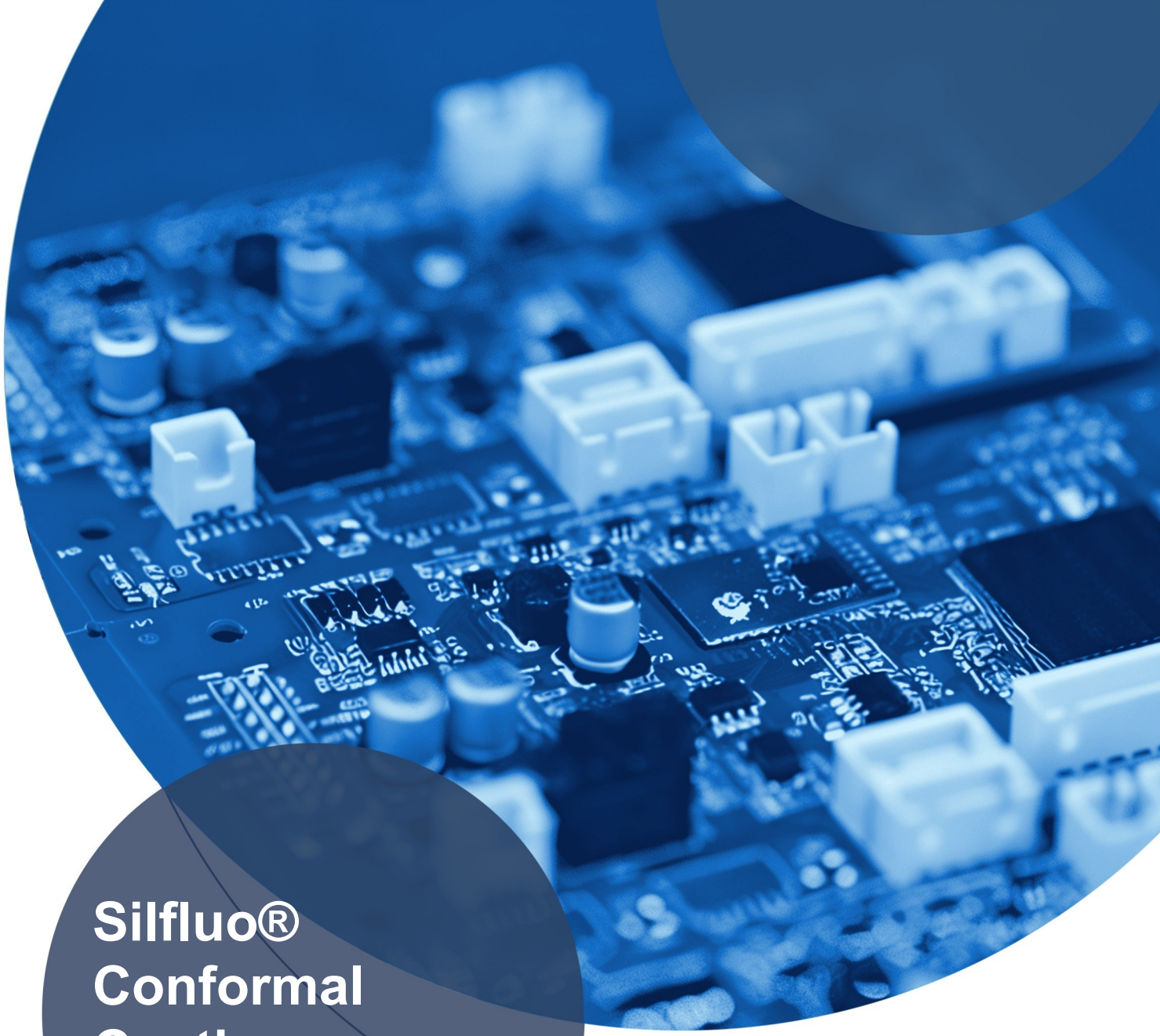


# Silfluo® Conformal Coatings

**Product Range**

Nanjing Silfluo New Material Co., Ltd.

