CRYLUX® re

PRODUCT GUIDE

CAST ACRYLIC SHEET MADE OF 100 % RECYCLED MMA.

COMPOSITES

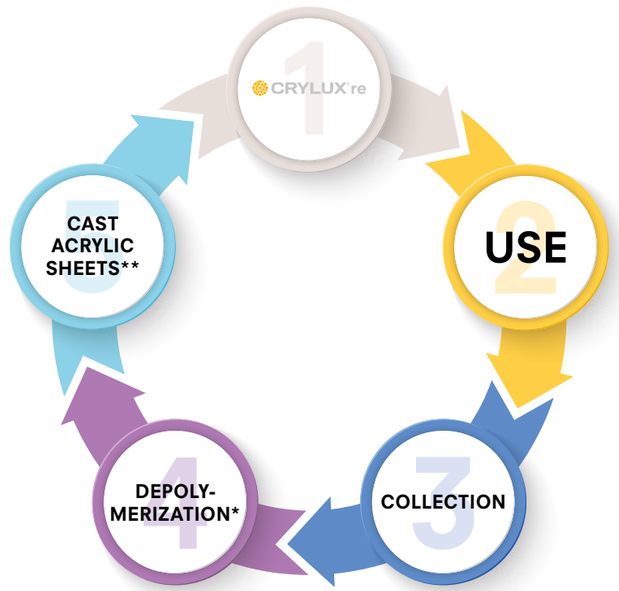
CRYLUX®re

CRYLUX®re is an acrylic sheet material which is made using **100% recycled** methyl methacrylate (rMMA), obtained from PMMA scraps and waste. The rMMA is gained from depolymerisation of acrylic sheets and liquid waste coming from our own production by using a cracking and distillation process which recovers MMA.

A thermal treatment allows polymer chain scission into monomer molecules. In a later step, a high accurate distillation process separates MMA molecules, achieving a high purity standard. **The recycled material can be reused (over and over again)**, which not only **saves raw materials**, but also **prevents waste**. Moreover, the described process takes place in Europe, close to our production plants which additionally minimizes the carbon footprint due to the short transport ways.

This process is aligned with Circular Economy fundamentals obtaining raw material from waste products.

With using **CRYLUX®re** you can help to close the loop!



* **Depolymerization** (Cracking and Distillation – production of rMMA, external waste management)
** Production of **cast acrylic sheets** (Polymerization)

CRYLUX®re

MAKE YOUR APPLICATION SUSTAINABLE.

At our CRYLUX®re production site in Montcada, Spain (certified in accordance with the DIN EN ISO 9001 Quality Management System), we have implemented a wide range of environmental measures over the past ten years and have succeeded in reducing the consumption of gas by 27%, of electricity by 40% and of water by 70%. These cuts in consumption result in CO_2 emissions being reduced by 37% per tonne of acrylic glass manufactured. In addition, we are investing in sustainable technology strategies and site-specific measures on a continual basis. The installation of solar panels in 2022 will ensure that we meet at least 25% of our own energy needs, and in so doing, save at least 140 tonnes of CO_2 annually.

When the lifetime of the product and the warranty of 10 years are taken into consideration, CRYLUX®re is truly beneficial for applications where the sustainability of a product is essential.

CRYLUX®re comes not only in clear transparent but also in opal white, dense white and black. Other colours and finishes are available upon request, including mat surface finishes as well as with increased chemical resistance (Beauté).

CRYLUX®re, made of recycled acrylic, is the perfect choice for a wide range of applications due to its high optical transparency, durability and UV stability. Whether you are looking for a new corporate signage, a high quality POS/POP display, a luxury shop fitting or even individual pieces of furniture and art works – CRYLUX®re will maintain the same properties as material produced with virgin acrylics.

CRYLUX®re – Colours

Clear 1000
FLS
LT 92 %

Opal 4000
OPAL
LT 41 %

White 3014
OPAQUE
LT 5 %

Black 3945
OPAQUE
LT <1 %

CRYLUX®re – Delivery program

COLOUR	VARIANT	LT	SIZE (mm)	THICKNESS (mm)					
				3	4	5	6	8	10
Clear 1000	FLS	92%	3050 x 2030	•	•	•	•	•	•
Opal 4000	OPAL	41%	3050 x 2030	•	•	•			
White 3014	OPAQUE	5%	3050 x 2030	•	•	•			
Black 3945	OPAQUE	<1%	3050 x 2030	•	•	•			

LT = Light transmission (Figures apply to 3 mm sheet thickness only.)
FLS = double-sided glossy, OPAQUE = non-transparent, OPAL = semi-transparent
The colours printed may vary from the original. To ensure exact colour matching please ask for a colour sample. Subject to technical changes.

