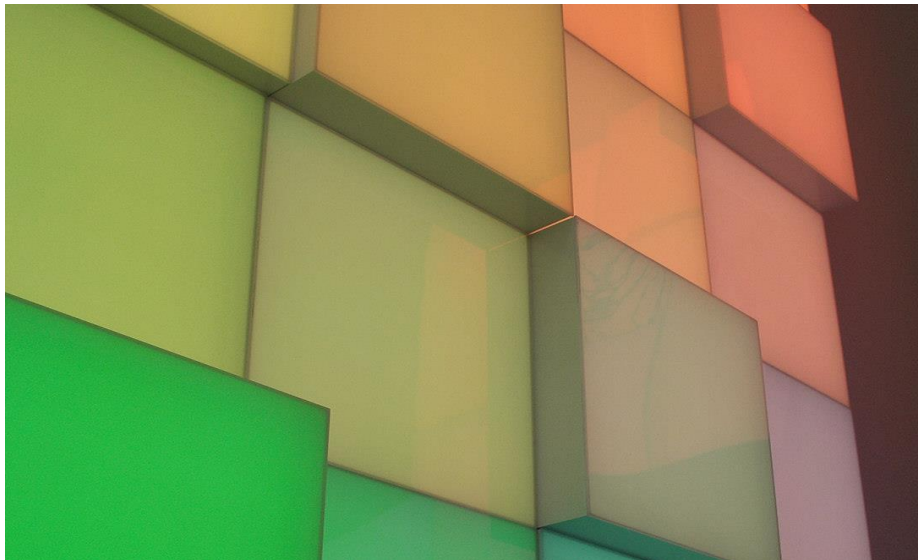


## Makrolon® DX Line

Polished diffuser Sheet



### Description:

The solid Makrolon sheets are polished polycarbonate diffuser sheets. It is developed for applications based on LED light sources, which do not emit UV light. It offers a high light transmission and diffusion as well as extreme impact strength which exceeds properties of other thermoplastics.

### Application:

Makrolon DX is typically used for all kinds of LED fixtures and luminaires. It offers protection against willful destruction.

### Service information:

For samples, pricing and delivery please contact us at:

+45 4618 6644

Email:

[sales@ingemanncomponents.com](mailto:sales@ingemanncomponents.com)

Looking for a solution with this product, click [here](#).

Product data	
<b>Standard Material</b>	PC – clear polycarbonate
<b>Available size:</b>	Square 2050mm x 1250mm
<b>Thickness</b>	1.5 mm $\pm 10\%$ 3 mm $\pm 5\%$
<b>Refractive Index</b>	1.585
<b>Transmittance</b>	Makrolon Warm 3-1.5mm: 72%-76% Makrolon Cool 3-1.5mm: 64%-65%
<b>Temperature Range</b>	-100°C to +100°C

## MAKROLON® DX

Solid sheets of polished diffuser polycarbonate, giving a high uniformity of light scattering.

64%-76% Transmission  
2-3mm thickness  
Max temp +100°C  
Custom sizes available

Ingemann Components  
Tingbjergvej 6  
4632 Bjæverskov  
Denmark  
[www.ingemanncomponents.com](http://www.ingemanncomponents.com)

 **ingemann**  
Components

## Technical Specs - Makrolon® DX Line

MAKROLON® DX

Properties	Thickness varies	Notes
<b>Physical –</b>		
Density	1.2 g/cm <sup>3</sup>	
Rockwell Hardness	108	
<b>Optical –</b>		
Transmittance	Warm 1.5: 76% Warm 3: 72% Cool 1.5: 64% Cool 3: 65%	
Refractive index	1.585	
Reflection	N/A	
<b>Mechanical –</b>		
Tensile strength	70MPa	
<b>Thermal –</b>		
Long term temp.	–100°C to 100°C	
Short term temp.	120°C	
Melting temp.	288°C	
<b>Surface</b>	Polished on both sides	
<b>UV stable</b>	Yes	
<b>Dirt depreciation</b>	Anti-static treatment	
<b>Chemical Resistance</b>		See next page
<b>Thermal expansion</b>	6.5 · 10 <sup>-5</sup> /K	
<b>Glow wire test IEC 60695-2-12</b>	GWFI: 850/ 1.5 3 GWFT: 875/ 1.5 3	
<b>Fire Rating</b>	PC	Class B1 (DIN 4102-2)

## Processing options at Ingemann Components

Processing	Yes/No	Notes
Milling	Yes	Recommended processing
CNC Knife	No	
Laser Cutting	No	
Saw	Yes	
Die Cut	No	
Thermo-forming	Yes	
Print	Yes	

Product	PC Diffuser Plate			
<b>Thickness</b>	Makrolon® DX Warm		Makrolon® DX Cool	
	1.5 mm	3.0 mm	1.5 mm	3.0 mm
<b>Half Power angle</b>	47°	60°	76°	75°
<b>Light diffusion factor</b>	58%	65%	79%	77%

Ingemann Components  
Tingbjergvej 6  
4632 Bjæverskov  
Denmark

[www.ingemanncomponents.com](http://www.ingemanncomponents.com)

## Chemical Resistances

Chemical resistance at 20°C		
Acetone	-	Ethyl acetate -
Ammonia	-	Glycerin +
Amyl Alcohol	-	Fuel oil +
Benzene, free from aromatics	-	Hexane +
Benzole	-	Isopropanol +
Boric Acid	+	Coffee +
Butanol	+	Caustic potash solution -
Chlorinated hydro-carbon	-	Ketone -
Chloroform	-	Methylene chloride -
Chlorinated water/air	o	Lactic acid 10% +
Dibutyl phthalate	-	Mineral oil +
Diocetyl phthalate	-	Caustic soda -
Glacial acetic acid	-	Nitrocellulose lacquer -
Acetic essence	na	Oxalic acid +
Aqueous acetic acid	+	Wax na
Ethanol	+	Hydrogen peroxide +
Acidity of wine	na	Hydrochloric acid conc. 35% -
Xylene	-	Sodium carbonate +
Paraffin	+	Salad vinegar na
Petroleum ether	o	Stearic Acid +
Phosphoric acid 10%	+	Tea +
Sulphuric acid 10%	+	Turpentine -
Nitric acid 10%	+	Toluene -
Hydrochloric acid 10%	+	Diluting agent na

- + Resistant
- o Limited resistance
- Not Resistant
- na Not available

## MAKROLON® DX

Polycarbonate has a good chemical resistance, at room temperature, to a variety of organic and inorganic acids. Water, vegetable oils, solutions of neutral salts, aliphatic hydrocarbons and alcohols.

When polycarbonate is attacked it takes three forms, the first is crystallization which makes the surface white and swelling. This happens with aldehydes, ethers, ketones and aromatic hydrocarbons.

The next is complete destruction, this is caused by alkalines, alkali salts amines and high ozone concentrations.

The third is cracking or crazing to the material, it cracks when stress and acetone or xylene is combined.

Ingemann Components  
Tingbjergvej 6  
4632 Bjæverskov  
Denmark

[www.ingemanncomponents.com](http://www.ingemanncomponents.com)

**ingemann**  
Components