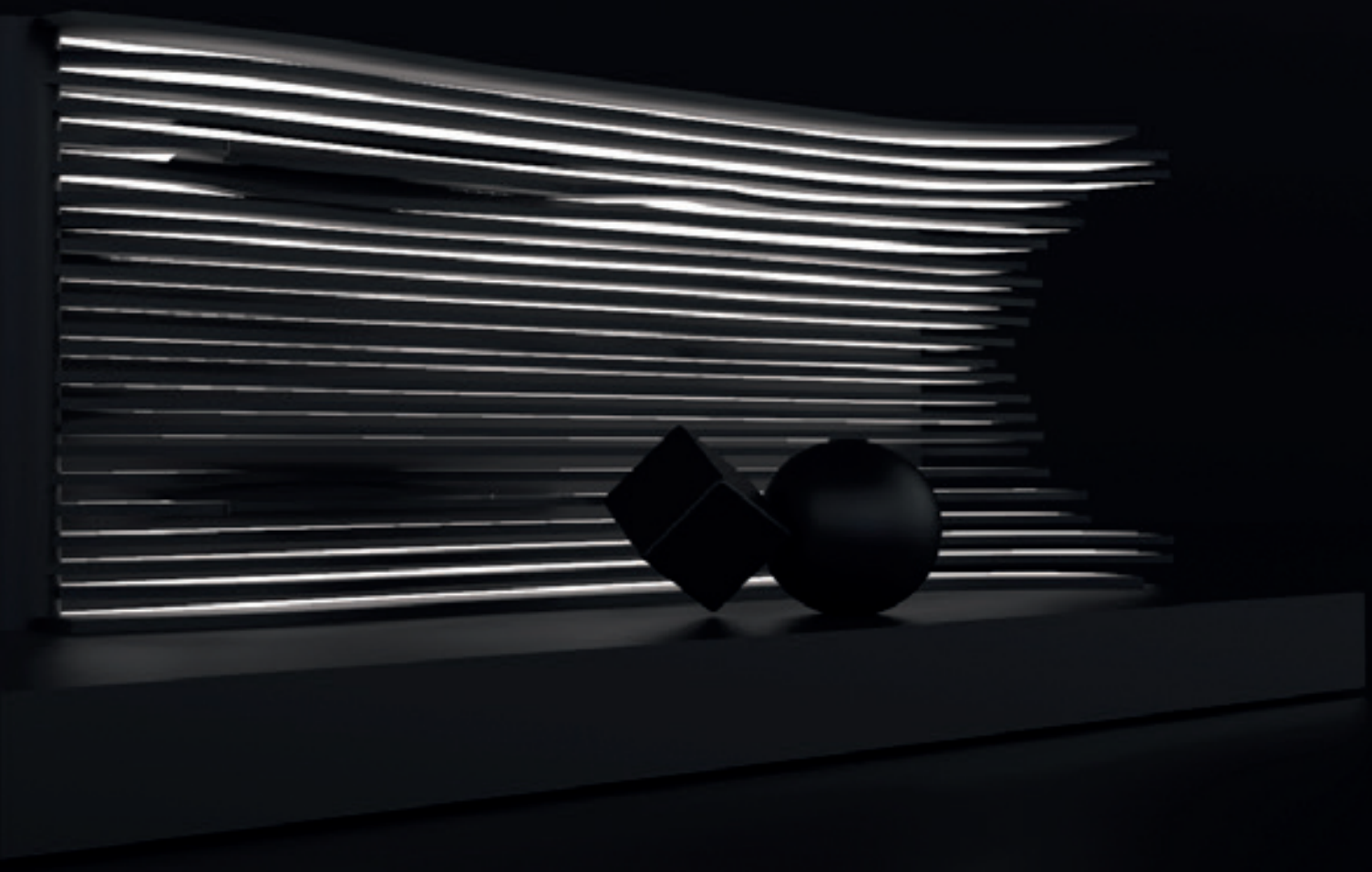
Makrolon®
for **LED Lighting**

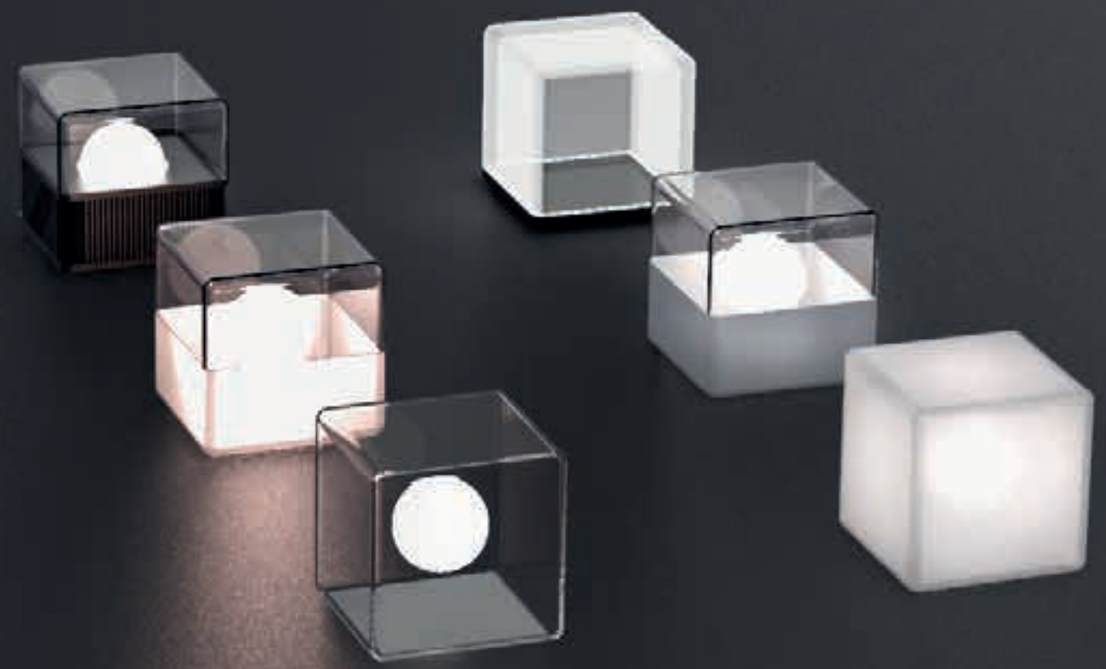


covestro

2026-02-12 15:00:00 Distribuited by Mito polimeri

LED Portfolio

Index



p. 1 Introducing Makrolon® Polycarbonate

p. 3 Transparent

p. 7 Diffusion Quality

p. 11 Flame Retardant

p. 15 Reflective White

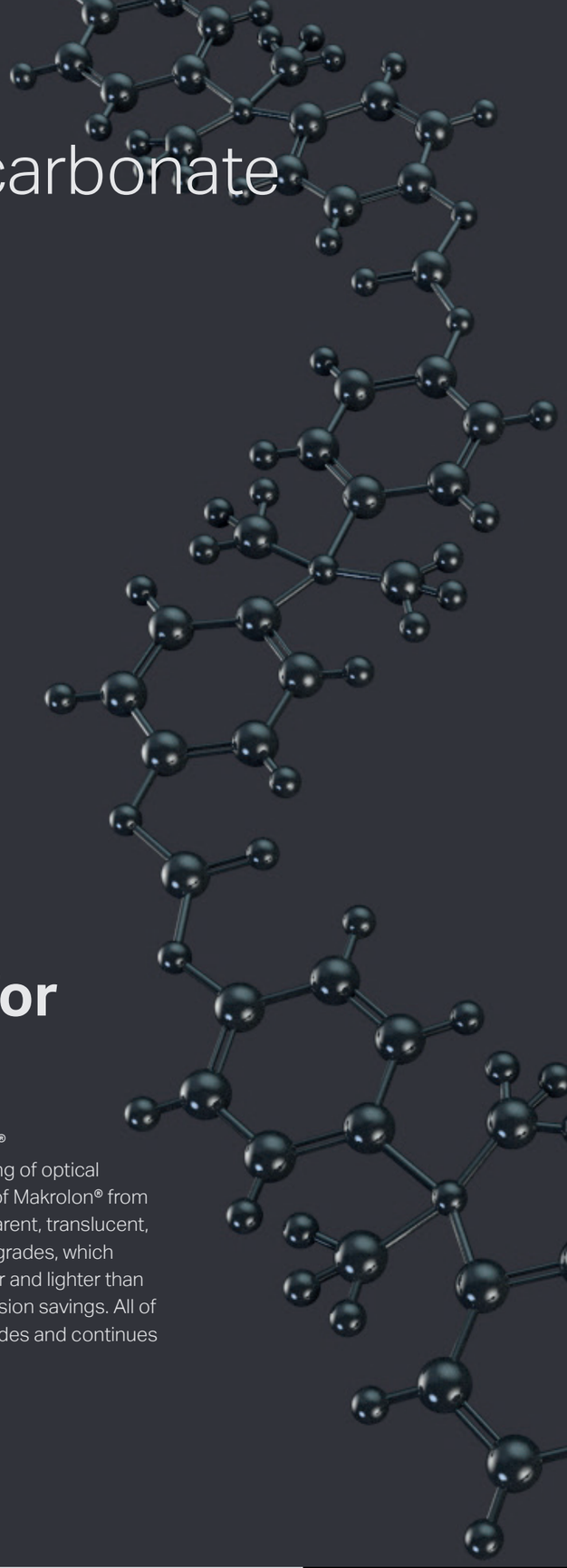
p. 19 Thermal Conductive

p. 23 Edge Light Technology

p. 27 About Us

Introducing

Makrolon® Polycarbonate



A Building Block for Innovation

A thermoplastic with truly diverse applications, Makrolon® polycarbonate enables efficient design and manufacturing of optical parts for LED powered luminaires. The tailored portfolio of Makrolon® from Covestro for general lighting applications include transparent, translucent, reflective white, thermal conductive and flame retardant grades, which can be used for injection molding and extrusion. Stronger and lighter than glass, polycarbonate also provides energy and CO_2 emission savings. All of which explains why Makrolon® has been trusted for decades and continues to pave the way for tomorrow's lighting innovations.

