

3M™ Optically Clear Adhesive

CEF08XX (821X/818X) Series

- General purpose adhesive
- Easy converting for good edge quality

Product Description

3M™ Optically Clear Adhesives: Optically clear adhesive for bonding smooth or textured, transparent substrates.

3M CEF08XX is recommended for general purpose, non-touch applications. No UV curing is required.



Construction

| Product | 3M CEF0801 (8211) | 3M CEF0802 (8212) | 3M CEF0803 (8213) | 3M CEF0804 (8214) | 3M CEF0805 (8215) | 3M CEF0806 (8216) | 3M CEF0807 (8217) |
|------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Adhesive Type: | Acrylic | Acrylic | Acrylic | Acrylic | Acrylic | Acrylic | Acrylic |
| Adhesive Carrier: | None | None | None | None | None | None | None |
| Approximate Thickness: | | | | | | | |
| Release Liner: | 50 um (2 mils) Polyester | 50 um (2 mils) Polyester | 50 um (2 mils) Polyester | 50 um (2 mils) Polyester | 50 um (2 mils) Polyester | 50 um (2 mils) Polyester | 50 um (2 mils) Polyester |
| Adhesive: | 25 um (1 mils) | 50 um (2 mils) | 75 um (3 mils) | 100 um (4 mils) | 125 um (5 mils) | 150 um (6 mils) | 175 um (7 mils) |
| Release Liner: | 50 um (2 mils) Polyester | 50 um (2 mils) Polyester | 50 um (2 mils) Polyester | 50 um (2 mils) Polyester | 50 um (2 mils) Polyester | 50 um (2 mils) Polyester | 50 um (2 mils) Polyester |

The 3M family of optically clear adhesives for electronic displays are usually available in two forms. 3M OCA come in roll good form. 3M Contrast Enhancement Films (CEF) are available in die-cut form.

| Product | 3M CEF0808 (8218) | 3M CEF0809 (8219) | 3M CEF0810 (8180) | 3M CEF0812 (8182) | 3M CEF0814 (8184) |
|------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Adhesive Type: | Acrylic | Acrylic | Acrylic | Acrylic | Acrylic |
| Adhesive Carrier: | None | None | None | None | None |
| Approximate Thickness: | | | | | |
| Release Liner: | 50 um (2 mils) Polyester | 50 um (2 mils) Polyester | 50 um (2 mils) Polyester | 50 um (2 mils) Polyester | 50 um (2 mils) Polyester |
| Adhesive: | 200 um (8 mils) | 225 um (9 mils) | 250 um (10 mils) | 275 um (12 mils) | 300 um (14 mils) |
| Release Liner: | 50 um (2 mils) Polyester | 50 um (2 mils) Polyester | 50 um (2 mils) Polyester | 50 um (2 mils) Polyester | 50 um (2 mils) Polyester |

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.

Performance to Environmental Conditions:

The following environmental tests were conducted in the 3M laboratory under the conditions specified without any appreciable deterioration in visible appearance (no bubbles, delamination, etc.). Sample construction is cover glass/3MCEF08 (821X/818X)/PET

| Substrate | Condition | Duration |
|------------------------|--|-----------|
| High Temperature | +95°C | 800 hours |
| Low Temperature | -40°C | 500 hours |
| High Temp/ Humidity | +65°C at 90% R.H. | 800 hours |
| Thermal Shock | -40°C and +85°C (1 hour dwell, <1min ramp time) | 500 hours |
| UV | 0.55 W/m ² at 340nm, Daylight filter | 500 hours |

Peel Adhesion:

ASTM D3330 modified, 180 degree peel to various surfaces, 12 in/min (305 mm/min), 2.0 mil polyester backing

| | 3M CEF0802 (8212) | 3M CEF0805 (8215) | 3M CEF0807 (8217) | 3M CEF0808 (8218) | 3M CEF0809 (8219) | 3M CEF0810 (8180) |
|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | N/cm | N/cm | N/cm | N/cm | N/cm | N/cm |
| 20 min dwell at RT: | | | | | | |
| Stainless Steel | 6.3 | 7.1 | 6.6 | 7.3 | 7.0 | 9.0 |
| Glass | 6.5 | 7.6 | 7.3 | 8.8 | 8.6 | 9.8 |
| Acrylic | 4.5 | 6.2 | 5.6 | 6.3 | 6.7 | 6.7 |
| Polycarbonate | 4.6 | 5.5 | 5.1 | 4.7 | 4.9 | 6.2 |
| 72 hr dwell at RT: | | | | | | |
| Stainless Steel | 8.4 | 10.5 | 10.1 | 10.8 | 10.9 | 10.6 |
| Glass | 7.9 | 9.2 | 9.3 | 10.6 | 9.8 | 10.6 |
| Acrylic | 5.6 | 7.2 | 7.3 | 7.2 | 8.1 | 8.3 |
| Polycarbonate | 5.8 | 7.8 | 7.1 | 7.0 | 7.9 | 8.0 |

Color:

ASTM E 1164-07/CIELAB, 3M CEF08XX (821X/818X) on LCD glass
(BYK Gardner TCS Plus Spectrophotometer, Model 8870)

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|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| L*=97.11 | L*=97.12 | L*=97.12 | L*=97.11 | L*=97.13 | L*=97.12 |
| a*=-0.02 | a*=-0.05 | a*=-0.04 | a*=-0.05 | a*=-0.05 | a*=-0.05 |
| b*=0.15 | b*= 0.19 | b*= 0.18 | b*= 0.18 | b*= 0.19 | b*= 0.20 |

Refractive Index:

+ 0.0005 measured for Sodium D line @ 25°C

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|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| 1.475 | 1.473 | 1.473 | 1.473 | 1.474 | 1.473 |

Haze:

Haze is measured according to ASTM D1003-92
3M CEF08XX (821X/818X) on LCD glass

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|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| 0.6% | 0.8% | 0.8% | 0.8% | 0.7% | 0.8% |

Suggested Lamination Process

Step 1: Remove secondary liner, and then laminate 3M CEF08 (821X/818X) to first adherent substrate by roller at room temperature

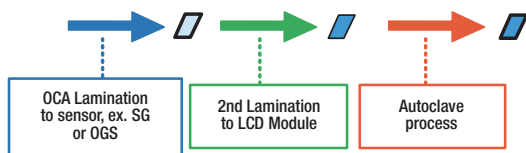
Recommendation: roller pressure 0.1 – 0.2 MPa, roller speed 0.5 – 1 m/min

Step 2: Remove primary liner, and then laminate 3M CEF08 (821X/818X)/first adherent to second adherent by vacuum lamination

Recommendation: Vacuum condition < 50 Pa, pressure around 0.1 – 0.2 MPa

Step 3: Autoclave process

Recommendation: 30-60C/3-5kgf/cm²/20-30min



Storage

- Store in original packaging or plastic bag
- Avoid applying pressure or resting objects on the product to prevent marking, denting, or deforming the surface
- Wear gloves to prevent fingerprints or nail marks when handling
- Product needs to be unpacked and handled in a clean-room facility
- Store at room temperature conditions of $22 \pm 8^{\circ}\text{C}$ and $50 \pm 20\%$ relative humidity



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Regulatory

For regulatory information about this product, please contact your 3M representative.

Technical Information

The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes reliable, but the accuracy or completeness of such information is not guaranteed.

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