LUMEX®

PRODUCT GUIDE

A CLEAR CHOICE.

COMPOSITES

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TABLE OF CONTENTS

LUMEX®

LUMEX® stands for flawlessly extruded transparent and translucent A-PET and PET-G thermoplastic polyester sheets. Both products ensure excellent printing results with UV-resistant inks, have a high level of impact resistance, are easy and fast to process and the UV protection version offers good resistance to weathering.

In addition, LUMEX® is classed as "difficult to-ignite" and suitable for food applications.

The LUMEX® product range is the ideal choice for forming. LUMEX® A (A-PET) is especially suitable for flat applications, LUMEX® G (PET-G) for vacuum and thermoforming.

LUMEX® A is available in thicknesses of 0.5 to 6 mm, LUMEX® G in thicknesses from 0.5 to 10 mm and up to a width of 2050 mm.

Sustainable involvement and environmental protection have always been amongst the essential corporate objectives at 3A Composites. The minimisation of risks for man and environment as well as the reduction of environmental pollution through careful and efficient utilisation of resources is part of the corporate philosophy.

Our production site in Loch Gowna, Ireland, is certified to DIN EN ISO 9001, the standard defining internationally recognised requirements for a quality management system. The production site is also rated by EcoVadis. EcoVadis is a renowned, independent platform which assesses companies worldwide in the areas of environmental protection, labour and human rights, ethics and sustainable procurement.

LUMEX® sheets are subject to the highest quality standards and stringent monitoring during manufacture. Our top priority is to ensure that LUMEX® does not contain any hazardous substances. All LUMEX® sheets also comply with the requirements of the currently valid version of the REACH & RoHS directives.

Read more about our commitment to sustainability starting on page 8.

LUMEX® – A CLEAR CHOICE.

LUMEX®

A CLEAR CHOICE.

CHARACTERISTICS

- High transparency
- Very high impact strength
- Good outdoor durability in the variant with UV protection
- Fire behavior according to EN 13501-1: B-s1, d0 “difficult-to-ignite”
- Very good chemical resistance
- Easy and fast to process
- Good printability thanks to optimal adhesion of UV curing inks

APPLICATIONS

- Architecture & construction
- Equipment, appliances & machine construction
- Boat and shipbuilding
- Caravan construction
- Shopfitting | trade show stands | stage design | studio and office furnishings and fittings
- Interior design
- Medical technology & health care sector
- Advertising structures/ hoardings
- Lighting industry
- DIY

PROCESSING

- Printing - direct digital printing
- Printing – screen printing
- Printing – sublimation printing
- Lacquering | Painting | Spraying
- Lamination
- Cutting – CNC
- Cutting – waterjet
- Cutting – laser
- Sawing | Cutting out
- Contour milling
- Polishing – flame
- Engraving
- Folding (V-groove) | Cold bending
- Hot bending | Hot folding
- Hot forming | Thermoforming
- Gluing
- Hot air welding
- Screwing
- Drilling
- Thread cutting

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For more details on the processing of LUMEX®, please contact our technical team.

