

# MIROX MNGE and LACOBEL

Ecological interior glass  
for Asia

The AGC logo is displayed in a white box in the upper right corner. It consists of the letters 'AGC' in a bold, blue, sans-serif font. A small red square is positioned between the 'A' and 'G'.

Your Dreams, Our Challenge



With our Asia headquarters located in Singapore, AGC Asia Pacific is dedicated to provide solutions in the Architectural, Automotive, Industrial and Solar industry in the region. As part of the global AGC group, we take pride in offering our customers a unique global network of experience & expertise with a one-stop integrated access to our wide range of world-class products and solutions that contributes to the global sustainable environment.

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# AGC Glass introduces...



# Asia Interior Glass range



## Mirox MNGE & Lacobel

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# Quality and eco-friendly

## — MIROX MNGE —

Mirox New Generation Ecological (MNGE) from AGC Europe has been well recognised globally since its introduction, thanks to its long-standing reputation for its quality and performance. AGC has taken a step further to manufacture Mirox MNGE in Asia (PT Asahimas Flat Glass Tbk, Cikampek plant) with the same patented AGC European technology, offering the same optimum levels of quality and service.

What we aim is to bring our ecological mirrors closer to our customers in Asia Pacific.

MNGE products, available exclusively from AGC, stand out for its:

- copper-free metal coatings
- very low lead in protective paints (<3000ppm)
- ability to resist chemical damage
- resistance to corrosion
- close to zero indoor emissions of volatile organic compounds (VOCs), including formaldehyde

MNGE mirrors are recognized for its environmental and sustainability performance and are certified by Singapore Green Building Council (SGBC) and Cradle to Cradle® Products Innovation Institute. Cradle to Cradle certification applies to AGC Europe Mirox MNGE.



# Superior performance and beautiful reflections

What's so special about it? | What does this mean for you?

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**Double layer protective paints** – Provides excellent anti-corrosion protection for the silver layer outperforming EN 1036 norms

**Very low lead content in paint layer (<3000ppm)** – Emits very low levels of Volatile Organic Compounds (VOCs) and formaldehyde  
– Preserves indoor air quality

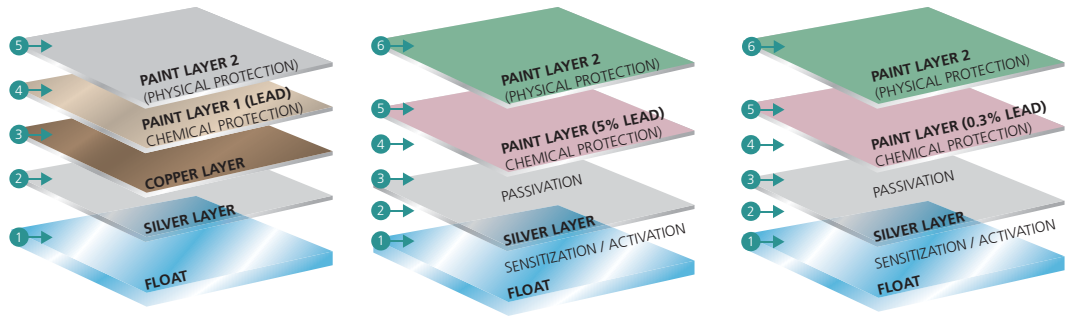
**Environmentally friendly production process** – Contributes to environmental protection by elimination of toxic products (ie. Copper, ammonia and lead) during production

**Mirox MNGE is available with safety film** – Ensures safety in case of glass breakages. The fragments adhere to the safety film and do not break up, preventing injury  
– Meets Grade A AS/NZS 2208:1996 norms

AGC offers Mirox MNGE with 10 years warranty. Terms and conditions apply.  
Please contact AGC sales representative for more information.



# Ecology of Mirox MNGE



	<b>Traditional copper mirrors</b>	<b>Dantalux</b>	<b>Mirox MNGE</b>
Copper protection layer	Yes	No	No
Lead content in paint layer	High	Moderate < 5% (50000ppm)	Very low < 0.3% (3000ppm)
Emission of volatile organic compounds (VOC)	High	Moderate	Very low (A+*, per French Decree No. 2011-321)
Resistance to corrosion	Average	Moderate	Excellent

\*The A+ category corresponds to the highest level of performance or the lowest category of VOC emissions.

# Ecology of Mirox MNGE



\*\*Volatile organic compounds (VOCs) and formaldehyde are one of the sources of indoor air pollutants that comes from the chemicals released by the building and products (eg. paints, lacquers, silicon, glue, paint strippers, cleaning materials and pesticides) used in it. With high concentration of VOCs, it can cause short to long-term adverse health effects. Concentrations of many VOCs are up to ten times higher indoors than outdoors.



# Brilliant reflections with MNGE range

## MIROX MNGE

### Clear Options



**Clear**  
Normal float base

### Coloured Options



**Bronze**



**Grey**



**Black**

Mirror samples may look different in actual conditions when compared to a picture, colour chart or depiction.

MNGE Range	3mm	4mm	5mm	6mm	MNGE available with safety film*	STANDARD SIZE (mm)
Clear	•	•	•	•	•	1829 X 1219**
Bronze			•	•	•	2440 X 1829
Grey		•	•	•	•	3048 X 2134
Black			•	•	•	3660 X 2440

\*Complies with AS/NZS 2208:1996 norms. Please consult sales representative for standard sizes for MNGE with safety film.

\*\*only for 3mm thickness

# Technical specifications

## MIROX MNGE

Durability of MNGE Mirror is determined by several accelerated ageing tests in compliance to EN 1036 (European standard).