Silfluo

*www.silfluosilicone.com*

# MANAGEMENT SYSTEM

The Silfluo Quality Management Framework is not a stand-alone platform. It is embedded in the broader Silfluo Operating Discipline Framework, which brings together the policies, standards and workflows for environment, health, safety, manufacturing, human resources and quality. The quality management system is certified to ISO 9001.

With this integrated framework, Silfluo works to one cohesive system based on industry best practice.





# SILFLUO QUALITY MANAGEMENT SYSTEM

The Silfluo Quality Management System, established and supported by company leadership, ensures that customers receive dependable products and services and that their needs and expectations are met. It requires strict compliance with technical specifications, regulatory standards and quality benchmarks.

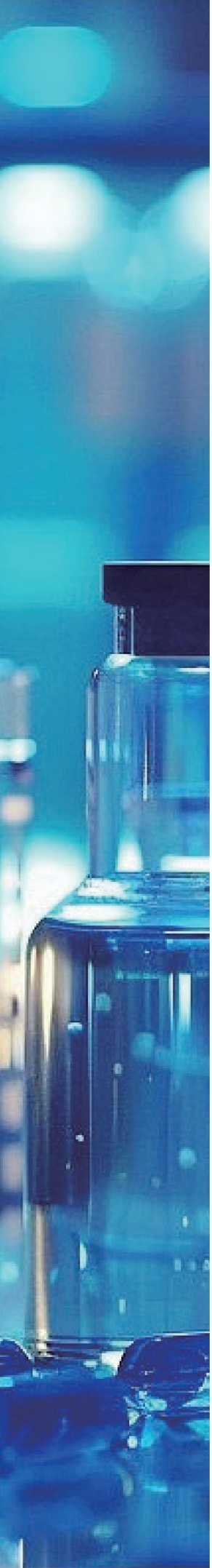
Product quality is upheld through standardization and precise process control. Service quality covers all customer interactions and is overseen by the responsible functional area. The quality attributes of both products and services are defined and agreed upon by Silfluo and its customers.



# QUALITY PERFORMANCE STATEMENT

Excellence in quality is a shared responsibility and a core value for every Silfluo team member. It is achieved through collaboration, dedication and a commitment to continuous improvement.

We are committed to delivering products and services that meet or exceed customer expectations. Quality management ensures that we consistently deliver the products and services our customers trust.



# QUALITY MEASUREMENT SYSTEMS

Silfluo uses QDG (Quality Data Gather) systems to track and evaluate progress in quality improvement. The QDG systems handle high-volume testing, so that every production batch is tested with validated methods.

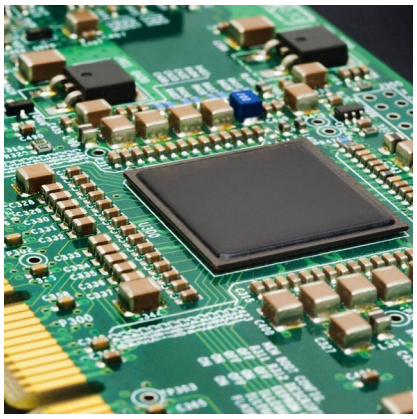
| CONVENTIONAL TEST ITEMS | |
|---|---|
| **Test item** | **Equipment** |
| Viscosity | Rotational viscometer |
| Solid content | Drying oven and balance |
| Specific gravity | Density meter |
| Hardness | Shore A durometer |
| Adhesion | Cross-cut tester |
| Volume resistivity | Volume resistivity tester |
| Dielectric strength | Dielectric strength tester |
| Others | |

# CONFORMAL COATINGS

A conformal coating is a thin protective film that follows the contours of a printed circuit board assembly (PCBA). It protects conductors, solder joints and components against moisture, condensation, salt spray, mildew and corrosive gases, and keeps conductors electrically insulated under environmental stress.

Silfluo supplies three coating technologies: moisture-cure silicone, modified acrylic and UV/moisture dual-cure polyurethane acrylate. All are single-component products with a built-in fluorescent tracer for coverage inspection under 365 nm UV light.

