Description

ULTRACURE 3032 is a single-component conformal coating with a dual-cure mechanism. Its primary cure is activated by ultraviolet light exposure; shadowed areas that cannot be directly exposed to light cure by a secondary ambient-moisture mechanism, completing under normal conditions within 7 days. The coating fluoresces a bright blue when exposed to UV light at 365 nm, enabling easy visual inspection of coating coverage. The material is tack-free after UV light exposure. This data sheet documents the 250 cP version; other viscosities available.

Complies with the RoHS Directive (EU 2011/65/EU and EU 2015/863) and with the REACH Regulation (EC No 1907/2006): it contains no RoHS-restricted substances above the limits and no Substances of Very High Concern (SVHC) above 0.1% (w/w).

Features

- ✓ UV light cure
- ✓ Secondary moisture cure
- ✓ Solvent-free
- ✓ Halogen-free
- ✓ Low odor
- ✓ Bright blue fluorescing
- ✓ Excellent adhesion
- ✓ Chemical resistance
- ✓ Moisture resistance
- ✓ Thermal shock resistance

Uncured material properties

Property	Value
Appearance	Translucent liquid
Density	1.03–1.06 g/cm³
Viscosity	250 cP
Other viscosities	Available
Recommended coating thickness	100–200 µm

Typical curing performance

Curing of a 0.1 mm layer at a distance of 2 cm from the source. Profiles are guideline values; conditions may vary based on equipment and application requirements.

UV cure

Curing system	Intensity	Setting time
UV lamp	200 mW/cm²	< 15 seconds
ULTRACURE UV3651	2.7 W/cm²	< 10 seconds
ULTRACURE UV2025	4 W/cm²	< 5 seconds

Recommended UV cure condition: 1,500–2,000 mJ/cm² (high-pressure mercury vapor lamp, 50 mW/cm² intensity).

Secondary moisture cure

Recommended condition: 72 hours at 25 °C / 70% RH. UV curing is mandatory; moisture only cures shadowed areas. The specified final properties cannot be achieved by moisture curing alone.

Cured material properties

Measured after UV cure plus 7 days at 25 °C / 70% RH.

Property	Value	Standard
Hardness (Shore D)	48–52	—
Adhesion (0B–5B scale)	5B	—
Tensile strength	> 490 PSI	—
Elongation at break	> 55 %	—
Modulus of elasticity	> 127,000 PSI	DMA @ 25 °C
Glass transition temperature (Tg)	86 °F	TMA
Coefficient of thermal expansion	≈ 120 (below Tg) / ≈ 200 (above Tg) ppm/°C	TMA
Water absorption (24 h @ 25 °C)	< 0.4 %	ISO 62:2008
Dielectric withstand voltage	> 1,500 V	IPC-TM-650 2.5.7.1:2000
Dielectric constant (1 MHz)	≈ 3.0	—
Dissipation factor (1 MHz)	< 0.015	—
Volume resistivity	> 1×10^{16} Ω·cm	—
Surface resistivity	≥ 1×10^{16} Ω	—
Comparative tracking index (CTI)	≥ 575	—
Flammability	UL 94V-0	—
Operating temperature	−40 to +266 °F	—
Moisture and insulation resistance	Pass	IPC-TM-650 2.6.3.4A (65 °C / 90% RH)
Fungus resistance	Pass	IPC-TM-650 2.6.1.1
Thermal shock test	Pass	−40 to +110 °C, 500 cycles
Salt spray test	Pass	168 h

Directions for use

1. Before curing, minimize the product's exposure to ambient and artificial light.

2. Make sure the surfaces to be coated are clean and free of flux, grease, mold-release agents or other contaminants before applying.

3. Cure speed varies with lamp intensity, distance to the source, the target depth of cure, the coating thickness and the amount of product in shadowed zones.

4. Curing with suitable UV lamps is essential. Moisture cure acts only as a secondary mechanism in shadowed areas and, on its own, cannot reach the stated final properties; under ambient conditions that reaction completes within 7 days.