			EN 1036 standard	Traditional copper mirror	Mirox MNGE
Behaviour	CASS Test <sup>1</sup> ISO 9227	Neutral salt spray test according to EN ISO 9227 edge corrosion number of spots	After 480h ≤ 1.0mm 2 of 0.2mm < diameter ≤ 3mm accepted provided ≤ 0.2mm	0.5 ≤ 1 ≤ 1	0.25 ≤ 1 ≤ 1
	Neutral salt spray test <sup>2</sup> ISO 9227	CASS test according to EN ISO 9277 edge corrosion number of spots	After 120h ≤ 1.5mm 2 of 0.2mm < diameter ≤ 3mm accepted provided ≤ 0.2mm	0.2 ≤ 1 ≤ 1	0.05 ≤ 1 ≤ 1
	Condensation water test	Condensation water test edge corrosion number of spots	After 480h ≤ 0.2mm 1 of diameter ≤ 0.3mm	0 ≤ 1 ≤ 1	0 ≤ 1 ≤ 1
Resistance to Adhesives	Oxime			YES	YES
	Alcoxy			NO	YES
	Rubber (tapes)			NO	NO
	MS polymer			NO	YES
	Acetic Acid			NO	NO
Ecology	Copper protection layer			YES	NO
	Lead content in the paint			> 8%	< 0.3%
Cleaning Products	Resistance to ammonia			1 day	> 7 days
Shaping	Brilliant Cut			YES	YES
	Edge Grinding			YES	YES
	Grinding			YES	YES
	Drilling			YES	YES
	Inserts and Notches			YES	YES
Safety	Safe film			YES	YES
	PVB laminated			NO	NO
	Toughened			NO	NO
Adhesives for mounting	Compatibility with alcoxy-based silicones and tapes			NO	YES
	Compatibility with oxime-based silicones and tape			YES	YES
	Compatibility with acetic silicones			NO	NO

<sup>1</sup> CASS test is conducted for 120 hrs (5 days). Edge corrosion is measured on 2 vertical edges of mirror samples.

<sup>2</sup> Neutral salt spray test and condensation water test are conducted for 480 hrs (20 days). Edge corrosion is measured on all 4 edges of mirror samples. AGC provides technical support for all glass processors and installers via our Technical Advisory Service (TAS).

# Ecological painted glass

— LACOBEL —

Lacobel is clear float glass with high-quality ecological paint on back side of glass. The Lacobel range of painted glass features an attractive palette of 13 contemporary colours. The range is divided into three lines; The Classics, The Trendies and The Exclusives.



LACOBEL CLASSIC BLACK ALU-STYLE KFT

# New colors reflecting new trends

## LACOBEL

What's so special about it? | What does this mean for you?

**High quality paint industrially applied onto glass** – Uniformity in appearance with AGC's manufacturing process  
– Ensures the paint adheres flawlessly to glass

**Environmentally friendly production process** – As Lacobel paints are environmentally friendly, they preserve indoor air quality with emission of low level of VOC and formaldehyde.

**Easy assembly** – Lacobel can be easily installed by installers onto furniture and wall cladding.

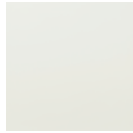
**Lacobel is available with safety film** – Ensures safety in case of glass breakages. The fragments adhere to the safety film and do not break up, preventing injury.  
Meets Grade A AS/NZS 2208:1996 norms.



# A balanced range to expand your creativity

LACOBEL

## *The Classics*



Soft White  
9010



Classic Black  
9005

## *The Trendies*



Pure White  
9003



Luminous Red  
1586



Luminous Blue  
5002



Light Beige  
1015



Natural Brown  
7013



Authentic Anthracite  
7016



Sage Green  
8715

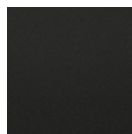


Terracotta Red  
8815

## *The Exclusives*



Pearl White  
1013



Starlight Black  
0337



Shadow Blue  
7000

Some colours may look different in actual conditions when compared to a picture, colour chart or other depiction. AGC recommends you to make final decision only seeing a Lacobel glass sample.

# Processing options

## MNGE & LACOBEL

What are your processing options?		Mirox MNGE	Lacobel	Pay attention to..
Safety	Safety film	Yes	Yes	Mirox MNGE and Lacobel comply with safety film AS/NZS 2208:1996 norms (Grade A).
	Laminating	No	No	
	Tempering	No	No	
Cutting	Straight or circular	Yes	Yes	Both Mirox MNGE and Lacobel with safety film can be cut in same way as traditional mirror glass.
Shaping and edge finishing	Edge grinding	Yes	Yes	Both Mirox MNGE and Lacobel with safety film can be shaped and edge finished in same way as traditional mirror glass.
	Grinding	Yes	Yes	
	Drilling	Yes	Yes	
	Notches	Yes	Yes	
Special processing	Sandblasting	Yes	Yes	
Exterior applications		No	No	Mirox MNGE and Lacobel may not be used in external applications.
Installation	Orientation and protection of Starlight Black colour	–	–	Due to the special pigments used for Starlight colour, they need to be processed and installed following a specific orientation.  Safety film must be used for Starlight colour to provide additional protection for the back of the glass when applying silicone.

AGC TAS (Technical Advisory Service) provides technical support to glass processors. In case of technical support, please contact our sales representatives or TAS team.

# Unlimited applications

— MNGE & LACOBEL —

What can you use it for? | Be inspired...

**Furniture** – Tables, shelves, display cases, glass boxes, etc

**Partition** – Interior

**Doors** – Interior  
– Fixed and sliding doors for cupboards and wardrobes

**Wall Cladding** – Bathrooms, restaurants, offices, hotels, shops, fitness centre, spa etc



LACOBEL SOFT WHITE | B LOFT - BELGIUM

