

3M™ Optically Clear Laminating Adhesive 8146-4

Product Description

3M™ Optically Clear Laminating Adhesives:

8146-4 100 µm (4 mil) optically clear laminating adhesive for bonding smooth, transparent substrates.

Construction

Product		3M™ Optically Clear Laminating Adhesive 8146-4
Adhesive Type :		Acrylic
Adhesive Carrier:		None
Approximate Thickness:		
Release Liner		75 µm (3.0 mils) Polyester
Adhesive		100 µm (4.0 mils)
Release Liner		75 µm (3.0 mils) Polyester

Haze :

Haze was measured according to ASTM D1003-92.

3M™ Optically Clear Laminating Adhesive 8146-4	
Haze	< 1 %

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 :

(±0.0005 measured for Sodium D line @ 25°C)

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	1.474

Peel Adhesion :

ASTM D3330 Modified, 180 degree peel, 12 in./min. (305 mm/min) 1 mil polyester backing to various surfaces.

		Substrate	3M™ Optically Clear Laminating Adhesive 8146-4
Initial (20 minute dwell)	PMMA		54 N/100mm (50 oz/in)
	PC		57 N/100mm (53 oz/in)
	Glass		65 N/100mm (60 oz/in)

Shear Adhesion :

ASTM D-3657

½" x 1" Overlap, minutes to failure.

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Heat Aged 1000 gram, stainless steel	> 10,000



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Typical Physical Properties and Performance Characteristics (continued)

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Chemical Resistance :

When properly applied, 3M™ Optically Clear Laminating Adhesives can withstand splashes of numerous chemicals including acetone, isopropyl alcohol and cleaners.

Water Resistance :

Immersion in water has no appreciable effect on the bond strength at room temperature.

Relative Temperature Resistance :

Short Term High Temperature	177°C
Long Term High Temperature	85°C
Long Term Low Temperature	-40°C

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% relative humidity.

Storage in a plastic bag is recommended.

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.

General Information

- Light transmission >99% when corrected for reflection losses
- Free of birefringence with no film carrier.
- Can be used with bare ITO.
- Anti-whitening at high temperature/humidity.
- High temperature, humidity and UV resistance.
- Long term durability without yellowing, delaminating or degradation.
- High cohesive and peel strength for reliably bonding most transparent substrates.
- 3M™ Optically Clear Laminating Adhesive 8146-4 is coated and converted in a clean room.
- 3M™ optically clear adhesives are inspected to reduce the occurrence of bubbles, dirt, gels and other optical distortions.
- Wound on plastic cores and wrapped in plastic to eliminate paper fiber contamination.
- Two film liners for optimum adhesive smoothness and differential release for ease of processing and protection from contamination.
- Available in die-cut pieces only.

Application Ideas

- Touchscreens for bonding film and glass laminate.
- Transparent graphic overlays.
- Projection screens.
- Avionics/military displays.
- Optical management films for LCD.

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.



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Important Notices

Before using this product, you must evaluate it and determine if it is suitable for your intended application. You assume all risks and liability associated with such use.

Important Notices

This product will be free from defects in material and Manufacture at the time of purchase. **3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** If this product is defective within the warranty period stated above, your exclusive remedy shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product. **Except where prohibited by law, 3M will not be liable for any indirect, special, incidental or consequential loss or damage arising from this 3M product, regardless of the legal theory asserted.**

