

3M™ Automotive Converted Optically Clear Adhesive

ACO 01N-XXX Series

- Excellent durability in reliability testing
- Easy use, general purpose

Product Description

3M Automotive Converted OCA (ACO) films are specialized optically clear adhesives offering excellent clarity and adhesion to various transparent display substrates. 3M ACO 01N-XXX is a bare ITO compatible and easy to convert adhesive with no UV curing required. It is recommended for glass cover lens to sensor or sensor to sensor bonding.



Construction

Product	3M ACO 01N-050	3M ACO 01N-100	3M ACO 01N-175	3M ACO 01N-200	3M ACO 01N-250
Adhesive Type:	Acrylic	Acrylic	Acrylic	Acrylic	Acrylic
Adhesive Carrier:	None	None	None	None	None
Approximate Thickness:					
Release Liner:	75 um (3.0 mils) Clear Polyester	75 um (3.0 mils) Clear Polyester	75 um (3.0 mils) Clear Polyester	75 um (3.0 mils) Clear Polyester	75 um (3.0 mils) Clear Polyester
Adhesive:	50 um (2.0 mils)	100 um (4.0 mils)	175 um (7.0 mils)	200 um (8.0 mils)	250 um (10.0 mils)
Release Liner:	75 um (3.0 mils) Clear Polyester	75 um (3.0 mils) Clear Polyester	75 um (3.0 mils) Clear Polyester	75 um (3.0 mils) Clear Polyester	75 um (3.0 mils) Clear 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.

Durability 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, haze <0.2%, b* <1). Sample construction is cover glass/3M ACO 01N-XXX/cover glass.

	Condition	Duration
High Temperature	+105°C	1200 hours
Low Temperature	-40°C	1200 hours
High Temp/Humidity-1	+65°C/90%RH	1200 hours
High Temp/Humidity-2	+85°C/85%RH	1200 hours
Thermal Shock	-40°C and +95°C (1 hour dwell, <1 min ramp time)	650 cycles
UV	.55 W/m ² at 340nm, Daylight filter	500 hours

Peel Adhesion:

ASTM D3330 modified, 180 degree peel from float glass, 1 cm wide peel strips, 12 in/min (305 mm/min), 2.0 mil polyester backing

Peel Adhesion to Glass		
Dwell Time	20 min dwell at 25°C/50%RH	3 days dwell at 25°C/50%RH
Units	N/cm	N/cm
3M ACO 01N-050	9.7	10.3
3M ACO 01N-100	10.9	11.4
3M ACO 01N-250	15.4	16.0

Color:

Ultra Scan Pro (Hunter Lab)
ASTM E308, D65/10°

3M ACO 01N-050	3M ACO 01N-100	3M ACO 01N-250
L* = 96.9	L* = 96.9	L* = 96.9
a* = -0.01	a* = -0.03	a* = -0.02
b* = 0.16	b* = 0.16	b* = 0.18

Refractive Index:

3M ACO 01N-XXX
(+ 0.0005 Metricon measurements)

3M ACO 01N-XXX		
405 nm	532 nm	633 nm
1.4981	1.4860	1.4809

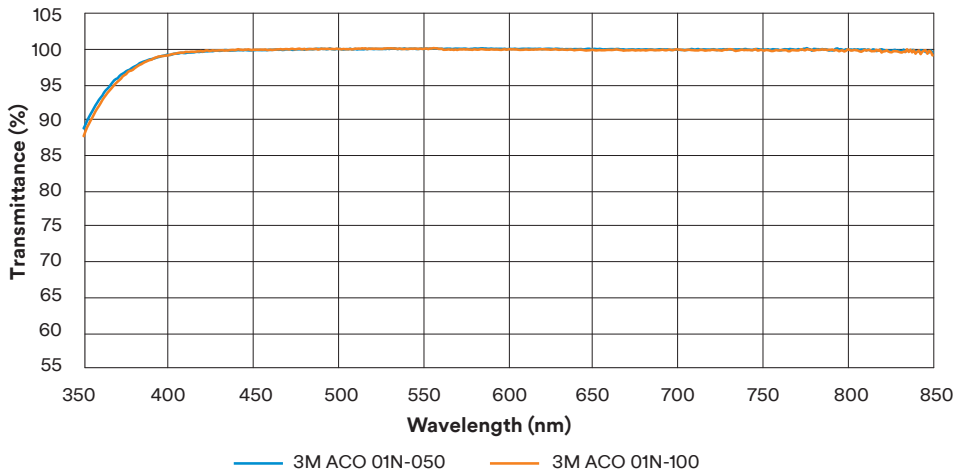
Haze:

Haze is measured according to ASTM D1003-92

3M ACO 01N-050	3M ACO 01N-100	3M ACO 01N-250
0.1%	0.1%	0.2%

Transmission Curve:

Transmission vs. Wavelength (Corrected for Reflection Loss of LCD) for 3M ACO 01N-XXX on Glass



Typical Electrical Properties at Room Temperature

ASTM-D150-92, 3M ACO 01N-XXX

Dielectric Constant:

3M ACO 01N-XXX	
Frequency (kHz)	Dielectric Constant
100	4.11
500	3.72

Suggested Lamination Process

Step 1: Remove secondary liner, and then laminate 3M ACO 01N-XXX to first adherent substrate by roller at room temperature

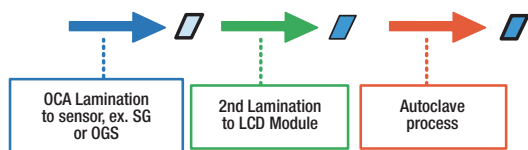
Recommendation: roller pressure 0.1 – 0.2 MPa, roller speed 0.5 – 1 m/min

Step 2: Remove primary liner, and then laminate 3M ACO 01N-XXX/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: 30-60°C/3-5kgf/cm²/20-30 min



Storage

- Avoid applying pressure of 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 less than 70% relative humidity. If removed from cold storage, ensure no condensation on packaging.

Regulatory

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



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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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