



DIAMOND  
COATINGS



## Diamond Coatings – DIA.HC-OPG Hard-Coat

### INTRODUCTION

The DIA.HC-OPG Hard-Coat will dramatically reduce scratching and wear when applied to acrylic or polycarbonate sheet or mouldings, giving a surface hardness approaching that of glass together with superior resistance to chemical attack.

DIA.HC-OPG is suitable for internal and external use but it is recommended that UV stable substrates be used when exposed in direct sunlight.

This coating is a UV curing solvent-based Polyacrylate (a blend of bi and tri-functional Acrylates) with a cured film thickness of 2 - 10 microns (dependant on format required). Using very specific photo-initiators, DIA.HC-OPG uses the high-energy UV output to trigger the cross-linking process.

It is with this high efficiency of cross-linking which reveals such high qualities of abrasion and chemical resistance and adhesion to many different substrates.

#### DIAMOND COATINGS LTD.

Unit 2a, Harvey Works Industrial Estate,  
Shelah Road,  
Halesowen, West Midlands, B63 3PG  
Tel: +44 (0) 121 550 9430  
Email: [enquiries@diamondcoatings.co.uk](mailto:enquiries@diamondcoatings.co.uk)  
Web: [www.diamondcoatings.co.uk](http://www.diamondcoatings.co.uk)

#### DIAMOND COATINGS INC.

4830 S. 36th Street,  
Phoenix, Arizona,  
85040  
Tel: +1 (480) 999 3456  
Email: [sales@diamondcoatings.com](mailto:sales@diamondcoatings.com)  
Web: [www.diamondcoatings.com](http://www.diamondcoatings.com)



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### Coating Capabilities

Absolute Maximum Coating Dimensions	2000mm(L)	610mm(W)	130mm(H)
Acrylic Sheet recommended dimensions	1000mm	500mm	130mm
Polycarbonate Sheet recommended dimensions	1250mm	510mm	130mm

#### Polycarbonate Test Data

##### Environmental Exposure

	Unexposed	Humidity (1)
Light Transmittance % (2)	91	91
Haze % (3)	0.4	0.5
Adhesion % (4)	100	100
Yellowness Index Change (5)	0	0

##### Scratch / Abrasion Tests

	Haze Change (3)	
	Uncoated	Coated
Steel-wool Scratch (6)	28.1	0.4
Taber Abrasion (7) 100 Cycle	32.0	3-4

##### Chemical Resistance (8)

	Uncoated	Coated
Ethanol	L	L
Trichloroethylene	X	S
5% Ammonia	S	S
50% Caustic Soda	X	S
10% Sulphuric Acid	L	L

#### Acrylic Test Data

##### Environmental Exposure

	Unexposed	Humidity (1)
Light Transmittance % (2)	91	91
Haze % (3)	0.2	0.4
Adhesion % (4)	100	100
Yellowness Index Change (5)	0	0

##### Scratch / Abrasion Tests

	Haze Change (3)	
	Uncoated	Coated
Steel-wool Scratch (6)	31.1	0.4
Taber Abrasion (7) 100 Cycle	26.2	3-4

##### Chemical Resistance (8)

	Uncoated	Coated
Ethanol	L	L
Trichloroethylene	X	S-M
5% Ammonia	L	L
50% Caustic Soda	L	L
10% Sulphuric Acid	L	L

- Humidity: 120 hrs @ 52°C & 100% RH
- Light Transmittance: ASTM D-1003
- Haze: ASTM D-1003
- Adhesion: ASTM D-3359
- Yellowness Index: ASTM D-1925

- Steel-wool Scratch: Steel-wool rotary test representing severe scratching using a 1.25sq inch #0000 steel-wool pad at 24psi for 100 rotations.
- Taber Abrasion: ASTM D-1044

- L = greater than 24 hours  
M = up to 8 hours  
S = up to 1 hour  
X = do not use

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