Technical Data Sheet (TDS) - DPQA0001100-001
Anti-Glare Hard Coat on Polycarbonate (PC)

Material Description

Anti-Glare Hard Coat applied to polycarbonate (PC) sheets provides a durable, matte-finish surface that reduces reflections and glare under ambient or direct lighting, while retaining the base material's optical clarity, impact strength, and thermal stability. The coating also enhances abrasion resistance and surface cleanability.

This coating system is typically specified where surface reflections and cosmetic wear on uncoated polycarbonate would impair display readability or appearance, but where optical performance and mechanical integrity must be maintained.

- Polycarbonate (PC) – optical and engineering grades
- Typical thickness range: 0.5–10.0 mm
- Coating applied to one or both surfaces

Physical Properties

Property	Test Method	Units	Typical Value
Coating Thickness	Internal	µm	3–6
Adhesion (cross-hatch)	ISO 2409	Class	0–1
Pencil Hardness	ISO 15184	–	3H–4H
Surface Energy	ASTM D2578	mN/m	>38

Mechanical Properties

Property	Test Method	Conditions	Units	Typical Value
Scratch Resistance	ISO 1518	–	–	Significantly improved
Abrasion Resistance	Taber CS-10F	500 cycles	% haze	<5
Impact Resistance	ISO 180/1A	notched	kJ/m²	Retained
Edge Chipping Sensitivity	Internal	–	–	Low (process-dependent)

Optical Properties

Property	Test Method	Conditions	Units	Typical Value
Light Transmission	ASTM D1003	3 mm	%	88–90
Haze	ASTM D1003	–	%	<1
Gloss (60°)	ASTM D523	–	GU	10 - 25
Refractive Index	ISO 489/A	–	–	~1.586
Optical Distortion	Internal	–	–	Low

Thermal Properties

Property	Test Method	Units	Typical Value
Service Temperature Range	–	°C	−40 to +120
HDT (1.8 MPa)	ISO 75	°C	~130
CTE	ASTM D696	mm/m·°C	0.065

Fire Performance

Fire performance is governed by the polycarbonate substrate, not the coating.

- Compatible with UL 94 V-2 and V-0 grades
- No adverse impact on EN 13501-1 ratings when correctly specified
- Coating does not contribute to flaming drips or smoke generation

Chemical Resistance (General)

- Resistant to:
  - Alcohols
  - Dilute detergents
  - Common cleaning agents
- Limited resistance to:
  - Oils and hydrocarbons
- Not recommended for prolonged exposure to:
  - Ketones
  - Aromatic solvents
  - Chlorinated solvents

Processing and Fabrication

Process	Compatibility
CNC machining	Excellent (post-coating preferred)
Laser cutting	Limited – validation required
Screen printing	Compatible
Digital printing	Compatible
Optical lamination	Fully compatible
Bonding systems	Must be validated

Typical Applications

- Display covers used in high-glare or ambient-light environments
- Industrial HMIs and control interfaces with overhead lighting
- Transportation and rail interior displays and indicators
- Medical or diagnostic equipment in bright or clinical settings
- Ruggedised protective windows requiring optical performance and impact resistance

Design Considerations

- Specify anti-glare coating early to align with surface finish and lighting requirements
- Edge finishing and masking strategies will impact cosmetic performance
- Allowance for thermal expansion of PC is critical in adhesive or framed assemblies
- Reworking or post-coating machining is not recommended due to surface texture and coating integrity

Disclaimer

Typical values shown are not guaranteed. Final performance depends on substrate grade, coating thickness, processing conditions, and assembly validation.