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Technical Data | May 2026

# 3M™ Contrast Enhancement Film (CEF71XX/OCA 8371-X Series)

- 3M film CEF7103/3M OCA 8371-3
- 3M film CEF7104/3M OCA 8371-4
- 3M film CEF7106/3M OCA 8371-6

## Product Description

3M™ Contrast Enhancement Film (CEF71XX/OCA 8371-X Series) are a specialized optically clear adhesive offering clarity and adhesion to various transparent display substrates. 3M film CEF71XX is designed for applications that require soft OCA for filling thick ink step (lens border frame), sensor compatibility and high adhesion. 3M film CEF71XX is Ultraviolet (UV) curable.

## Key Features

- Superior conformability to surfaces steps
- High UV aging reliability
- 3M film CEF71XX Series products are die cuts of film
- 3M OCA 8371-X Series products are available in roll good form

## Product Construction

| Product | 3M™ film CEF7103 (OCA 8371-3) | 3M™ film CEF7104 (OCA 8371-4) | 3M™ film CEF7106 (OCA 8371-6) |
|---|---|---|---|
| **Adhesive Type:** | Acrylic | Acrylic | Acrylic |
| **Adhesive Carrier:** | 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 |
| **Adhesive:** | 75 µm (3.0 mils) | 100 µm (4.0 mils) | 150 µm (6.0 mils) |
| **Release Liner:** | 100 µm (4.0 mils) Clear Polyester | 100 µm (4.0 mils) Clear Polyester | 100 µm (4.0 mils) Clear Polyester |

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.

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# 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 CEF71XX/ optical glass, after 3 J/cm$^2$UV dosage.

| | Condition | Duration |
|---|---|---|
| **High Temperature** | +85°C | 1000 hours |
| **Low Temperature** | -40°C | 1000 hours |
| **High Temp/Humidity** | +65°C/90%RH | 1000 hours |
| **Thermal Shock** | -40°C and +85°C<br>(0.5 hour dwell) | 300 cycles |
| **QUV** | 0. 55W/m² at 340nm, Daylight filter | 500 hours |
| **Xenon UV** | 0. 55W/m² at 340nm, Daylight filter | 250 hours |

## Peel Adhesion:

ASTM D3330 modified, 180 degree peel from glass, 1cm wide peel strips, 12in/min (305 mm/min), 2.0 mil polyester backing, 3M film CEF71XX cured at 3J/cm$^2$.

| Peel Adhesion to Glass | |
|---|---|
| **Dwell Time** | 20 min dwell at 25°C/50%RH |
| **Units** | N/cm |
| **3M film CEF71XX** | >5.79 |

## Color:

Ultra Scan Pro (Hunter Lab), ASTM E308, D65/10° 3M film CEF71XX on optical glass.

| 3M™ film CEF71XX Series | | | |
|---|---|---|---|
| 3M film CEF71XX | L* = 96.4 | a* = -0.29 | b* = 0.35 |

## Refractive Index:

(+ 0.0005 Metricon measurements from standard deviation of ellipsometry) 3M film CEF71XX, uncured

| 3M™ film CEF71XX Series | | | |
|---|---|---|---|
| **Wavelength** | 405 nm | 532 nm | 633 nm |
| **Uncured** | 1.4972 | 1.4856 | 1.4829 |
| **Cured** | 1.4968 | 1.4848 | 1.4803 |

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## Gel Content:

Gel content is determined by the mass ratio of residual cured and uncured optically clear adhesive following immersion in ethyl acetate.

| | UV Dose | Gel Content |
|---|---|---|
| 3M film CEF71XX | 3 J/cm$^2$ | >70% |

## Haze:

Haze is measured according to ASTM D1003-92, 3M film CEF71XX on optical glass, uncured

| 3M™ film CEF71XX Series |
|---|
| 0.2% |

## Typical Electrical Properties at Room Temperature:

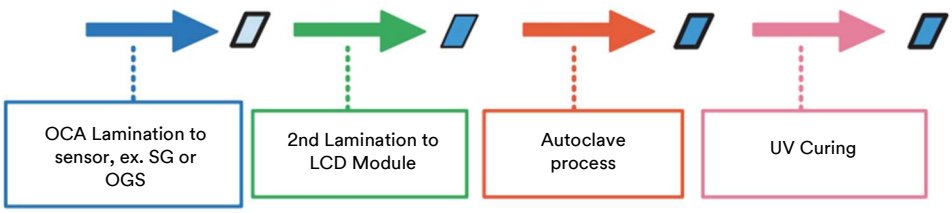
ASTM-D150-92. 3M film CEF71XX, cured at 3 J/cm$^2$.

## Dielectric Constant:

| 3M™ film CEF71XX Series | |
|---|---|
| **Frequency (kHz)** | **Dielectric Constant** |
| 100 | 3.70 |
| 500 | 3.51 |

## Suggested Lamination Process

**Step 1:** Remove secondary liner, and then laminate 3M film CEF71XX 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 CEF71XX/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/cm$^2$/20-30min
**Step 4:** UV curing with minimum 3 J/ cm$^2$ dosage



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## UV Cure Guidance

- UV range: 340-375nm (max absorption = 342nm)
- Minimum UV dosage and intensity: 3J/$cm^2$, 10 mW/$cm^2$
- Suggest using lower wavelengths of the UV-A spectra. Suitable UV sources would be Fusion D bulb and medium pressure Hg.
- LED sources, which output at longer UV-A wavelengths would be less ideal.

## 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.
- Product must be protected from light exposure.
- Store in sealed, foil bag under -20°C to 30°C and 50 ± 10% relative humidity. If removed from cold storage, ensure no condensation on packaging.
- Do not stack sheets more than fifteen pieces high.

**Regulatory**: For regulatory information about this product, contact your 3M representative.

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