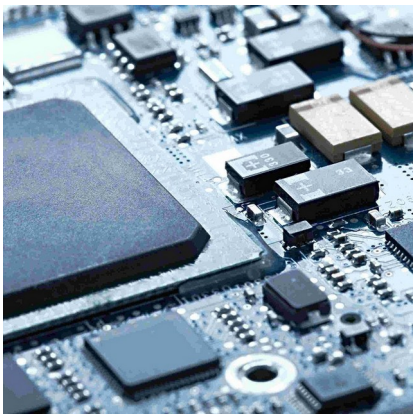
## The Silfluo range



### LC-CC1390 series

**Silicone conformal coatings**

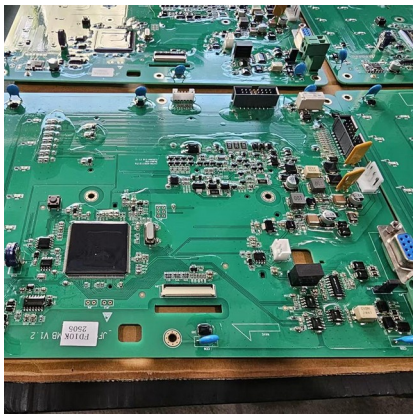
- Moisture cure at room temperature
- Four solvent-borne grades and one solvent-free grade
- Shore A 20–30 to 70–80
- Service range −40 to +200 °C



### LC-CC8102

**Acrylic conformal coating**

- Modified acrylic in low-toxicity solvents
- Tack-free in 5 minutes
- Dielectric strength 30 kV/mm
- Service range −40 to +120 °C



### LC-CC7900-150D

**UV/moisture dual-cure conformal coating**

- Solvent-free polyurethane acrylate
- UV cure; moisture cure in shadowed areas
- Elongation at break 199%, UL 94 V0
- Service range −60 to +135 °C

## Common features

- Single-component products: no mixing before use.
- Built-in fluorescent tracer: coverage, voids and pinholes are checked under 365 nm UV light.
- Application by brush, spray or dip; the LC-CC1390 series also by automated dispensing, LC-CC7900-150D by selective spray.
- Packaging from 1 kg containers to 200 kg drums.

# CHOOSING A COATING CHEMISTRY

Each chemistry suits a different combination of service conditions and production process. The table compares the three Silfluo technologies; detailed data for every grade follow on the product pages.

| | Silicone LC-CC1390 series | Modified acrylic LC-CC8102 | UV/moisture dual cure LC-CC7900-150D |
|---|---|---|---|
| Resin | Silicone resin | Modified acrylic resin | Polyurethane acrylate |
| Cure | Atmospheric moisture | Solvent evaporation | UV light; moisture in shadowed areas |
| Solvent | Toluene or solvent oil No. 120; LC-CC1397 solvent-free | Low-toxicity solvents | Solvent-free |
| Viscosity (mPa·s) | 400–2500 | 52 | 150 |
| Surface dry / tack-free | 5–60 min (25 °C, 60% RH) | 5 min (23 °C, 80 μm) | Right after a UV dose of ≥ 1000 mJ/cm$^2$ |
| Full cure | < 24 h (25 °C, 60% RH) | 24 h at room temperature or 2 h at 70 °C | Shadowed areas: about 3 days; ultimate properties: 7–14 days (23 °C, 50% RH) |
| Hardness (Shore A) | 20–30 to 70–80 | 60 | 60 |
| Elongation at break (%) | — | 20 | 199 |
| Volume resistivity (Ω·cm) | — | $8.5 \times 10^{15}$ | $3.7 \times 10^{14}$ |
| Dielectric strength (kV/mm) | — | 30 | 23 |
| Service temperature (°C) | −40 to +200 | −40 to +120 | −60 to +135 |
| Flame retardancy | — | — | UL 94 V0 |
| Rework | Touch up by brush before full cure | Cured film removed with a conformal coating remover | Cured film removed by abrasion or with a conformal coating remover |
| Transport | LC-CC1397 non-dangerous goods; other grades dangerous goods | Dangerous goods | Non-dangerous goods |

## Which chemistry for which need

• Highest service temperature (up to +200 °C) and a flexible film under thermal cycling: silicone, LC-CC1390 series; LC-CC1394 gives the softest film.
• Fast drying and easy rework: acrylic, LC-CC8102.
• Fast UV processing without solvent, boards with shadowed components, UL 94 V0: LC-CC7900-150D.
• No solvent with a room-temperature moisture cure: LC-CC1397.
— = not given in the technical data sheet.