Product List

Makrolon®
Transparent Polycarbonate

LED5102
Low viscosity

LED5202
Medium viscosity

LED5302
High viscosity

LED5402
High viscosity

Makrolon®
Diffusion Quality

DQ5122
Low diffusion

DQ5142
Medium diffusion

DQ5162
High diffusion

DQ5622 ET
Extrusion
Low diffusion

DQ5652 ET
Extrusion
Medium diffusion

DQ5662 ET
Extrusion
High diffusion

Makrolon®
Flame Retardant

LED5902 FR
High transmission

DQ5922 FR
Low diffusion

DQ5942 FR
Medium diffusion

DQ5962 FR
High diffusion

Makrolon®
Reflective White

RW5181 019900
Excellent reflection

RW2407 012363
High reflection

RW6267X 012363
High reflection
Flame retardant

RW2407 012612
Light blocking

RW6267X 010083
Light blocking
Flame Retardant

RW3137 ET 010083
Light blocking
Extrusion

Makrolon®
Thermal Conductive

TC629
Excellent thermal conductivity
High softening temperature

TC621
Excellent thermal conductivity

TC421
High thermal conductivity

TC210
Electrically insulating
Increased thermal conductivity

TC110
Electrically insulating

2026-02-12 15:00:00 Distribuited by Mito polimeri

Makrolon® LED
Transparent

High light transmission across the visual spectrum

Good life time performance

High mechanical stability

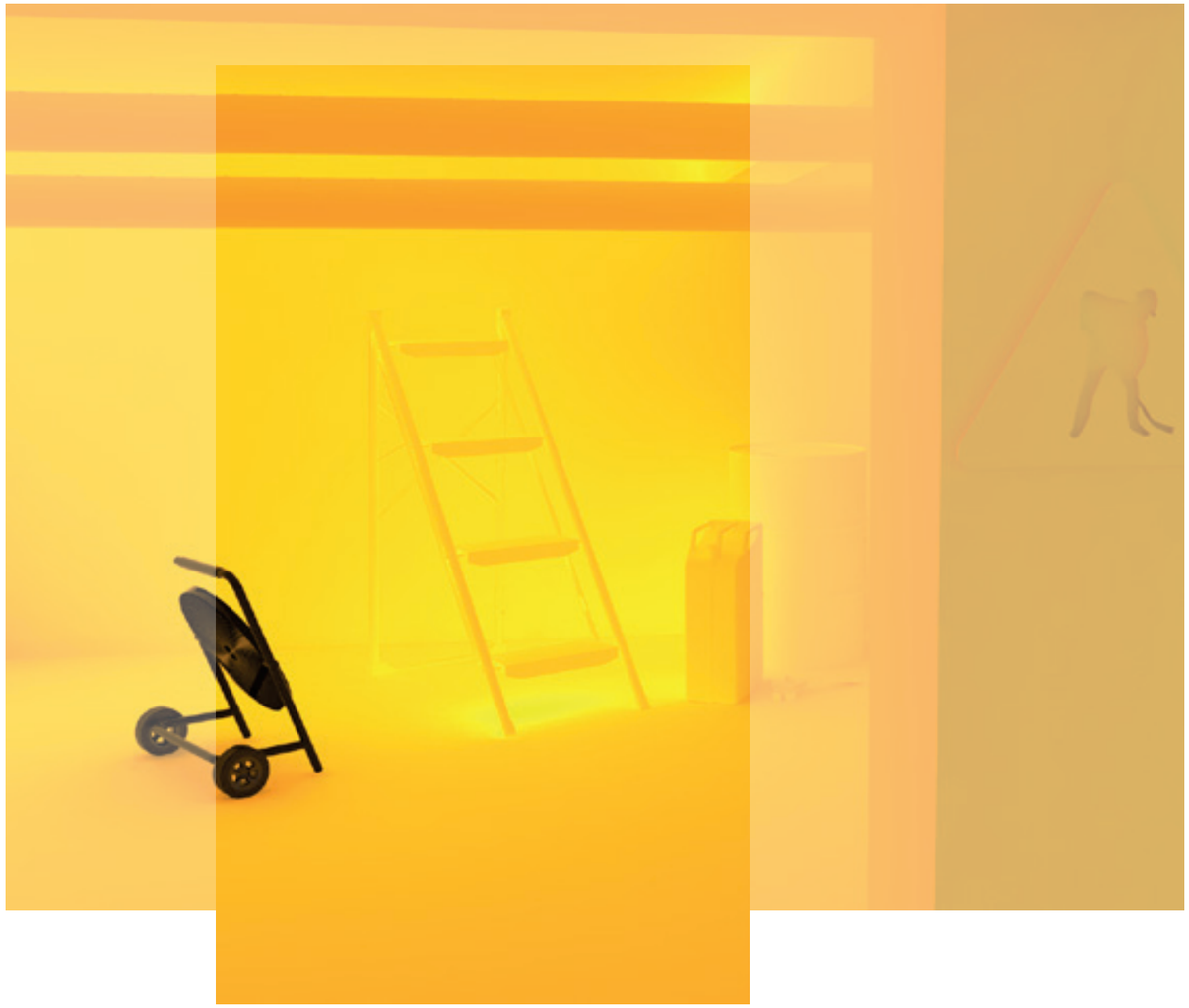
Form Your Future

The modern design possibilities for luminaires powered by LEDs are endless. Makrolon® LED5102 provides good flowability, allowing you to injection mold complex geometrics while maintaining high mechanical stability. In case you need additional mechanical performance Makrolon® LED5302 or LED5402 have you covered.