PRODUCTS			LUMEX® A	LUMEX® G
GENERAL				
Density	ISO 1183-1	kg/m³	1330	1270
Moisture absorption (23°C saturation in water)	ISO 62-1	%	0.5	0.6
Biocompatibility (skin contact)	ISO 10993-5	Classification	not cytotoxic	not cytotoxic
MECHANICAL				
Tensile modulus	ISO 527-2	MPa	2400	2000
Tensile strength	ISO 527-2	MPa	55	50
Elongation at break	ISO 527-2	%	> 25	> 35
Flexural modulus	ISO 178	MPa	2400	2000
Flexural strength	ISO 178	MPa	80	75
Charpy impact strength, unnotched	ISO 179-1/1eU	kJ/m²	no break	no break
Charpy impact strength, notched	ISO 179-1/1eA	kJ/m²	4	7
Surface hardness	ISO 868	Shore D	50	40
OPTICAL				
Light transmission (3 mm)	ISO 13468-1	%	88	88
Refractive index	ISO 489	–	1.58	1.57
Haze	ISO 14782	%	< 1	< 1
Solar heat gain coefficient, g value (3 mm)	DIN EN 410	%	82	82
THERMAL				
Temperature of deflection under load (method A / B)	ISO 75-2	°C	72 / 68	72 / 68
Vicat softening temperature (method B50)	ISO 306	°C	70	70
Coefficient of linear thermal expansion	ISO 11359-2	mm/(m*K)	0.05	0.05
Service temperature continuous use	–	°C	65	65
Max. temperature short term use	–	°C	70	70
Degradation temperature	–	°C	> 280	> 280
Forming temperature	–	°C	110 – 150	110 – 150
Specific heat capacity	ISO 11357-4	J/gK	1.1	1.1
Thermal conductivity	ISO 22007-1	W/mK	0.20	0.20
Fire behavior	EN 13501-1	Class	B-s1, d0 (clear 0.5 – 6 mm, color 1 – 3 mm)	B-s1, d0 (clear 0.5 – 10 mm, color 1 – 5 mm)
ELEKTRICAL				
Electric strength	IEC 60243-1	kV/mm	17	16
Volume resistivity	IEC 62631-3-1	Ω m	10^{15}	10^{15}
Surface resistivity	IEC 62631-3-2	Ω	10^{16}	10^{16}
Dielectric constant (100 Hz)	IEC 60250	–	3.4	2.6
Dissipation factor (50 Hz)	IEC 60250	–	0.02	0.01

Note: These technical data of our products are typical ones for LUMEX®.
The actually measured values are subject to production variations.

SUSTAINABILITY

MISSION: TOGETHER. RESPONSIBLE.

We have summarised our commitment to sustainability in our corporate **MISSION: TOGETHER. RESPONSIBLE.** As we also apply and comply with this mission in regard to our products, we have created a classification system for them. The five categories in our **FIVE-DOT-MISSION** system indicate factors with a significant 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 carbon footprint, the product life cycle and recycling, a topic of particular relevance for our products. Our FIVE-DOT-MISSION makes an assessment of a product on the basis of the 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 raw materials obtained by means of recycling processes which can be used in the manufacture of new products. At the same time, it is essential to ensure requirements such as fire ratings, processing, functionality and appearance are retained. We work continuously to extend our network of recycling companies and to increase the material recycling rates. This category is where we gauge the proportion of high quality recycled raw material in our products' total material input.

3. CO_2 FOOTPRINT

In this category we monitor the kg CO_2 eq/kg per product which is released into the environment during product manufacture (cradle-to-gate) according to EN 15804+A2 (A1-A3). Using the Helix calculation program from Ecochain Technologies B.V as well as the latest LCA datasets from Ecoinvent or similar databases, we measure the carbon footprint of our products in accordance with ISO 14040 und 14044 for the Life Cycle Analysis (LCA). Information regarding the carbon footprint of a specific product respectively a Life Cycle Assessment (LCA) document is available on request.

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. Life cycles can range from approximately 1 year to more than 30 years depending on the different materials.

5. RECYCLABILITY

One of the most important aspects of sustainability is contributing to environmental protection by cutting down use of valuable raw materials, conserving resources 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 various paper types and metals. At some production sites, the material can already be returned, so that material for new products can be created. As a company, we came to the conclusion that thermal recycling as a means of energy capture 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 sustainable and future-oriented recycling solutions for closed-loop recycling management.

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 80% of our sales with products which achieve a rating of ≥ 7 points in the FIVE-DOT classification by 2028.

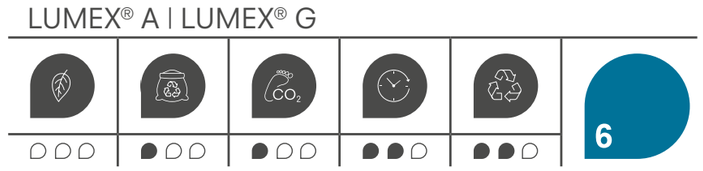
Join us on our sustainable mission!

mission
TOGETHER. RESPONSIBLE.