# SELECTION GUIDE

## Typical properties

| Grade | Chemistry / cure | Solvent | Viscosity (mPa·s) | Surface dry / tack-free | Hardness (Shore A) | Service temp. (°C) |
|---|---|---|---|---|---|---|
| LC-CC1390 | Silicone, moisture cure | Toluene | 600–1000 | 10–30 min | 70–80 | −40 to +200 |
| LC-CC1392 | Silicone, moisture cure | Solvent oil No. 120 | 600–1000 | 10–30 min | 70–80 | −40 to +200 |
| LC-CC1394 | Silicone, moisture cure | Solvent oil No. 120 | 400–800 | 5–15 min | 20–30 | −40 to +200 |
| LC-CC1397 | Silicone, moisture cure | None (98% solids) | 1500–2500 | 60 min | 55–65 | −40 to +200 |
| LC-CC1398 | Silicone, moisture cure | Solvent oil No. 120 | 600–1000 | 5–15 min | 70–80 | −40 to +200 |
| LC-CC8102 | Modified acrylic, solvent evaporation | Low-toxicity solvents | 52 | 5 min | 60 | −40 to +120 |
| LC-CC7900-150D | Polyurethane acrylate, UV/moisture dual cure | None | 150 | After UV dose ≥ 1000 mJ/cm² | 60 | −60 to +135 |

LC-CC1390 series: surface dry time at 25 °C, 60% RH, 1.25 mm. LC-CC8102: tack-free time at 23 °C, 80 µm wet film.

## Main features and typical uses

| Grade | Main features | Typical use |
|---|---|---|
| LC-CC1390 | Toluene solvent; Shore A 70–80; 70% solids | General PCB protection where toluene solvent is acceptable |
| LC-CC1392 | Solvent oil No. 120; Shore A 70–80; 70% solids | PCB protection with a lower-aromatic solvent |
| LC-CC1394 | Solvent oil No. 120; Shore A 20–30; 60% solids; fast surface dry | Soft, flexible film for assemblies under vibration, thermal expansion mismatch or flexible substrate movement |
| LC-CC1397 | Solvent-free; 98% solids; Shore A 55–65; non-dangerous goods | Enclosed or low-ventilation areas, automated dispensing, supply chains with transport restrictions |
| LC-CC1398 | Solvent oil No. 120; 89% solids; Shore A 70–80; fast surface dry | Lower VOC than LC-CC1390 / 1392; high solids with fast processing |
| LC-CC8102 | Tack-free in 5 min; full cure 24 h at room temperature or 2 h at 70 °C; reworkable with a conformal coating remover | PCBs in smart meters, household appliances and automotive electronics |
| LC-CC7900-150D | Solvent-free; tack-free right after UV exposure; shadowed areas cure with moisture; UL 94 V0 | Boards with shadowed components (through-hole parts, tall SMDs, connector housings); automotive underhood and outdoor electronics |

# INDUSTRIES AND APPLICATIONS



Automotive electronics



Smart metering and power



Consumer electronics and appliances




Communication equipment



Aerospace and avionics



Marine electronics

## Products by industry

| Industry / application | LC-CC1390 series | LC-CC8102 | LC-CC7900-150D |
|---|---|---|---|
| Consumer electronics and household appliances | • | • | • |
| Smart metering and IoT devices | • | • | • |
| Automotive electronics (engine control units, sensor modules) | • | • | • |
| LED driver boards | • | | |
| Aerospace and avionics assemblies | • | | |
| Marine electronics | • | | |
| Medical device circuit boards | • | | |
| Precision communication equipment | • | | |

Verify grade selection against substrate type, operating environment and applicable standards (IPC-CC-830, MIL-I-46058C or equivalent) before production qualification.

# PROCESS GUIDE

## 1 Clean

Remove flux residues, ionic contaminants, dust, moisture, grease and fingerprints. Verify cleanliness on critical assemblies by ion contamination test (IPC-TM-650 2.3.25 or equivalent).