2026-02-12 15:00:00 Distributed by Mito polimeri

Makrolon® LED
Transparent

Material Properties	Makrolon® LED5102	Makrolon® LED5202	Makrolon® LED5302	Makrolon® LED5402
MVR [cm³/10 min]	34	19	13	9.5
Transmission @ 2 mm	90%	90%	90%	89%
UV stabilized	✓	✓	✓	✓
Yellowness Index @ 2 mm	1	1	1	<0.8
Haze @ 2 mm	<0.5%	<0.5%	<0.5%	<1.0%
Izod notched impact 23 °C [kJ/m²]	55	69	72	71
RTI listed 125°C/115°C/125°C	✓	✓	✓	✓
f1 listed	✓	✓	✓	✓
Process	Injection molding	Injection molding	Injection molding	Injection molding & Extrusion





Shine Brighter

The incredible transparent properties of Makrolon® LED5102, Makrolon® LED5202, Makrolon® LED5302 and Makrolon® LED5402 let your light shine brighter through both quality and longevity.

2026-02-12 15:00:00 Distribuited by Mito polimeri

Makrolon® DQ

Diffusion Quality

For luminaires with superior lumen output

Customized levels of hiding power

Transmission is our Vision

With up to 10% more light transmission, Makrolon® DQ improves your luminaire efficacy, allowing you to make more powerful luminaires with the same ability to diffuse light.

2026-02-12 15:00:00 Distribuited by Mito polimeri

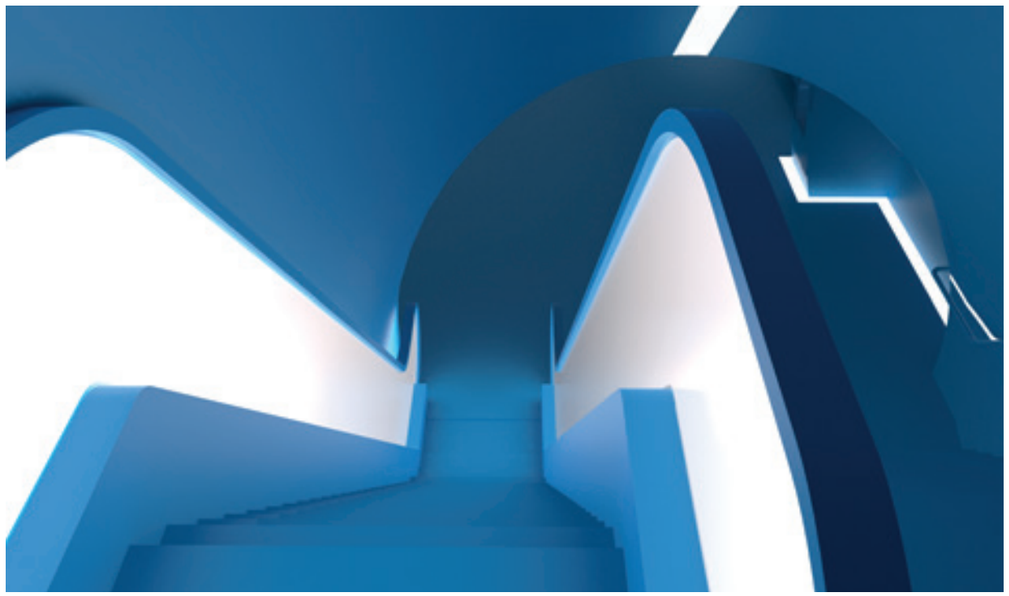
Makrolon® DQ

Diffusion Quality

Material Properties	Makrolon® DQ5122	Makrolon® DQ5142	Makrolon® DQ5162	Makrolon® DQ5622 ET	Makrolon® DQ5652 ET	Makrolon® DQ5662 ET
MVR (cm³/10min)	34	34	34	6	6	6
HPA* @ 2 mm	19°	43°	56°	19°	49°	54°
Transmission @ 2 mm	85%	65%	57%	83%	58%	54%
UV stabilized	✓	✓	✓	✓	✓	✓
RTI listed 125 °C/115 °C/125 °C	✓	✓	✓	✓	✓	✓
f1 listed	✓	✓	✓	✓	✓	✓
Process	Injection molding	Injection molding	Injection molding	Extrusion	Extrusion	Extrusion

* Half power angle





Three Grades – Tailored Power

Makrolon® DQ comprises 3 products for each processing method with tailored half power angles, offering you the right hiding power for your luminaires. Optimized by data science, we can push light transmission to be best in class.

2026-02-12 15:00:00 Distribuited by Mito polimeri

Makrolon® FR
Flame Retardant

Excellent optical performance

Available in transparent and translucent

Strong flame retardance V0 / 5VA



“Hot” Topic in LED

Trends in LED powered luminaries like miniaturization and functional integration drive the need for flame retardant optics that fulfill demanding flame classifications. Makrolon® LED5902 FR and Makrolon® DQ FR help you to meet these requirement without making compromises in optical performance.

2026-02-12 15:00:00 Distribuited by Mito polimeri

Makrolon® FR

Flame Retardant

Material Properties	Makrolon® LED5902 FR	Makrolon® DQ5922 FR	Makrolon® DQ5942 FR	Makrolon® DQ5962 FR
UL94 Classification	V-0 @ 1 mm 5VA @ 3 mm	V-0 @ 0.8 mm 5VA @ 3 mm	V-0 @ 0.8 mm 5VA @ 3 mm	V-0 @ 0.8 mm 5VA @ 3 mm
Transmission @ 2 mm	89%	77%	64%	55%
HPA* @ 2 mm		19°	43°	56°
UV stabilized	✓	✓	✓	✓
Yellowness Index	1.2			
f1 listed	✓	✓	✓	✓
Haze @ 2 mm	<1%			
Process	Injection molding & Extrusion	Injection molding & Extrusion	Injection molding & Extrusion	Injection molding & Extrusion

*Half power angle

Don’t Learn Safety by Accident.

