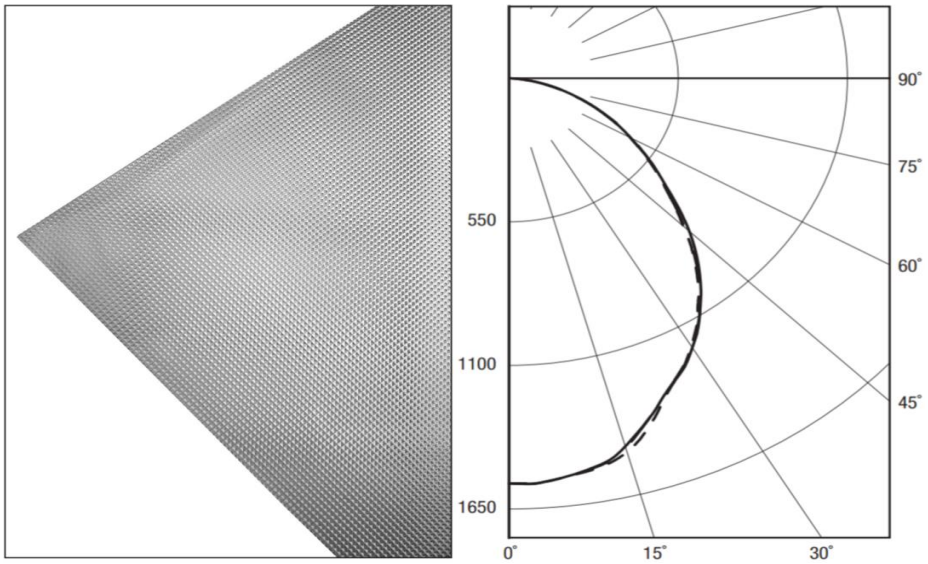
Ingemann Components

MicroMid™

Prismatic Sheet



MICROMID™

High transparent microstructured pyramids that provides the excellent de-glaring effect and high transmittance.

90% Transmission
2-3mm thickness
Max temp +80℃
Custom sizes available

Description:
MicroMid™ Sheet features 1.5mm wide male pyramid prisms to achieve high angle brightness control, excellent lamp obscuration and high transmittance. MicroMid is made from PMMA or PC in 2mm and 3mm thickness and frost acrylic in 2mm thickness upon request.

Application:
The MicroMid is intended for applications in which high angle brightness cannot be tolerated.

Service information:
For samples, pricing and delivery please contact us at:
+45 4618 6644
Email:
sales@ingemanncomponents.com

Looking for a solution with this product, click here.

Product data	
Standard Material	PMMA – clear acrylic PC – clear polycarbonate (Frost acrylic upon request)
Available size	Square 1270mm x 1270mm
Thickness	2mm ± 0.127mm 3mm +0.127 to +0.254mm
Pyramid width	1.5 mm
Refractive Index	1.491 for PMMA 1.585 for PC
Transmittance	90%
Temperature Range	−40℃ to +80℃

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Tingbjergvej 6
4632 Bjæverskov
Denmark
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Technical Specs - MicroMid™

Properties	3 mm PMMA | PC	Notes
Physical –		
Density	PMMA: $1.18\frac{g}{cm^3}$ PC: $1.2\frac{g}{cm^3}$	
Rockwell Hardness	PMMA: 113 PC: 108	
Optical –		
Transmittance	90%	
Refractive index	PMMA: 1.491 PC: 1.585	
Reflection	N/A	
Mechanical –		
Tensile strength	PMMA: $69.9\ MPa$ PC: $70MPa$	
Thermal –		
Long term temp.	PMMA: −40℃ to 80℃ PC: −40℃ to 120℃	
Short term temp.	PMMA: 95℃ PC: 130℃	
Melting temp.	PMMA: 130℃ PC: 288℃	
Surface	Prismatic pyramids on one side, glossy on other side	
UV stable	Yes	
Dirt depreciation	Anti-static treatment	
Chemical Resistance		See next page
Thermal expansion	PMMA: $7 \cdot 10^{-5}/K$ PC: $6.5 \cdot 10^{-5}/K$	Also used units $K^{-1}x10^{-5}$ or $10^{-6}/K$
Glow wire test **IEC 60695-2-12**	PC GWFI: 960/2 Results: Pass	960℃ 2 mm thickness
Fire Rating	PMMA	Class B2 (DIN 4102)

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	No	
Print	Yes	

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Chemical Resistances for PMMA

Chemical resistance at 20℃			
Acetone	-	Ethyl acetate	-
Ammonia	+	Glycerin	+
Amyl Alcohol	-	Fuel oil	o
Benzene, free from aromatics	-	Hexane	+
Benzole	-	Isopropanol	o
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	+
Dioctyl phthalate	-	Caustic soda	+
Glacial acetic acid	-	Nitrocellulose lacquer	-
Acetic essence	-	Oxalic acid	+
Aqueous acetic acid	+	Wax	+
Ethanol	o	Hydrogen peroxide	o
Acidity of wine	+	Hydrochloric acid conc. 35%	+
Xylene	-	Sodium carbonate	+
Paraffin	+	Salad vinegar	+
Petroleum ether	+	Stearic Acid	+
Phosphoric acid 10%	+	Tea	+
Sulphuric acid 10%	+	Turpentine	+
Nitric acid 10%	+	Toluene	-
Hydrochloric acid 10%	+	Diluting agent	-

+ Resistant
o Limited resistance
- Not Resistant
na Not available

At 20℃ PMMA is resistant to hydrocarbons, aromatic free carburetor fuel, mineral oils, vegetable- and animal fats and oils, water, aqueous salt solutions, diluted acids and alkalis.
Aromatic hydrocarbons and hydrogen chlorides, ester, ether and ketones attack and degrade PMMA.

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Chemical Resistances for PC

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	+
Dioctyl 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

MICROMID™

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.

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