## 2 Mask

Mask connectors, test points, switch contacts, adjustment potentiometers and heat-sink mounting surfaces. Remove masking after the surface dry time.

## 3 Apply

Brush, spray, dip or automated dispensing: a smooth, even film without sagging, pinholes or skipped areas. Keep boards horizontal while coating and during flash-off or UV cure.

## 4 Cure

Silicone: atmospheric moisture. Acrylic: solvent evaporation, 2 h at 70 °C to speed up. Dual cure: UV dose, then moisture in shadowed areas. Recoat only when the first layer is tack-free.

## 5 Inspect

Check coverage under 365 nm UV light: the fluorescent tracer shows skipped areas, voids and pinholes. Touch up by brush before full cure.

## 6 Rework

Remove uncured material with IPA, MEK or a similar solvent. Remove cured films with a conformal coating remover; LC-CC7900-150D also by abrasion.

## Recoat and cure conditions

| Grade | Second coat after (tack-free) | Full cure | Notes |
|---|---|---|---|
| LC-CC1390 / 1392 | 10–30 min (25 °C, 60% RH) | < 24 h at 25 °C, 60% RH | Minimum 20 °C, 40% RH; below 40% RH or 15 °C cure longer |
| LC-CC1394 / 1398 | 5–15 min (25 °C, 60% RH) | < 24 h at 25 °C, 60% RH | As above |
| LC-CC1397 | 60 min (25 °C, 60% RH) | < 24 h at 25 °C, 60% RH | As above |
| LC-CC8102 | 5 min (23 °C, 80 µm wet film) | 24 h at 23 °C, 50% RH, or 2 h at 70 °C | Flash-off at least 10 min with boards horizontal |
| LC-CC7900-150D | Right after a UV dose of ≥ 1000 mJ/cm² | Shadowed areas: about 3 days; ultimate properties: 7–14 days (23 °C, 50% RH) | Below 40% RH or 15 °C cure longer |

# PACKAGING, STORAGE AND TRANSPORT

Silfluo conformal coatings are supplied in sealed original containers. Shelf life applies to original, unopened containers stored as below.

| Grade | Packaging | Storage | Shelf life | Transport |
|---|---|---|---|---|
| LC-CC1390 / 1392 / 1394 / 1398 | 20 kg or 200 kg iron drums; other packaging on request | 0–30 °C, well ventilated, away from sunlight and ignition sources | 6 months | Dangerous goods |
| LC-CC1397 | 20 kg or 200 kg iron drums; other packaging on request | 0–30 °C, well ventilated, away from sunlight | 6 months | Non-dangerous goods |
| LC-CC8102 | 1 kg and 5 kg containers; industrial packaging on request | 5–28 °C, cool, dry and well ventilated, away from sunlight and ignition sources | 12 months | Dangerous goods |
| LC-CC7900-150D | 1 kg opaque metal cans; 5 kg or larger on request | 8–25 °C, tightly sealed, in a cool, dry and dark place | 6 months | Non-dangerous goods |

LC-CC1390 series: material beyond shelf life may remain usable subject to re-testing of viscosity and cure performance (surface dry time, Shore A at 24 h).

## Handling

• LC-CC1390 series: reseal containers immediately after dispensing to prevent skinning and premature in-can cure.
• Solvent-borne grades (LC-CC1390 / 1392 / 1394 / 1398, LC-CC8102): keep away from open flames, sparks and heat sources; work with good ventilation or local exhaust and avoid prolonged inhalation of vapors.
• Avoid skin contact with uncured material. In case of eye contact, rinse immediately with plenty of water and seek medical attention.
• Refer to the SDS of each product before handling, storage and use.