SUSTAINABILITY

LUMEX® FIVE-DOT-MISSION

LUMEX®, flawlessly extruded transparent and translucent A-PET and PET-G thermoplastic polyester sheets, have been assessed in line with the criteria described above. LUMEX® A and LUMEX® G currently achieve a FIVE-DOT classification of 6 points in total.



RECYCLED CONTENT

We are already recovering and reusing our own production waste to create new material in the manufacture of LUMEX® sheets, and we aim to continue increasing the proportion of recycled regrind content in the future.

CO_2 FOOTPRINT

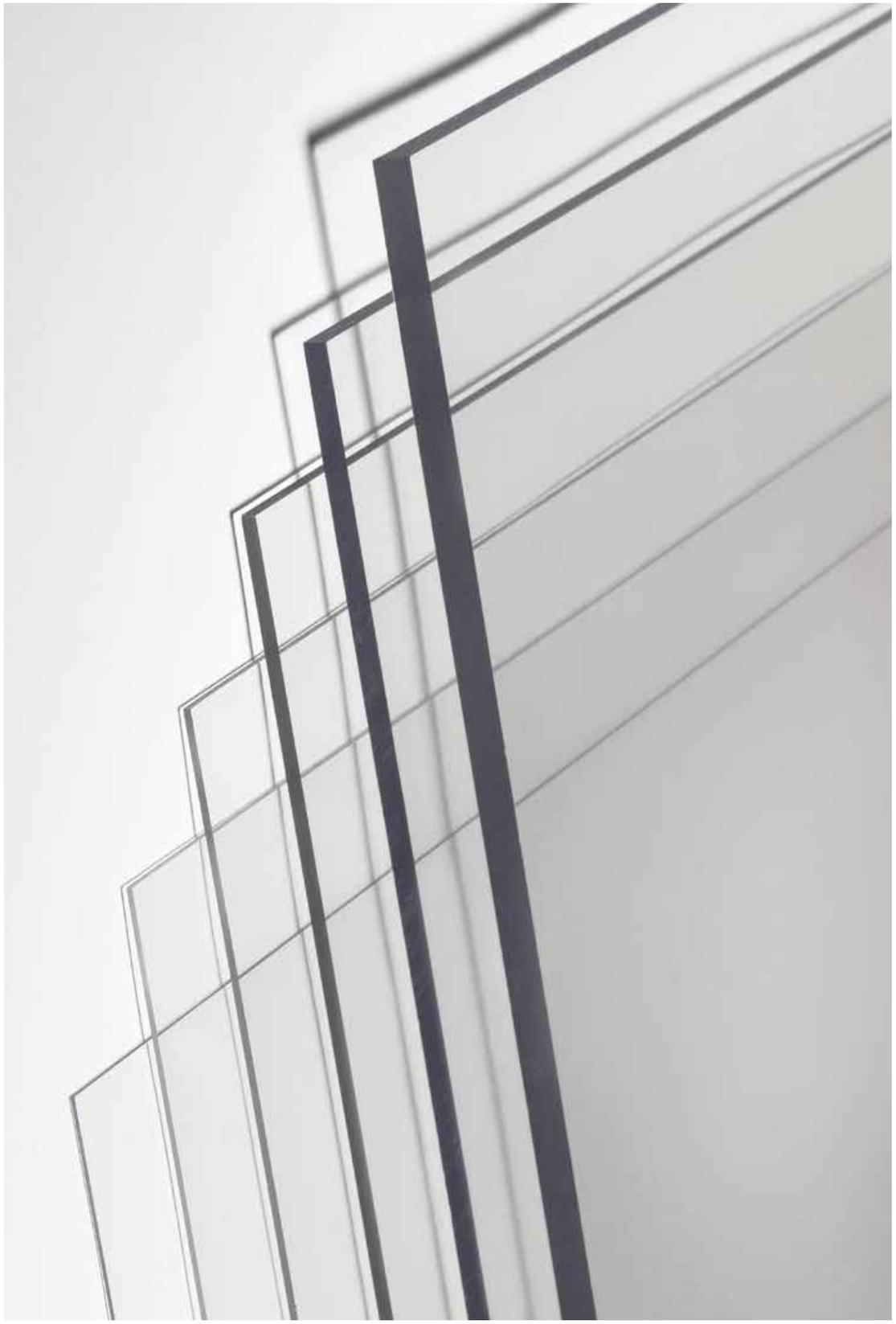
LUMEX® sheets contain fossil carbon as the raw material Polyethylene Terephthalate (PET) is used in their manufacture.

