

# Guardian UltraMirror® Plus

Copper-free Mirror -  
Truly reflective for timeless beauty



**INDUSTRY LEADING WARRANTY**  
Guardian offers a 10-year warranty  
against deterioration or clouding  
on UltraMirror



**GUARDIAN®  
GLASS**

See what's possible™



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# Guardian UltraMirror® Plus

## Copper-free Mirror - Truly reflective for timeless beauty

### Looks that last

The carefully designed and tested coating offers the durability that can last for a long time. A 10-years limited warranty comes with every Guardian UltraMirror® Plus so you can display the space's best reflection with confidence.



Durability &  
Performance

1. Outstanding corrosion protection:  
Higher chemical resistance



Environmentally  
friendly

2. Contribution to Environment  
and personal health



Service

3. Service and Technical support:  
Installation and maintenance  
guidelines

### Ultra-Strength

Household cleaners, adhesives, humidity and other environmental conditions can attack and degrade mirrors. UltraMirror® Plus stands up to these challenges with beautiful reflection and uncompromising durability. Thanks to the new protective top layer, UltraMirror® Plus is proven to be superior to conventional mirrors in all the chemical and durability test.

### Contribution to Environment and Personal Health

Thanks to copper-free manufacturing process and use of reduced and non-lead paints, Guardian UltraMirror® Plus can contribute for the better living and be environmental friendly.

### Quality

Guardian in Thailand can produce mirrors in accordance with manufacturing standards such as TIS, ASTM, JIS, EN and ANZ.

### Heat Resistance

UltraMirror® Plus can be used in the environment up to 60°C

### Moisture Resistance

UltraMirror® Plus can be used in environments where moisture is present but cannot be immersed in water.



### \* 10-year Industry Leading Warranty

Guardian offers a 10-year warranty against deterioration or clouding on UltraMirror® Plus

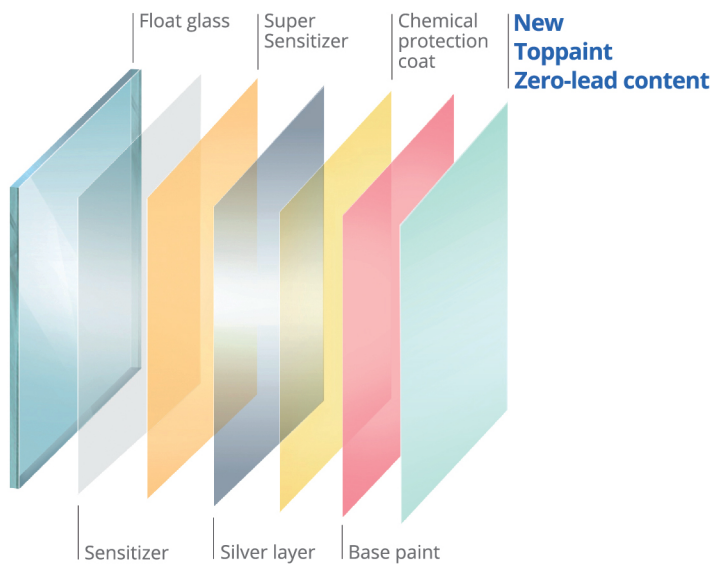


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## UltraMirror® Plus

Perfect for high-end retail, hotels or when a true reflective colour matters.



Performance Data	Copper mirrors	UltraMirror	UltraMirror Plus
Copper protection layer	Yes	No	No
Resistance to corrosion	Fair	Moderate	Good
Resistance of Alkaline	Moderate	Good	Good
Resistance of Acid	No	Moderate	Good

## Design Options

Glass Thickness	Substrate	Maximum Size
3.0 mm	Clear / Tinted	2134 x 3302 mm.
4.0 mm	Clear / Tinted	2439 x 3302 mm.
5.0 mm	Clear / Tinted	2439 x 3302 mm.
6.0 mm	Clear / Tinted	2540 x 3658 mm.

\* 8 mm and 10 mm are also available.

\* Available option for vinyl / woven back.

## Applications:

- Wardrobe doors
- Display cases
- Furniture
- Wall mirrors
- Bathroom mirrors
- Cosmetic mirrors

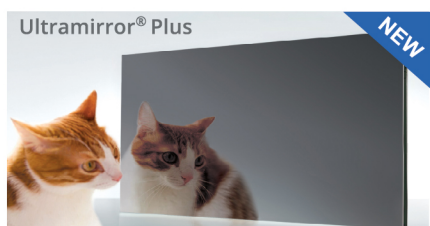
## Product Combination



UltraMirror® Plus on clear  
(Clear substrate)



UltraMirror® Plus on Euro Bronze  
(Tinted bronze substrate)



UltraMirror® Plus on Euro Grey  
(Tinted grey substrate)

## Technical Performances

Test		Standard	Criteria	UltraMirror	UltraMirror Plus
Cross Cut Test		DIN EN ISO 2409	0 (best) - 5 (worst)	< 2	< 2
Paint Thickness - Base & Top Coates		DIN EN ISO 2808	42-60um	46-60um	45-55um
Xylene Rubs		PA-ENS-26	> = 100 double rub strokes	> 200	> 200
Metal thickness		PA-ENS-37	Silver > 700 mg.m2	> 750 mg / m2	> 750 mg / m2
CASS Test 120 hrs	Edge Corrosion	ISO 9227	<= 1.5 mm.	Pass	Pass
	Spots		<= 3 spots (0 = 0.3 mm.)	Pass	Pass
	Maximum durability in CASS Test		< =1.5mm or < = 3 spots	Pass at 720hr. Exceed standard 6 cycles	Pass at 840hr. Exceed standard 7 cycles
Humidity 480 hrs @40°C	Edge Corrosion	DIN EN ISO 6270-2	<= 4 mm.	Pass	Pass
	Spots		<= 3 spots (0 = 0.3 mm.)	No detect	No detect
	Mirror Surface Attack		OK - C (cloud)	OK	OK
	Paint Blister		# of blisters	< 1	< 1

Remark:

\*Durability test is internal Guardian standard for acid resistance level

\*CASS test - Copper Accelerated Salt Spray Test: conducted for 120hrs = 1 cycle

\*The performance values shown are nominal and subject to variations due to manufacturing tolerances.

## See what's possible™

Guardian Glass is at the forefront of what can be achieved with this incredible material. From iconic architectural projects that push the boundaries of glass technology, to the development of some of the most energy-efficient home, work and retail environments.

Our commitment to research, our determination to deliver and a firm belief in collaboration means we are constantly finding new ways to build, design and inspire with glass.



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