Being both temperature resistant and capable of high impact strength, Flame Retardant Makrolon® is a perfect option for light and safety in enclosed spaces with strict safety regulations.



2026-02-12 15:00:00 Distribuited by Mito polimeri

Makrolon® RW

Reflective White



High light reflection

Exceptional mechanical performance

Optimized processability

Human Centric Lighting

Makrolon® RW provides an ideal reflective surface in an aesthetic white appearance, spreading light homogeneously in all directions. Making the light easy for the eyes, without glare.

2026-02-12 15:00:00 Distribuited by Mito polimeri

Makrolon® RW
Reflective White

Material Properties	Makrolon® RW5181 019900	Makrolon® RW2407 012363**	Makrolon® RW6267X 012363**	Makrolon® RW2407 012612	Makrolon® RW6267X 010083	Makrolon® RW3137 ET 010083
Total light reflection @ 2 mm	97%	96%	96%	86%	92%	92%
MVR [cm³/10 min]	26	19	19	19	19	6
UV stabilized	–	✓*	✓*	✓*	✓*	✓
Light blocking Transmission @ 1 mm <0.01%	–	–	–	✓	✓	✓
UL94 Classification	V-2 @ 1.5 mm	V-2 @ 1.5 mm	V-0 @ 1.5 mm	V-2 @ 1.5 mm	V-0 @ 1.5 mm	HB
Process	Injection molding	Injection molding	Injection molding	Injection molding	Injection molding	Extrusion

* Also available as non UV stabilized version (Makrolon® RW2405; Makrolon® RW6265X)
** Also available with colder white impression (Color code: 010226)





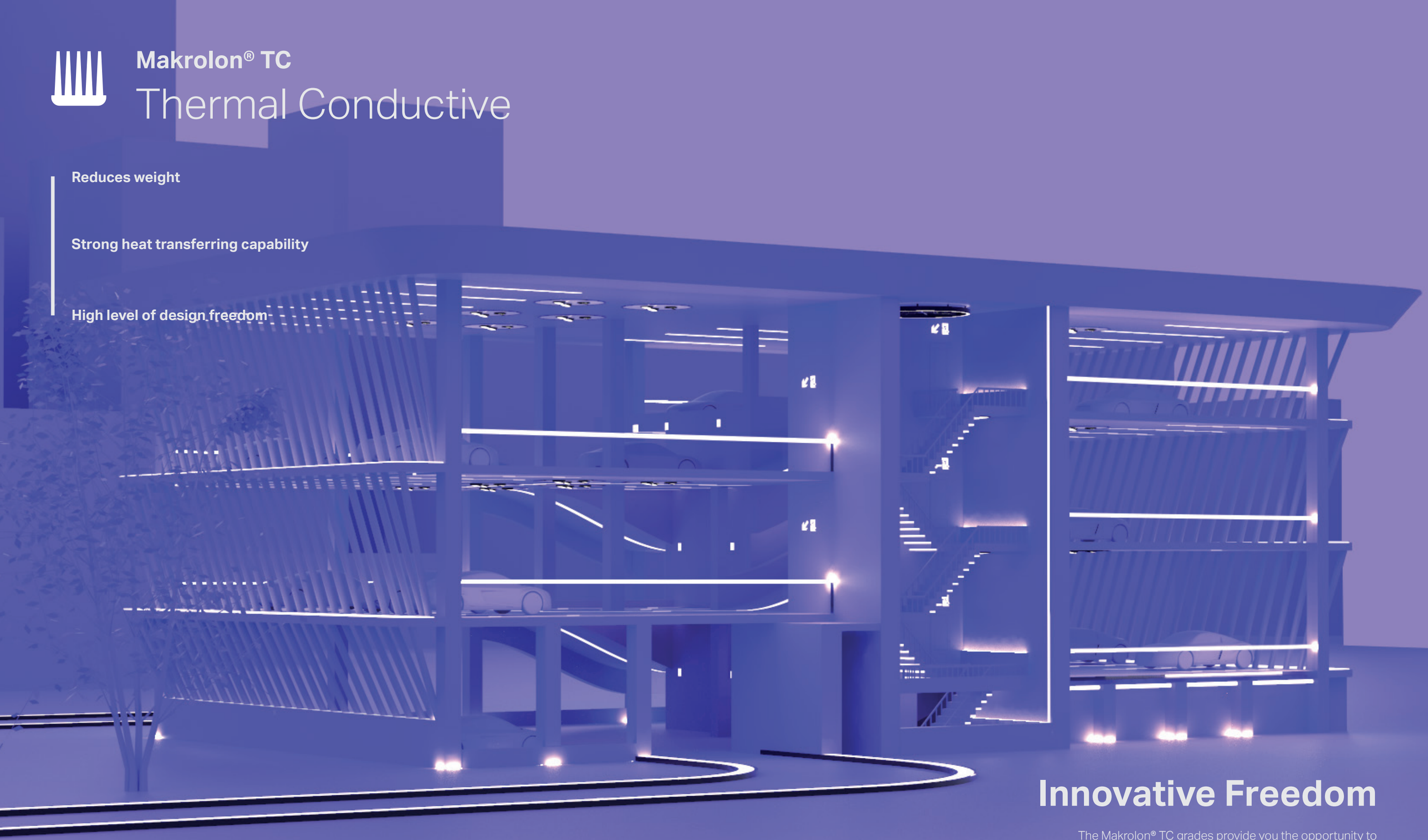
Wide Variety for Specific Needs

Makrolon® RW grades are optimized to achieve excellent optical performance without compromise in processability, flame retardance and mechanical performance. The effect of light leakage in reflectors with thin wall thicknesses can be managed by dedicated light blocking products.