GENERAL			
Property	Method	Unit	CRYLUX®re
Density	ISO 1183-1	g/cm³	1.19
Water absorption 24h/23°C	ISO 62 Method 1	%	0.2
Rockwell Hardness	ISO 2039-2	M-Scale	105
MECHANICAL			
Property	Method	Unit	CRYLUX®re
Tensile strength	ISO 527-2	MPa	75
Elongation at break	ISO 527-2	%	6
Tensile modulus	ISO 527-2	MPa	3300
Flexural strength	ISO 178	MPa	125
Flexural modulus	ISO 178	MPa	3000
Impact strength Charpy unnotched	ISO 179-1	kJ/m²	18
Impact strength Charpy notched	ISO 179-1	kJ/m²	2
OPTICAL			
Property	Method	Unit	CRYLUX®re
Light transmission	ISO 13468-1	%	92
Refractive index	ISO 489	n^{D}_{20}	1.492
THERMAL			
Property	Method	Unit	CRYLUX®re
Vicat temperature (B 50)*	ISO 306	°C	110
Heat deflection temperature (A)	ISO 75-2	°C	105
Specific heat capacity	ISO 3146-C-60°C	J/gK	2.16
Linear thermal expansion α	ISO 11359-2	mm/m °C	0.07
Thermal conductivity	DIN 52612	W/mK	0.19
Service temperature continuous use		°C	80
Max. temperature short term use		°C	90
Degradation temperature		°C	>280
Sheet forming temperature range		°C	140 – 190
ELECTRICAL			
Property	Method	Unit	CRYLUX®re
Surface resistivity	IEC 60093	Ω	$>10^{14}$
Volume resistivity	IEC 60093	Ω x m	$>10^{15}$
Electrical strength	IEC 60243-1	kV/mm	10
Dielectric strength	IEC 60243-1	kV/mm	30
Dielectrical dissipation factor 50 Hz	DIN 53483-2		0.06
Dielectrical dissipation factor 1 KHz	DIN 53483-2		0.04
Dielectrical dissipation factor 1 MHz	DIN 53483-2		0.02
Relative permittivity 50 Hz	DIN 53483-2		2.7
Relative permittivity 1 KHz	DIN 53483-2		3.1
Relative permittivity 1 MHz	DIN 53483-2		2.7

* = Pre-treatment: 16 h at 80°C
Note: These technical data of our products are typical ones; the actually measured values are subject to production variations.

SUSTAINABILITY

MISSION: TOGETHER. RESPONSIBLE.

Sustainability is at the core of everything we do. Our corporate ecological commitment is summed up by the **MISSION: TOGETHER. RESPONSIBLE.** As we also apply and comply with this mission in regard to our products, we have created a classification system. The five different categories in our **FIVE-DOT-MISSION** system indicate the factors with the greatest impact on sustainability. Our intention is to offer our partners guidance with their purchasing decision-making and to provide a transparent system. A system which focuses on the use of materials, the CO_2 content, the product life cycle and, of course, recycling, a topic of particular relevance for our products. Our FIVE-DOT-MISSION makes an assessment of a product on the basis of five categories and awards points per category, the product is then assigned to one of the five coloured DOTs. By this means we achieve a transparent, quick valuation logic which we can also use to gauge product innovation and improvement at 3A Composites.

THE FIVE-DOT CATEGORIES ARE:

1. BIOBASED CONTENT

Depending on the product, different raw materials are used to manufacture our panels. In this case, we look at the percentage of renewable raw materials used in our products. Our aim is to increase the percentage whenever possible and appropriate.

2. RECYCLED CONTENT

The industry selects recycled raw materials for use in the manufacture of new products which also fulfil requirements such as fire ratings, processing prerequisites and customer expectations in terms of functionality and appearance. This category is where we gauge the proportion of high quality recycled raw material in our products' total material input.

3. FOSSIL CO_2 BOUND IN THE MATERIAL

This category shows the weight of fossil CO_2 embedded in our panels. Differences here are principally due to the raw material type and origin, the density, the composition and the proportion of recycled content.

