



Optically Clear Laminating Adhesives

8141 • 8142

1386

Technical Data

April 1, 1998

Product Description	8141	1.0 mil (25 micron) optically clear laminating adhesive for bonding smooth transparent substrates.
	8142	2.0 mil (50 micron) optically clear laminating adhesive for bonding smooth or textured transparent substrates.

Features

- Clean room coating process eliminates common adhesive defects (e.g., no bubbles, dirt or gels).
- 99+% light transmission (when corrected for reflection losses) and haze level under 0.3% for crystal clear transparency.
- High temperature, humidity and UV light resistance for long-term durable applications.
- Two polyester film liners for optimum adhesive smoothness and release characteristics.
- Wound on plastic cores to minimize potential lamination defects.
- Pressure-sensitive adhesive for manufacturing simplicity and economics.
- Isotropic adhesive, without a film carrier, will not cause birefringence.

Construction

Products	8141 Adhesive	8142 Adhesive
Adhesive Type:	2000MP Acrylic	2000MP Acrylic
Adhesive Carrier:	None	None
Release Liners:	Clear Polyester	Clear Polyester
Approximate Thickness:		
Release Liner	2 mils (50 microns)	2 mils (50 microns)
Adhesive	1 mil (25 microns)	2 mils (50 microns)
Release Liner	2 mils (50 microns)	2 mils (50 microns)

Application Ideas

- Touch screens – for bonding film and glass laminates.
- Transparent graphic overlays.
- Optical management films.

Typical Physical Properties and Performance Characteristics

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Refractive Index: 1.471

Peel Adhesion:

(90° peel, 12 in./min. 305 mm/min.
2 mil polyester to various surfaces)

	Substrate	8141 Adhesive	8142 Adhesive
Initial (20 minute dwell)	Glass	22 oz/in (24 N/100 mm)	38 oz/in (42 N/100 mm)
	Polycarbonate	38 oz/in (42 N/100 mm)	51 oz/in (56 N/100 mm)
	Acrylic	42 oz/in (46 N/100 mm)	56 oz/in (61 N/100 mm)
72 Hr Room Temperature	Glass	26 oz/in (28 N/100 mm)	32 oz/in (35 N/100 mm)
	Polycarbonate	42 oz/in (46 N/100 mm)	59 oz/in (65 N/100 mm)
	Acrylic	46 oz/in (50 N/100 mm)	63 oz/in (69 N/100 mm)
Ultimate Bond 72 Hr dwell at 158°F	Glass	30 oz/in (33 N/100 mm)	49 oz/in (54 N/100 mm)
	Polycarbonate	34 oz/in (37 N/100 mm)	48 oz/in (53 N/100 mm)
	Acrylic	38 oz/in (42 N/100 mm)	61 oz/in (67 N/100 mm)

Processing

- Laminating –
Recommended nip roll or roller platen press type laminator to maintain optical aesthetics when laminated. Hand lamination not advised. Use best process control standards possible to control variables. (See **3M Laminating Technical Bulletin** for additional information.)
- Die-cutting –
Use high precision, tight tolerance tooling designed to cleanly cut film and pressure-sensitive adhesive.

Application Techniques For maximum bond strength the surface should be thoroughly cleaned and dried. To obtain greatest benefit, laminations should be done in the cleanest environment possible with static charge elimination.

Bond strength can be improved with firm application pressure and moderate heat causing the adhesive to develop intimate contact with the bonding surface.

Environmental Performance The properties defined are based on the attachment of impervious faceplate materials (such as aluminum) to an aluminum test surface.

Bond build-up –
The bond strength of #2000MP High-performance Acrylic Adhesive increases as a function of time, temperature and humidity.

Temperature/humidity cycling –
Polyester and glass lamination completes ten 24-hour cycles of modified Mil. Std. 202F, Method 106F (23°C-65°C, 95% R.H.) with no visual defects (i.e., bubbles, delamination, blistering, etc.).

Shelf Life Product retains its performance and properties for two years from date of manufacture if properly stored at room temperature conditions of 72°F (22°C) and 50% R.H. Storage in plastic bag is recommended.

For Additional Information

To request additional product information or to arrange for sales assistance, call toll free 1-800-362-3550. Address correspondence to: 3M Bonding Systems Division, 3M Center, Building 220-7W-03, St. Paul, MN 55144-1000. Our fax number is 612-733-9175. In Canada, phone: 1-800-364-3577. In Puerto Rico, phone: 1-809-750-3000. In Mexico, phone: 5-728-2180.

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