2026-02-12 15:00:00 Distribuited by Mito polimeri

Makrolon® TC
Thermal Conductive

- Reduces weight
- Strong heat transferring capability
- High level of design freedom



Innovative Freedom

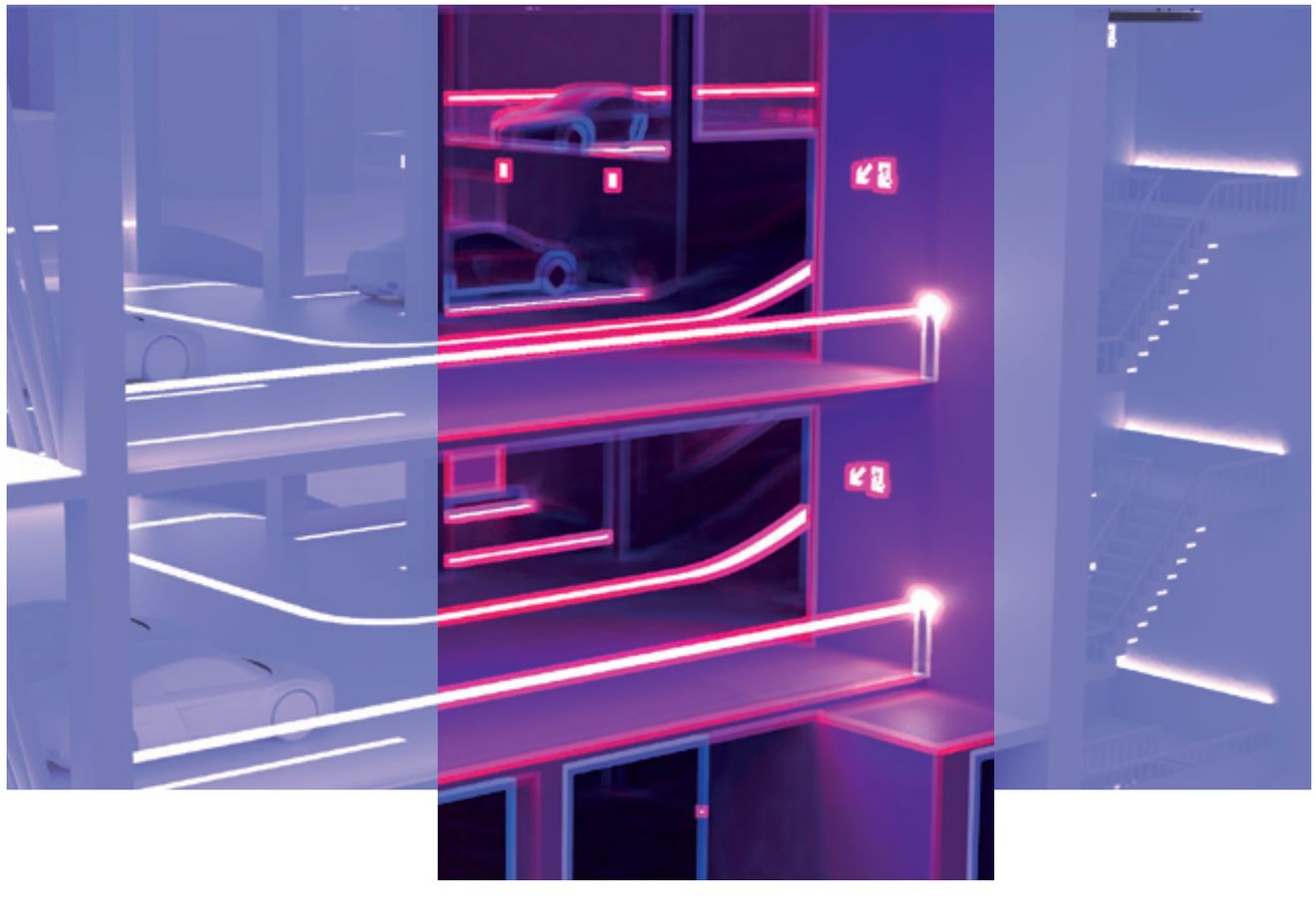
The Makrolon® TC grades provide you the opportunity to replace metals in heat sink applications, opening up incredible design opportunities while still keeping high dimensional stability.