4. PRODUCT LIFE CYCLE

The plastic sheets and composite panels we produce are used by our customers for a longer period of time. In contrast to products used in the short term, these longer-term alternatives make an active contribution to saving resources. In this category we show our panels' average service life. Material properties result in disparities, so life cycles range from <1 year to even >30 years.

5. RECYCLABILITY

One of the most important aspects of sustainability is contributing to environmental protection by saving valuable raw materials and avoiding waste. Unlike the second category "recycled content", in this assessment category, we show options for recycling the panels after they have been in use. There are already, for instance, established recycling loops for paper and metals. At some production sites, the material can already be returned, so that material for new panels can be created from it. As a company, we came to the conclusion that thermal recycling does not seem sustainable enough, so it is not included in our FIVE-DOT classification. Instead, we are actively working with partner companies to establish a closed-loop, sustainable and future-oriented recycling economy.

As many as 3 points can be achieved in each of the categories presented, totalling a maximum of 15 points. According to the total number of points achieved (1-15), the FIVE-DOT classification is conducted using the following colour gradation.

Transparency is important to us! We will review the product assessment annually to see in which areas the product can be improved. We have set ourselves the goal of achieving the majority of our sales with products which achieve a rating of ≥ 7 points in the FIVE-DOT classification by 2030.

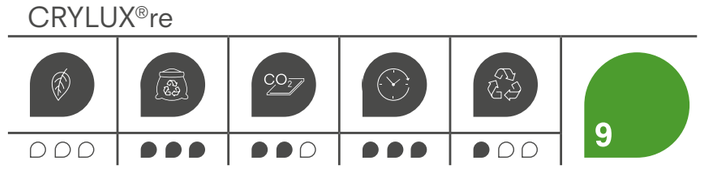
Join us on our sustainable mission!

mission™
TOGETHER. RESPONSIBLE.

SUSTAINABILITY

CRYLUX®re FIVE-DOT-MISSION

CRYLUX®re, cast acrylic sheets made using 100% recycled methyl methacrylate (rMMA), have been assessed in line with the criteria described above. The product currently achieves a FIVE-DOT classification with a total of 9 points.



RECYCLED CONTENT

We use 100% recycled methyl methacrylate (rMMA) for the production of our CRYLUX®re cast acrylic sheets. The material is obtained from PMMA scrap and waste produced during manufacturing processes (read more about this process on page 3 of this brochure). Furthermore, all raw materials used in making our CRYLUX®re sheets also comply with the requirements of the most recent version of the European Union Chemicals Regulation (REACH). In particular, CRYLUX®re sheets do not contain any of the substances listed in the current version of the ECHA Candidate List of Substances of Very High Concern (SVHC). PMMA does not contain any toxic substances or heavy metals which may cause environmental damage or pose risks to health.

FOSSIL CO_2 BOUND IN THE MATERIAL

Owing to the MMA used as a raw material in the manufacturing process, CRYLUX®re contains fossil carbon. By using 100% recycled MMA in the manufacture of CRYLUX®re acrylic sheets, a valuable contribution is made to reduction in waste and CO_2 as this cuts down on the amount of virgin material required.

PRODUCT LIFE CYCLE

Acrylic glass (PMMA) is a robust, highly transparent and extremely durable material featuring excellent UV stability and resistance to weathering and ageing. We guarantee a service life of ten years for the CRYLUX®re product family. The sheets are protected against the harmful effects of ultra violet rays and there are no significant changes with regard to optical or mechanical properties. When processed, used, and cared for in an appropriate manner, the life cycle of our sheets can be considerably longer than ten years. An extended service life also leads to saving resources as fewer replacements are required. Our CRYLUX®re sheets are used in a wide variety of interior and exterior applications where priorities include durability, UV stability and, above all, transparency (92% light transparency for colourless sheets). CRYLUX®re is a product offering sustainable, long-term use and excellent product performance.

RECYCLABILITY

CRYLUX®re sheets can be converted back into their original raw material, methyl methacrylate (MMA), using various recycling processes (read more about this process on page 3 of this brochure).

Polycasa N.V.
Van Doornelaan 2A
2440 Geel, Belgium
www.display.3AComposites.com
A member of 3A Composites

CRYLUX®re EN 05/2022