PRODUCT LIFE CYCLE

Our LUMEX® product family comprises Polyethylene Terephthalate (PET), a durable thermoplastic. In addition to good long-term properties, this material provides excellent resistance to chemicals, especially our LUMEX®A (A-PET) version. In accordance with EN 13501-1, both LUMEX® A and LUMEX® G sheets are also classified as "B-s1, d0" and are rated “difficult-to-ignite”. The LUMEX® version featuring UV protection offers good weather resistance and these sheets can also be used in outdoor applications for periods of several years. LUMEX®A sheets are sturdy and robust with a high impact strength even at temperatures as low as minus 20°C.

RECYCLABILITY

The whole LUMEX® product family can be sorted into individual types for recycling and reuse. LUMEX®A can be disposed of in category 1 (PET) plastic waste in the same way as, for example, PET plastic bottles, meaning it is extremely suitable for recycling. At 3A Composites, we are committed to processing our production waste within the company and using it again to manufacture new products.



LUMEX® A

THE BEST FOR FLAT APPLICATIONS.

LUMEX® A are premium quality amorphous polyethylene terephthalate (A-PET) sheets. They are ideally suited to flat applications. LUMEX® A shows good printability with UV curing inks and is flame retardant rated 'difficult-to-ignite' (Fire behavior according to EN 13501-1: B-s1, d0) as well as suitable for food applications. Moreover, it is extremely impact resistant also at temperatures down to -20°C and shows good outdoor durability in the variant with UV protection.

LUMEX® A sheets offer a unique combination of excellent properties and are well suited for e.g. flexible poster covers, printed, translucent signs, small to medium sized displays, Slatwall magazine racks as well as for cold food storage elements.

CHARACTERISTICS

- 100% recyclable within its own waste category 1 (PET)
- Tough and hard with high impact strength also at temperatures down to -20°C
- Impeccable optical properties with a light transmission of nearly 90% for non-tinted types
- Good outdoor durability in the variant with UV protection
- Flame retardant rated B-s1, d0 according to EN 13501-1 (difficult-to-ignite)
- Very high chemical resistance against cleaning agents, mineral oils, solvents
- Easy and fast to process
- Good printability thanks to optimal adhesion of UV curing inks

APPLICATIONS

- Architecture & construction
- Equipment, appliances & machine construction
- Boat and shipbuilding
- Caravan construction
- Shopfitting | trade show stands | stage design | studio and office furnishings and fittings
- Interior design
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Clear transparent | Opal 30% | White | Others translucent | Others opaque

Black

Bronze

LUMEX® G

THE PERFECT MATERIAL FOR VACUUM FORMING AND THERMOFORMING.

LUMEX® G is the proven brand on the market for premium quality modified polyethylene terephthalate (PET-G). LUMEX® G is the best choice for thermoforming and hot line bending applications. LUMEX® G sheets are flame retardant rated "difficult-to-ignite" (fire behavior according to EN 13501-1: B-s1, d0), approved for use in the food industry and show very high impact resistance. They are also excellent to print with UV curing inks and fast, convenient to convert.

LUMEX® G sheets feature enhanced thermoforming capabilities as they do not crystallize. Vacuum forming requires no pre drying and is therefore significantly quicker and more cost-effective.

LUMEX® G sheets are suitable e.g. for all kinds of glazing (bus shelters, posters, machines), for medical appliance packaging, displays and signs for interior and exterior use as well as for three-dimensional POS/POP displays.

