



DIAMOND
COATINGS



Marine AR PMMA Datasheet

Advantages

1. AR coating with anti-salt water, applicable to acrylic substrates.
2. Highly durable coating pursuant to JIS Z2371.
3. Applicable to products such as the front panel of marine electronics.

Super hydrophobic layer
Anti-Salt Water AR layer
Hard Coat Layer
Acrylic substrate
Hard Coat Layer
Anti-Salt Water AR layer

Anti-Salt Water

Salty water spray test: (Repeat 1 and 2 until the coated layer becomes corroded.)

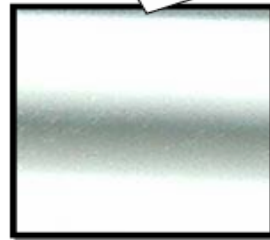
1. Heat 5wt% NaCl solution up to 35°C and spray
2. Dry

The surface is corroded by salty water



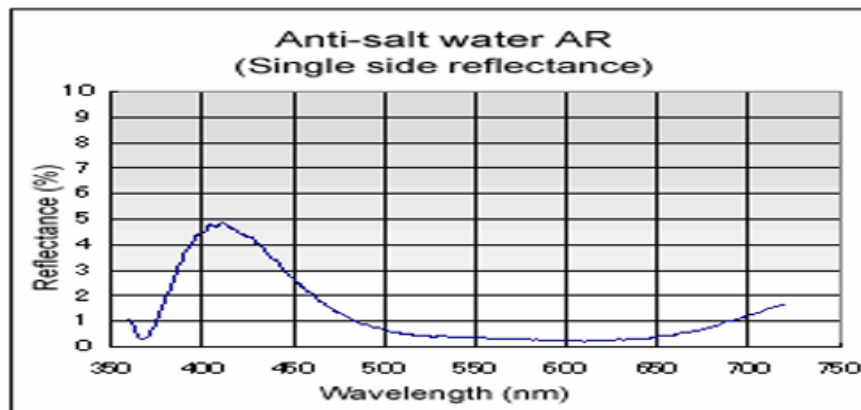
<Conventional AR coating>

Anti-salt water prevents corrosion



<Anti-salt water AR coating>

Optical Properties



DIAMOND COATINGS LTD.

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Typical Performance (PMMA, MARINE AR Double sides + Super AFP One side)

Test Item	Test conditions	Results
Optical Properties		
Total Light Transmission	JISK7105	98% within view area
Light Reflection	JISK7105	< 0.5% within view area
Physical Properties		
Abrasion Resistance	Steel wool ,#0000 ; 1.5kgf , 50 times	< 30 scratches
Pencil Hardness		5-6H
Impact Strength	DIN 53453	4kJ/m2
Contact angle	Water contact angle	115 degrees
Salt water resistance*	Salt water spray test by JIS Z2371, 28 days	Passed
HEAT RESISTANCE		
Adhesion Test	80°C	keep good condition up to 1,000 hours
HEAT IMPACT RESISTANCE		
Adhesion Test	-30°C & 80°C	keep good condition up to 500 times
LIQUID DURABILITY		
Adhesion Test	Soaking in 60°C hot water	keep good condition up to 240 hours
LIGHT DURABILITY		
Adhesion Test	Xenon lamp	keep good condition up to 500 hours
CHEMICAL		
Ammonia	Rubbing with cotton	keep good condition up to 10,000 times
Hydrochloric Acid (3%)	Soaking in a solvent	keep good condition up to 1,000 hours
Sodium Hydroxide (10%)	Soaking in a solvent	keep good condition up to 1,000 hours
Ethanol	Soaking in a solvent	keep good condition up to 1,000 hours
Artificial Sweat	Soaking in a solvent	keep good condition up to 240 hours
Hair Cream	Spread on surface and keep in 60°C & 95% humidity atmosphere	keep good condition up to 1,000 hours
Hand Cream	Spread on surface and keep in 60°C & 95% humidity atmosphere	keep good condition up to 1,000 hours
Hair Shampoo	Spread on surface and keep in 60°C & 95% humidity atmosphere	keep good condition up to 1,000 hours
Olive Oil	Spread on surface and keep in 60°C & 95% humidity atmosphere	keep good condition up to 1,000 hours
Adhesion Test	60°C , 95% Humidity	keep good condition up to 1,000 hours

They are all measured values, but not guaranteed values.

+ Test conditions: chamber temperature 35 ± 1 °C, approx. 100% humidity, 5% salt water density (50g / 1000ml), PH6.5-7.2

+ The optical and physical properties are not the guaranteed values but the results of the measurement.

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