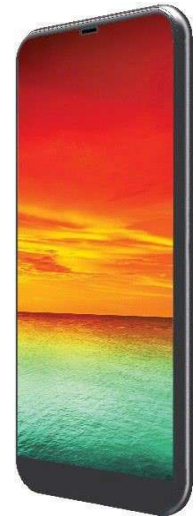


3M™ Contrast Enhancement Film (CEF28XX/OCA 802XX Series)

- 3M film CEF2804/3M OCA 80204
- 3M film CEF2806/3M OCA 80206
- 3M film CEF2808/3M OCA 80208
- 3M film CEF2810/3M OCA 80210
- 3M film CEF2814/3M OCA 80214



Product Description

3M™ Contrast Enhancement Film (CEF28XX/OCA 802XX Series) are specialized optically clear adhesives offering clarity and adhesion to various transparent display substrates. 3M film CEF28XX is designed for applications that require soft CEF for filling thick ink step (lens border frame), ITO compatibility and high adhesion. 3M film CEF28XX is Ultraviolet (UV) curable which makes it suitable for film touch panel and display bonding applications.

Key Features

- Durability in reliability testing
- High conformability to surface steps
- Mura Resistance
- 3M film CEF28XX products are die cuts of film
- 3M OCA 802XX products are available in roll good form

Product Construction

Product	3M™ film CEF2804 (OCA 80204)	3M™ film CEF2806 (OCA 80206)	3M™ film CEF2808 (OCA 80208)	3M™ film CEF2810 (OCA 80210)	3M™ film CEF2814 (OCA 80214)
Adhesive Type:	Acrylic	Acrylic	Acrylic	Acrylic	Acrylic
Adhesive Carrier:	None	None	None	None	None
Approximate Thickness:					
Release Liner:	75 µm (3.0 mils) Clear Polyester	75 µm (3.0 mils) Clear Polyester	75 µm (3.0 mils) Clear Polyester	75 µm (3.0 mils) Clear Polyester	75 µm (3.0 mils) Clear Polyester
Adhesive:	100 µm (4.0 mils)	150 µm (6.0 mils)	200 µm (8.0 mils)	250 µm (10.0 mils)	350 µm (14.0 mils)
Release Liner:	100 µm (4.0 mils) Clear Polyester	100 µm (4.0 mils) Clear Polyester	100 µm (4.0 mils) Clear Polyester	100 µm (4.0 mils) Clear Polyester	100 µm (4.0 mils) Clear 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.

3M™ Contrast Enhancement Film (CEF28XX/OCA 802XX Series)

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.

Environmental Testing:

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 optical glass/3M film CEF28XX/optical glass, cured at 3J/cm².

	Condition	Duration
High Temperature	+95°C	1000 hours
Low Temperature	-40°C	1000 hours
High Temp/Humidity-1	+65°C/90%RH	1000 hours
High Temp/Humidity-2	+85°C/85%RH	1000 hours
Thermal Shock	-40°C and +85°C (1 hour dwell, <1 min ramp time)	300 cycles
UV	0.55 W/m ² at 340 nm, Daylight filter	500 hours

Peel Adhesion:

ASTM D3330 modified, 180 degree peel from float glass, 1 cm wide peel strips, 12in/min (305 mm/min), 2.0 mil polyester backing, 3M film CEF28XX, cured at 3J/cm².

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Dwell Time	20 min dwell at 23°C/50%RH	3 day dwell at 23°C/50%RH
Units	N/cm	N/cm
3M film CEF2802	7.1	11.1
3M film CEF2806	9.0	14.5
3M film CEF2810	9.9	15.8
3M film CEF2814	14.3	16.0

Color:

Ultra Scan Pro (Hunter Lab), ASTM E308, D65/10° 3M film CEF28XX on optical glass, uncured.

3M™ Contrast Enhancement Film (CEF28XX/OCA 802XX Series)			
3M film CEF2802	L* = 97.0	a* = -0.01	b* = 0.15
3M film CEF2806	L* = 96.9	a* = 0.00	b* = 0.17
3M film CEF2810	L* = 97.0	a* = 0.00	b* = 0.20
3M film CEF2814	L* = 96.9	a* = -0.23	b* = 0.26

3M™ Contrast Enhancement Film (CEF28XX/OCA 802XX Series)

Refractive Index:

(+ 0.0005 Metricon measurements from standard deviation of ellipsometry) 3M film CEF28XX, uncured and cured at 3J/cm².

3M™ Contrast Enhancement Film (CEF28XX/OCA 802XX Series)			
Wavelength	405 nm	532 nm	633 nm
Uncured	1.4879	1.4765	1.4717
Cured	1.4903	1.4783	1.4735

Typical Electrical Properties at Room Temperature:

ASTM-D150-92. 3M film CEF28XX cured at a minimum 1J/cm².

Dielectric Constant:

3M™ Contrast Enhancement Film (CEF28XX/OCA 802XX Series)	
Frequency (kHz)	Dielectric Constant
100	5.24
300	4.89

Suggested Lamination Process

Step 1: Remove secondary liner, and then laminate 3M film CEF28XX to first adherent substrate by roller at room temperature

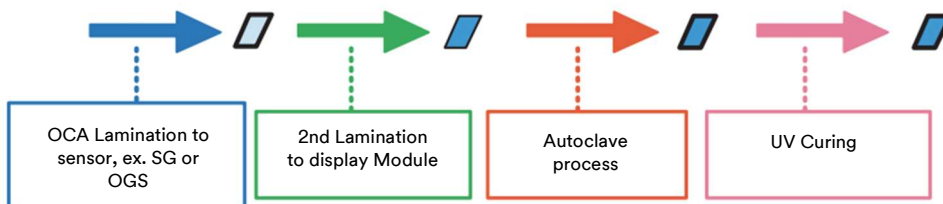
Recommendation: roller pressure 0.1 – 0.2 MPa, roller speed 0.5 – 1m/min

Step 2: Remove primary liner, and then laminate 3M film CEF28XX/first adherent to second adherent by vacuum lamination (if rigid-to-rigid bonding)

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

Step 3: Autoclave process recommendation: 30-60°C/3-5kgf/cm²/20-30min

Step 4: UV curing with targeted 3J/cm² dosage (UVA at 405nm)



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.
- CEF should be properly stored at room temperature in a sealed, foil bag and between 40-60% relative humidity.

3M™ Contrast Enhancement Film (CEF28XX/OCA 802XX Series)

UV Cure Guidance

- UV range: 380 to 405nm
- Target UV dosage and intensity: 3J/cm², 100mW/cm²
- Suggest using a UV-A source.
- Suitable UV sources would be Fusion D bulb and medium pressure mercury, and LED sources, which output at near 405nm wavelengths.

3M™ Contrast Enhancement Film (CEF28XX/OCA 802XX Series)

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