CHARACTERISTICS

- Excellent for vacuum forming and thermoforming without pre-drying (time and energy saving)
- Easy to fabricate
- Good chemical resistance
- Good outdoor durability in the variant with UV protection
- Very high impact strength
- Flame retardant rated B-s1, d0 according to EN 13501-1 (difficult-to-ignite)
- Good printability thanks to optimal adhesion of UV curing inks

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Clear transparent | Opal 30% | White | Others translucent | Others opaque

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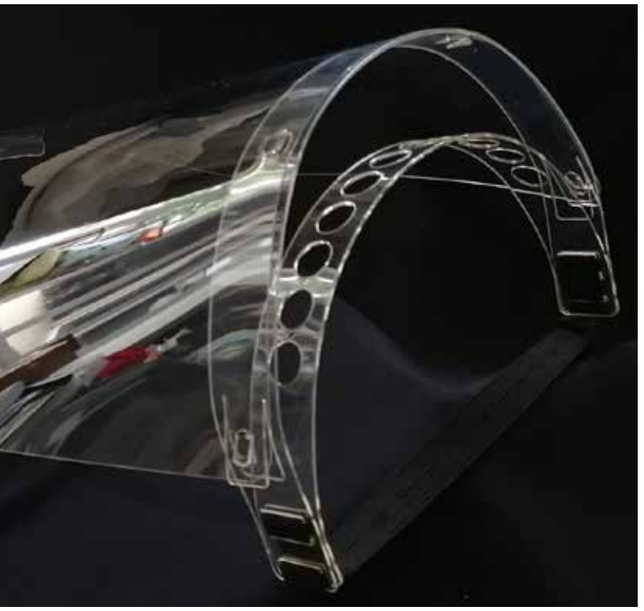


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REDUCE REUSE RECYCLE
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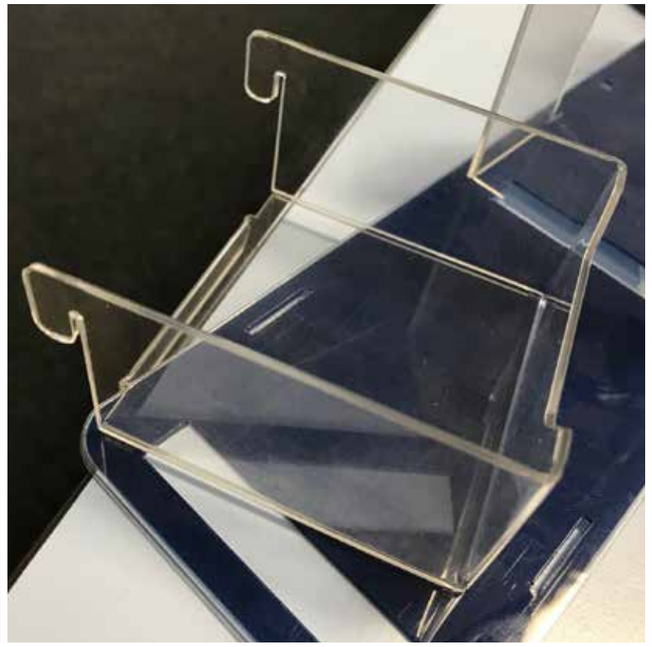


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We've changed the jars of our Green Tiga in Syrup and Orange Marmalade with Dark Chocolate from square to round.
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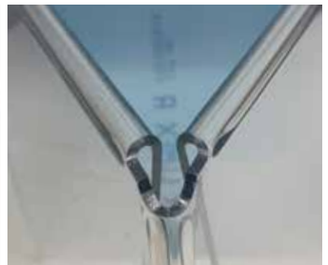

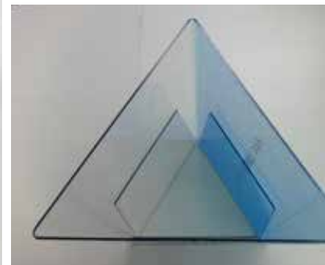

LUMEX® EN 11/2025