

HANAREY CSE4559 Product Data Sheet

May 2026

Hanarey CSE4559 is a medium-viscosity UV-curable adhesive, specially designed for the protection of Chip-on-Film (COF) components in LCD modules. It delivers good flexibility, capable of absorbing stress and providing extra crack-resistant protection during functional testing. It cures extremely rapidly under 365 nm LED light. Its ability to UV cure tack free in seconds enables faster processing, greater output, and lower processing costs.

UNCURED PROPERTIES *

Property	Value	Test Method
Chemical Class	Acrylated Urethane	N/A
Appearance	Transparent to Slightly Hazy, Blue Liquid	N/A
Viscosity, cP	1,250	HSTM 751 [#]
Density, g/ml	1.11	ASTM D1875
Ionic Content (Na ⁺ , Cl ⁻)	ND (LOD: 2.5 mg/kg)	JY/T 0575-2020
Shelf Life from Date of Manufacture	180 Days	N/A

CURED MECHANICAL PROPERTIES *

Property	Value	Test Method
Hardness	D55	ASTM D2240
CTE α_1 , $\mu\text{m}/\text{m}/^\circ\text{C}$	151	ASTM E831
CTE α_2 , $\mu\text{m}/\text{m}/^\circ\text{C}$	263	ASTM E831
Glass Transition Tg, $^\circ\text{C}$	48	ASTM D5418
Tensile at Break, MPa	9	ASTM D638
Modulus of Elasticity, MPa	275	ASTM D638
Water Absorption, % (25 $^\circ\text{C}$, 24 h)	0.05	ASTM D570
Boiling Water Absorption, % (2 h)	0.18	ASTM D570

OTHER CURED PROPERTIES *

Property	Value	Test Method
Linear Shrinkage, %	1.66	ASTM D2566
Water Vapor Transmission Rate, g/(m ² ·24 h) (300 μm , 40 $^\circ\text{C}$, 90% RH)	4.55	ASTM E96/E96M-24a

ELECTRICAL PROPERTIES *

Property	Value	Test Method
Volume Resistivity, ohm-cm	1.7*10 ¹⁵	ASTM D257

ADHESION *

Substrate	Shear Strength
GL / GL	10
GL / PI	5

* N/A Not Specifications
 # Not Applicable
 # Cured by Dymax 5000-EC (all spectrum), 120 mW/cm² intensity, 30 s
 ‡ HSTM refers to Hanarey Standard Testing Method

TRANSPORTATION, STORAGE, AND SHELF LIFE

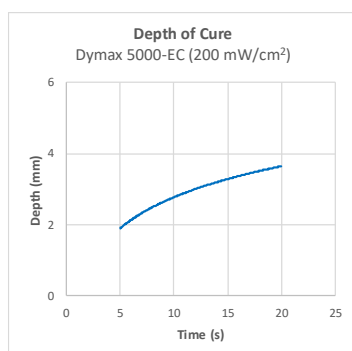
Do not crush and throw to avoid leakage during transportation. It is verified that the product's exposure to ambient temperature for a short time during transportation will not affect its performance. Store the material in a low-humidity, cool, and dark place when not in use. This product may polymerize upon prolonged exposure to ambient and artificial light as well as moisture. This material shelf life is noted on page 1 of this document when stored between 10 $^\circ\text{C}$ (50 $^\circ\text{F}$) and 35 $^\circ\text{C}$ (95 $^\circ\text{F}$) in the original, unopened container.

CLEAN UP

Uncured Hanarey materials may be removed from dispensing components and parts with organic solvents. Cured material will be impervious to many solvents and difficult to remove. Cleanup of cured material may require mechanical methods such as ultrasonic bath, water, jet, vacuum tweezers, air knife and/or warming to aid in the removal.

CURING GUIDELINES

The graph below shows the increase in depth of cure as a function of exposure time at Dymax 5000-EC 200 mW/cm². These depths are only due to light cure.



Full cure is best determined empirically by curing at different times and intensities and measuring the corresponding change in cured properties such as tackiness, adhesion, hardness, etc. Full cure is defined as the point at which more energy exposure no longer improves cured properties. Higher intensities or longer cures (up to 5x) generally will not degrade Hanarey light-curable adhesives.

Hanarey recommends that customers employ a safety factor by curing longer and/or at higher intensities than required for a full cure. Although Hanarey Application Engineering can provide technical support and assist with process development, each customer ultimately must determine and qualify the appropriate curing parameters required for their unique application.

GENERAL INFORMATION

This product is intended for industrial use only. Keep out of the reach of children. Avoid breathing vapors. Avoid contact with skin, eyes, and clothing. Wear impervious gloves. Repeated or continuous skin contact with uncured material may cause irritation. Remove material from the skin with soap and water. Never use organic solvents to remove material from the skin and eyes. For more information on the safe handling of this material, please refer to the Safety Data Sheet before use.

The data provided in this document are based on historical testing that Hanarey performed under laboratory conditions as they existed at that time and are for informational purposes only. The data are neither specifications nor guarantees of future performance in a particular application. Hanarey does not guarantee that this product's properties are suitable for the user's intended purpose. The contents of this document are subject to change. Unless specifically agreed to in writing, Hanarey shall have no obligation to notify the user about any change to its content.

Data Collected: May 2026

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