the environment during manufacture. They do not produce toxic or corrosive gases upon burning. Fires can be extinguished with water. Recrylic recycled sheets can be used for energy recovery and chemical recyclingobtaining raw material again closing the circle of reciclability of the material Recrylic recycled scrap is not classified as hazardous waste. Small amounts can be disposed as household refuse. Large quantities should be disposed for recycling.

Working with Recrylic recycled Sheets

Recrylic recycled looks and performs as standard Plazcast sheets. For general guidelines about how to work with Recrylic recycled sheets please refer to the Plazcast Guidebook.

All information, recommendations or technical advice given in this technical sheet, is given in good faith, to the best of our knowledge and based on our present experience and procedures. However, no liability or other legal responsibility is assumed for the full adequacy, accuracy or completeness of this information. We reserve the right to make any changes, according to technological progress and further developments. The customer is not released form the obligation to conduct careful inspection and testing of incoming goods. Product design using Recrylic recycled sheets must be carried out only by qualified experts in the sole responsibility of the customer. Performance should be verified by testing, carried out only by qualified experts in the sole responsibility of the customer.