200 kg iron drums

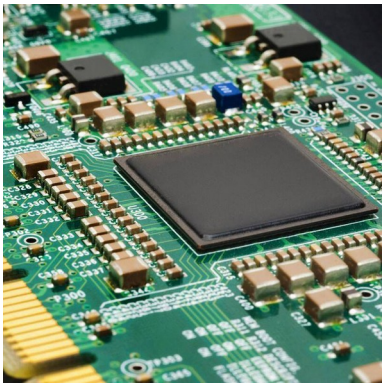


Stretch-wrapped pallet



Sealed iron drums

# SILICONE CONFORMAL COATING LC-CC1390 SERIES



## Key features

- Five grades: four solvent-borne, one solvent-free (98% solids)
- Moisture cure at room temperature; complete cure in less than 24 h
- Film hardness from Shore A 20–30 to Shore A 70–80
- Service range −40 °C to +200 °C
- Resists moisture, salt spray, sulfur gases, mold and corrosion
- UV fluorescent tracer for coverage inspection at 365 nm

## Description:

Silfluo LC-CC1390 series consists of five single-component, moisture-cure silicone conformal coatings: four solvent-borne grades (LC-CC1390, LC-CC1392, LC-CC1394, LC-CC1398) and one solvent-free grade (LC-CC1397), differentiated by solvent type, solid content, viscosity and cured film hardness.
All grades cure via atmospheric moisture at room temperature or under accelerated heat, forming a silicone elastomer film with adhesion to metals, PCBs and common electronic substrates. Each grade incorporates a UV fluorescent tracer for coverage inspection under 365 nm UV blacklight.
LC-CC1397 is solvent-free (98% solid content) and classified as non-dangerous goods for storage and transport; all other grades contain organic solvent (toluene or solvent oil No. 120) and are classified as dangerous goods.

## Typical Technical Properties:

| Item | LC-CC1390 | LC-CC1392 | LC-CC1394 | LC-CC1397 | LC-CC1398 |
|---|---|---|---|---|---|
| Appearance | Colorless or light yellow transparent liquid | | | | |
| Solid content (150 °C, 2 h, %) | 70 ± 2 | 70 ± 2 | 60 ± 2 | 98 | 89 ± 2 |
| Solvent | Toluene | Solvent oil No. 120 | Solvent oil No. 120 | None | Solvent oil No. 120 |
| Viscosity (25 °C, mPa·s) | 600–1000 | 600–1000 | 400–800 | 1500–2500 | 600–1000 |
| Surface dry time (min; 25 °C, 60% RH, 1.25 mm) | 10–30 | 10–30 | 5–15 | 60 | 5–15 |
| Complete curing time (h; 25 °C, 60% RH, 1.25 mm) | < 24 | | | | |
| Hardness (Shore A) | 70–80 | 70–80 | 20–30 | 55–65 | 70–80 |

# SILICONE CONFORMAL COATING LC-CC1390 SERIES (CONTINUED)

## Grade Selection Guide:

| Grade | Key differentiator | Primary use |
|---|---|---|
| LC-CC1390 | Toluene solvent; Shore A 70–80; 70% solids | General PCB protection where toluene solvent is acceptable |
| LC-CC1392 | Solvent oil No. 120; Shore A 70–80; 70% solids | PCB protection with a lower-aromatic solvent profile |
| LC-CC1394 | Solvent oil No. 120; Shore A 20–30; 60% solids; fast surface dry | Applications requiring a soft, flexible film; vibration-resistant assemblies |
| LC-CC1397 | Solvent-free; Shore A 55–65; 98% solids; non-dangerous goods | Enclosed or low-ventilation environments; automated dispensing; logistics-sensitive supply chains |
| LC-CC1398 | Solvent oil No. 120; Shore A 70–80; 89% solids; fast surface dry | High solid content with fast processing; reduced VOC vs. LC-CC1390 / 1392 |

LC-CC1394 (Shore A 20–30) is selected where the cured film must accommodate mechanical vibration, thermal expansion mismatch or flexible substrate movement without cracking. LC-CC1390 / 1392 / 1398 (Shore A 70–80) are selected for rigid PCB applications where film hardness and abrasion resistance are priorities. LC-CC1397 is the appropriate grade where solvent elimination is required by facility safety regulations or transport restrictions.