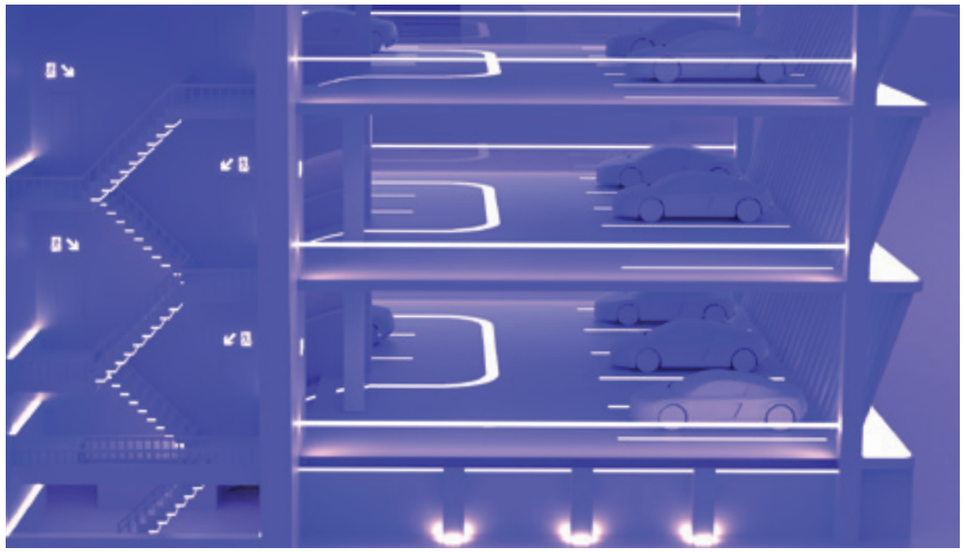
2026-02-12 15:00:00 Distribuited by Mito polimeri

Makrolon® TC

Thermal Conductive

Material Properties	Makrolon® TC629	Makrolon® TC621	Makrolon® TC421	Makrolon® TC210	Makrolon® TC110
Thermal conductivity in plane [W/(m·K)]	15	16	8	1.4	1
Thermal conductivity through plane [W/(m·K)]	1.2	1.4	0.9	0.3	0.3
Vicat softening temperature	144 °C	128 °C	131°C	146°C	145°C
Electrical properties	Cond.	Cond.	Cond.	Insul.	Insul.
Color appearance	●	●	●	○	○
UL94 Classification	V-0 @ 2 mm	V-0 @ 2 mm	V-0 @ 3 mm	–	–
Charpy unnotched impact 23 °C [kJ/m²]	<10	<10	<10	12	70





Lighten Your Experience

Makrolon® TC helps you achieve weight savings while meeting service life requirements and high efficiency. Improve time, ergonomics and costs.

2026-02-12 15:00:00 Distribuited by Mito polimeri

Makrolon®

Edge Light Technology

Unlock new designs

Well-defined light distribution

Edge lighting made possible in polycarbonate

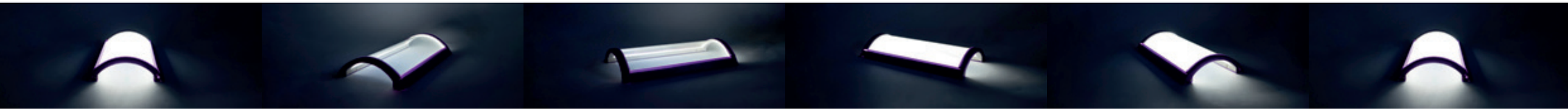
New Frontiers

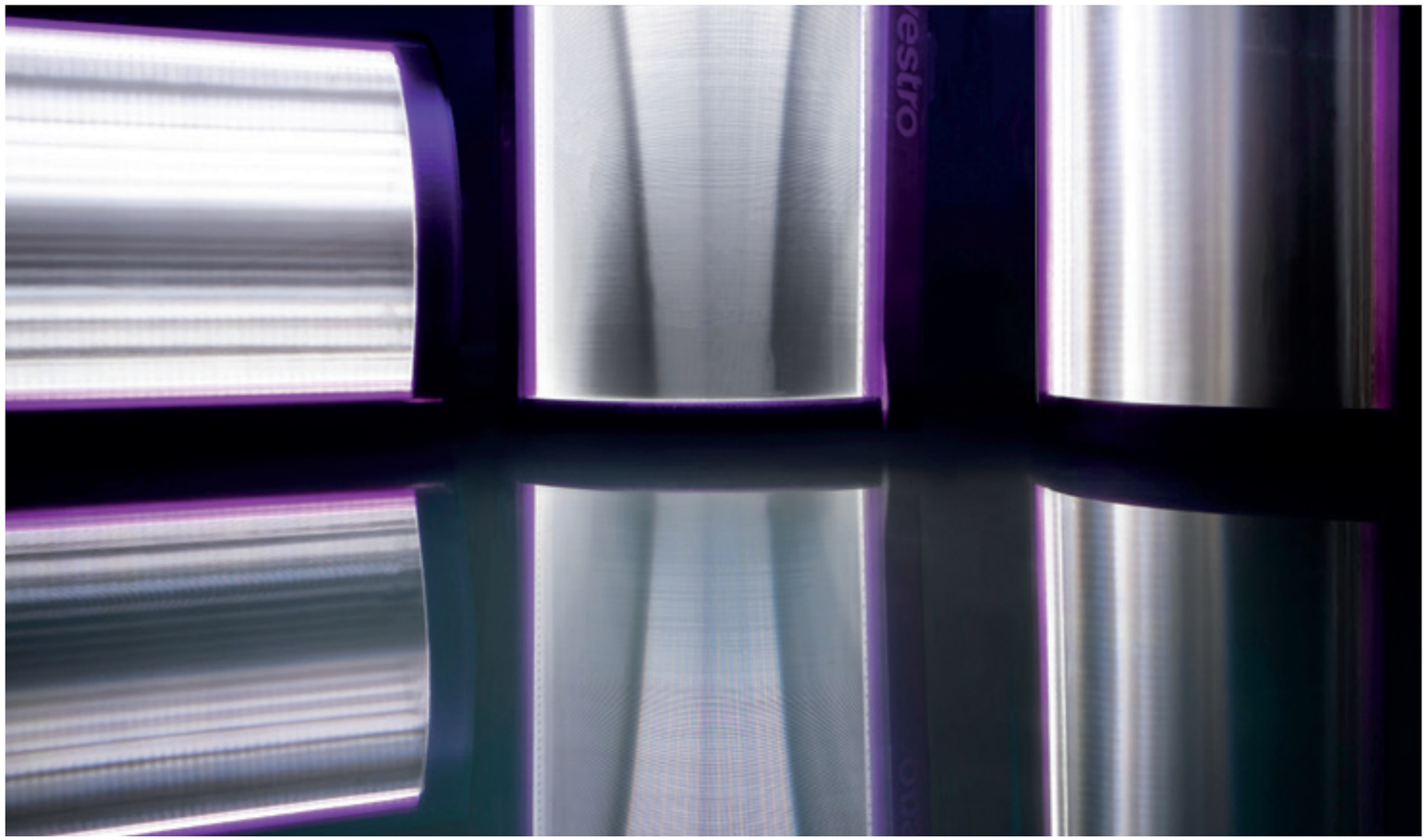
Free formed and microstructured light guides based on Makrolon® LED offer new design possibilities in technical luminaires and ambient lighting applications. Enabling custom illumination geometries with appealing low-glare lighting.