5. Apply with manual or automatic equipment as appropriate. For spraying, use dry air (preferably dry inert gas) to prevent early cure by the moisture mechanism, and work with adequate ventilation. Final thickness depends on board size, part geometry and application method.

6. As a moisture-curing material, keep containers and partial remnants protected from moisture.

Clean up and rework

Uncured material	To flush equipment and clean uncured material, use non-alcohol-based solvents.
Cured material	Cured material is highly cross-linked, with a high degree of chemical and environmental resistance, making it more difficult to remove than traditional

	conformal coatings. Thermal displacement and mechanical abrasion are suitable rework options.

Storage and shelf life

Storage temperature	47 °F to 82 °F
Shelf life	6 months from manufacture date, in original unopened container
Conditions	Cool, dark, and dry place. Resealing under dry inert gas (nitrogen) extends shelf life.

Packaging

Packaging	Content
Can	1 kg

Packaging in weight (kg).

Precautions

- Apply in accordance with local and national health and safety regulations.
- Keep out of the reach of children.
- Use only in well-ventilated areas to avoid inhalation of vapors or sprays.
- Avoid contact with skin and eyes.
- Refer to the Safety Data Sheet (SDS) before use.
- Do not expose directly to sunlight for extended periods.

Legal information and disclaimer

Limitation of warranty

The technical information, recommendations, and data provided in this data sheet are based on laboratory testing and practical experience considered reliable at the date of issue. However, due to variability in application conditions, substrates, temperatures, and working methods, ULTRACURE makes no warranty, express or implied, as to the results obtained from the use of this product.

Performance data represent typical values obtained under controlled laboratory conditions and do not constitute a guaranteed specification. The end user is solely responsible for verifying product suitability for their specific application through validation under real conditions of use.

ULTRACURE assumes no liability for direct, indirect, or consequential damages resulting from misuse of the product, failure to follow application instructions, or storage outside the specified conditions.

Applied test methods

Standard	Property evaluated
IPC-TM-650 2.5.7.1:2000	Dielectric withstand voltage
IPC-TM-650 2.6.3.4A	Moisture and insulation resistance
IPC-TM-650 2.6.1.1	Fungus resistance
ISO 62:2008	Water absorption

UL 94	Flammability
DMA / TMA	Modulus of elasticity / Tg and thermal expansion

Validation recommendation

ULTRACURE 3032 is a proven product approved under controlled conditions. Because each project's conditions — substrates, geometry, curing equipment and environment— may differ, sometimes due to factors that are not always visible, validating performance under real conditions of use before full-scale implementation is recommended. Validation should include:

1. Verification of coating coverage under UV inspection (365 nm).
2. Evaluation of cure time with the UV equipment available in the process.
3. Adhesion testing on the actual substrate and assembly geometry.
4. Confirmation of electrical properties under the operating conditions of the finished product.
5. Secondary moisture cure validation in the specific shadowed areas of the design.

Units of measure and glossary

SI / Imperial equivalencies

SI	Imperial
1 MPa	= 145.04 PSI
1 g/cm³	= 8.345 lb/gal
100 µm	= 3.94 mil
°C to °F	°F = (°C × 9/5) + 32

Abbreviations

Abbrev.	Meaning
cP	Centipoise (dynamic viscosity unit)
H.R. / RH	Relative humidity
UV	Ultraviolet
CTI	Comparative Tracking Index
DMA	Dynamic Mechanical Analysis
TMA	Thermomechanical Analysis
Tg	Glass transition temperature

Technical terms

Term	Definition
Conformal coating	Thin protective coating that conforms to the contours of a printed circuit board and its components.
Dual-cure (UV + moisture)	Polymerization mechanism combining primary UV light cure with secondary moisture cure for shadowed areas.
UV fluorescence	Emission of visible light when exposed to 365 nm UV; enables visual verification of coating coverage.
Shore D hardness	Resistance to indentation in rigid materials (0–100 scale); higher values = harder material.

CTI	Maximum voltage at which a material resists electrical tracking.
UL 94V-0	Most demanding UL 94 flammability rating: material self-extinguishes within 10 s with no flaming drips.