

TECHNICAL INFORMATION P10/0513

## vitroflex® LED BACKLIGHT features

Vitroflex LED BACKLIGHT is the special methacrylate casting or extrusion sheet designed to use in BACKLIGHT system, which allows the substitution of the traditional light bulbs or fluorescent by LEDs, optimizing its efficiency by optimal selection of the diffuser.



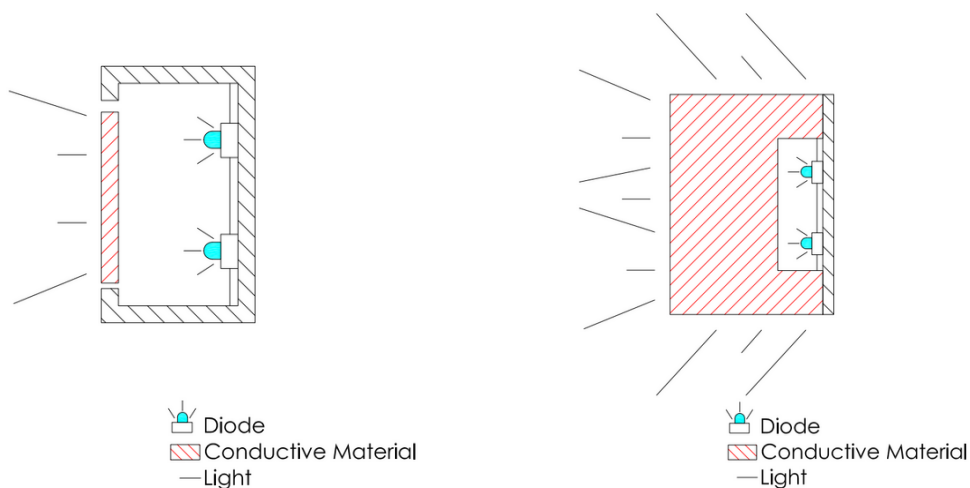
Signage example with thick letter illuminated with strip of LED

## PROPERTIES

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- Product specially designed for lighting by LED.
- Lighter and 10 times more resistant to impact than glass.
- It allows homogeneity lighting without shadows.
- His versatility and high quality allows free to creation of authentic and unique spaces. The brightness and opacity without lacquer gives it a special personality, making it optimal for architecture design and quality.
- Great power diffuser (haze) of diodes, with maximum transmission, optimizing the performance of any LED lighting used.
- Easy machining by cutting, milling CNC or laser cutting.
- Combinable with lots of plastic and metal profiles.
- Compact material where the tone of colour and brightness remain unchanged after the transformation without lacquer, varnish or subsequent coatings

- The inalterability of colour allows additions or substitutions without notice the change.
- High durability, the physical and chemical properties remain unchanged over time.



Light Box with slim front diffuser

Light Box with thick diffuser

## APPLICATIONS

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- Architecture:
  - Illumination ceilings, floors and walls.
  - Entertainment.
  - Light rods or tubes.
  - Indoor and outdoor decorative elements.
  - Interior partition with light.
  - Retro-illuminated façade.
- Urbanism:
  - Lighting through tubes and other forms.
  - Signalling and signage.
  - Displays with light.
- Indoor and outdoor labelling.
- Light, foot or table lamps fixtures, diffusers.

## MAINTENANCE

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- It is recommended to clean using a gentle soap solution (neutral pH) with warm water and a nonabrasive cloth. The use of aggressive detergents with non-neutral pH can reduce the service life.
- The use of glass washers with alcohol or other similar products may negatively affect the properties and reduce the service life.
- If an adequate disinfection is required, it is advisable to refer to the table of chemical resistance of Vitroflex, test a piece with no value, and preferably use the manufacturer recommended products only.
- In case the surface has small scratches due to the daily use, they can be removed using a specific polish for car bodies that is used manually. If deep scratches appear or if it is necessary to polish large surfaces, it is advisable to use an orbital eccentric polishing machine.