2026-02-12 15:00:00 Distribuited by Mito polimeri

Makrolon®

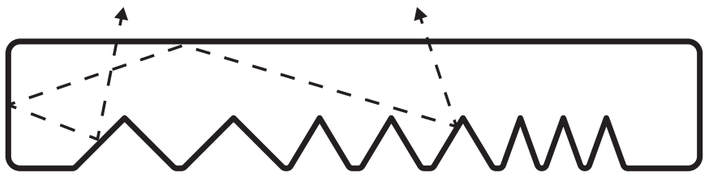
Edge Light Technology





What's Your Idea?

In collaboration with our industry partners we cover all competencies that are necessary to develop an edge lighting luminaire from the idea phase to serial production. Let's work on your idea.



Schematic Illustration:
Microstructed polycarbonate light guide

2026-02-12 15:00:00 Distribuited by Mito polimeri

Covestro

About us

Curious, Courageous and Colorful

Curious

We are open to new ideas and strive for progress. We are constantly looking for improvements. Curiosity drives us to listen closely and offer solutions that are creative and need-based.

Courageous

We see opportunities where others see risks. Where others ask “why” we answer “why not?”. With our knowledge and experience we can push boundaries – always with our eyes set on the future.

Colorful

In the often dull corporate world we stand for diversity, optimism and creativity. We know that different views help to solve problems in an innovative way.

You Are Not Just a Number

At Covestro, we feel strongly about being on equal level and on the same page as our customers. We appreciate interpersonal relationships and want to listen to and evolve with you. Your competitiveness is our success.

Reliability is Our Priority

Our global presence makes us a reliable and flexible partner. Together we strive to find the right solutions for you needs.

2026-02-12 15:00:00 Distribuited by Mito polimeri

Covestro

Our Global presence



Baytown, TX

Newark, OH

Antwerp

Krefeld-Uerdingen

Leverkusen

Filago

Greater Noida

Map Ta Phut

Guangzhou

PCS HQ: Shanghai

Find a Covestro regional office near you

America
Covestro LLC
1 Covestro Circle
Pittsburgh, PA 15205
USA

+1 412 413 2000

plastics@covestro.com

Europe
Covestro Deutschland AG
Kaiser-Wilhelm-Allee 60
51373 Leverkusen
Germany

+49 214 600 92000

Asia
Covestro Polymers (China) Co. Ltd
25/F, Building 5, Crystal Plaza
36 Pingjiaqiao Rd, Pudong
Shanghai 200126, P.R. **China**

+ 86 21 80207777

2026-02-12 15:00:00 Distribuited by Mito polimeri



What's Next?

The possibilities are endless. You have the ideas, we have the materials
Go ahead and start your journey with Makrolon® for LED Lighting .

2026-02-12 15:00:00 Distribuited by Mito polimeri



This information and our technical advice - whether verbal, in writing or by ways of trial - are given in good faith but without warranty and are subject to change without notice. This also applies where proprietary rights of third parties are involved. The information is provided by Covestro AG without assumption of any liability. Our advice does not release you from the obligation to verify the information provided - especially that contained in our safety data and technical information sheets, and to check for updates of any information provided by us and to test our products as to their suitability for the intended processes and uses. The application, use and processing of our products and the products manufactured by you on the basis of our technical advise are beyond our control and, therefore, entirely your own responsibility. Our products are sold in accordance with the current version of our General

Covestro Deutschland AG
51365 Leverkusen

plasti

)V00089097 Printed in Germany.

2026-02-12 15:00:00 Distributed by Mito polimeri