## RANGE

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- Size:
  - Up to 6mm are manufactured in 3050 x 2050 mm.
  - 8 up to 35 mm are manufactured in 3050 x 2030 mm.
  - From 40 mm are manufactured in 3000 x 2000 mm.
  - Any thickness can be supplied cut to measure, with an accuracy of  $\pm 1$ mm. Temperature variations can modify this value.
- Thickness:
  - 3-4 mm is the most common for providing very good uniformity of light.
  - 6 - 8 mm for sizes means
  - Lyrics with LED integrated thickness 30 mm.
  - Other thicknesses with minimum order can be produced (110 m<sup>2</sup>)
  - Apply the tolerances according to ISO 7823/1.
- Colours:
  - Different degrees of light transmission and diffusion are available. Check technical data sheet.
  - Other colours available under minimum order of 110 m<sup>2</sup>.

- Special properties:
  - Anti-scratch.
  - Antistatic.
  - Anti-graffiti.
  - Anti-condensation.
  - Increased resistance to solvents, hydrocarbons and marine environments.

## **QUALITY**

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- Compliance with the standard ISO 7823/1 applicable to sheets of methacrylate casting, with independent laboratory certificate.
- All parts are inspected individually.
- Product certificate according to normal UL - 94 HB.

## **OTHER AVAILABLE INFORMATION**

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- Table of resistance to various chemical products.
- MSDS for handling "Safety Data Sheet"
- Installation manual
- Methacrylate basic manual manipulation.
- Technical manual of LED lighting systems.

# Vitroflex BACKLIGHT

## TECHNICAL FEATURES ISO 7823-1<sup>1</sup>

<b>Physical properties</b>	<b>Cast</b>	<b>Extrusion</b>	<b>Unit</b>	<b>Standard</b>
Relative density - Volumetric mass (A Method)	1,19	1,19	g/cm <sup>3</sup>	ISO 1183
Water absorption (Method 1)	0,19	0,3	%	ISO 62
Sheet thickness tolerance	±0,4+ (e*0,4)	±0.2	mm	ISO 7823
<b>Mechanical properties</b>				
Tensile strength (Type 1 Test, B speed)	72	72	MPa	ISO 527
Traction elasticity module (Type 1 Test, B speed)	3000	3330	MPa	ISO 527
Elongation at break (Type 1 Test, B speed)	4	4	%	ISO 527
Impact strength. Charpy method	16	15	KJ/m <sup>2</sup>	ISO 179/2D
Rockwell hardness (M Scale)	100	95	-	ISO 2039/2
Bending strength	116	106	MPa	ISO 178
<b>Thermal properties</b>				
Coefficient of linear expansion	70,6.10-6	0.065 mm/m 1/°C ISO 11359	K-1	EN 2155-12
Flammability	HB	HB , V-0	-	UL 94
VICAT softening temperature	105	108	°C	ISO 306
Bending temperature under load (A Method, 1,8 MPa)	-	95	°C	ISO 75
Dimension variation at elevated temperatures (shrinkage)	2,3	-	%	Annex

<sup>1</sup> Typical values are not intended for the design.

Optical properties									
	BC113NN	B113QN	ED10NN	LC50NN	LC60NN	LD30NN	LD40NN	L010MN	
Thickness (mm)	3 & 8	3	3	3	3	30	30	3	
Light transmission (%) ISO 2857	64 %	63 %	20 %	53 %	53 %	53 %	53 %	30 %	
Finished surface	Surface Bright	Surface Matt	Day Night	Light Warm	Light Cold	Light Warm	Light Cold	Surface Matt	
Dissemination of LED distance (mm) (Internal method)	60 & 44 Media	51 Media	50 Media	30 High	37 High	0	0	40 High	
Material	Cast methacrylate – Non-drip							Extruded methacrylate - drips	

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