## Protective Properties (All Grades):

- Moisture and humidity resistance: prevents condensation-induced leakage current between PCB conductors.
- Salt spray resistance: protects metal traces and component leads in marine, automotive and outdoor electronics.
- Sulfur resistance: protects silver and copper conductors from $H_2S$ and $SO_2$ tarnishing in industrial atmospheres.
- Anti-fungal: inhibits mold growth on PCB surfaces in high-humidity tropical environments.
- Corrosion resistance: seals metal surfaces from oxidizing gases.
- Dielectric insulation: maintains electrical isolation between conductors under environmental stress.
- Thermal cycling resistance: the silicone elastomer film accommodates differential thermal expansion across the −40 °C to +200 °C service range without delamination or cracking.
- UV fluorescent tracer: visible under 365 nm UV blacklight for automated or manual coverage inspection.

## Applications:

LC-CC1390 series is used for conformal coating of PCBs and electronic assemblies in consumer electronics and home appliances, smart metering and IoT devices, automotive electronics (engine control units, sensor modules), LED driver boards, aerospace and avionics assemblies, marine electronics, medical device circuit boards and precision communication equipment. Verify grade selection against substrate type, operating environment and applicable standards (IPC-CC-830, MIL-I-46058C or equivalent) before production qualification.

# SILICONE CONFORMAL COATING LC-CC1390 SERIES (CONTINUED)

## Application Guidelines:

Surface preparation: Clean PCB surfaces of all flux residues, ionic contaminants, dust, moisture and grease before coating. Verify cleanliness by ion contamination test (IPC-TM-650 2.3.25 or equivalent) on critical assemblies. Residual contamination beneath the cured film causes adhesion failure and accelerated corrosion under humidity conditions.
Application methods: Brush, spray, dip or automated dispensing. Apply a smooth, uniform film without sagging, pinholes or skipped areas. For spray application of solvent-borne grades (LC-CC1390 / 1392 / 1394 / 1398), use a ventilated spray booth with local exhaust and explosion-proof equipment.
Multi-layer application: Apply the second coat only after the first layer is tack-free. At 25 °C, 60% RH this takes 10–30 minutes for LC-CC1390 / 1392, 5–15 minutes for LC-CC1394 / 1398 and 60 minutes for the solvent-free LC-CC1397. Applying over a wet first coat traps solvent and inhibits through-cure.
Cure conditions: Full cure at 25 °C, 60% RH within 24 hours for all grades. Higher temperature and humidity accelerate the cure. Minimum recommended cure environment: 20 °C, 40% RH. Below 40% RH or 15 °C, extend the cure time and verify full cure by Shore A hardness before service.
Container handling: Single-component moisture-cure product. Reseal containers immediately after dispensing to prevent skinning and premature in-can cure; where possible, use within one working session after opening.
Inspection: Inspect coating coverage under 365 nm UV blacklight after the surface dry time. Rework skipped areas or pinholes by brush application of additional material before full cure.
Masking: Mask connectors, test points, switch contacts, adjustment potentiometers and heat-sink mounting surfaces before coating. Remove masking after the surface dry time so that the tape does not bond to the partly cured film.

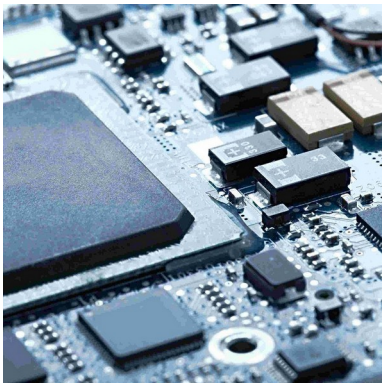
## Package & Storage:

In 200 kg or 20 kg iron drums; packaging can be specified according to customer needs.
Store in a well-ventilated place at low temperature (0–30 °C), away from sunlight and ignition sources.
Shelf life: 6 months from the date of manufacture in original unopened containers. Material beyond shelf life may remain usable subject to re-testing: verify viscosity and cure performance (surface dry time, Shore A at 24 h) before use in production.
LC-CC1397 is stored and transported as non-dangerous goods, the other grades as dangerous goods.

## Safety and Handling:

Solvent-borne grades (LC-CC1390 / 1392 / 1394 / 1398) contain flammable organic solvents: keep away from open flames, sparks and heat sources during application and drying, and take anti-static precautions (grounded equipment, no static-generating clothing) in enclosed spray environments. Apply them in a well-ventilated area or with local exhaust ventilation; avoid prolonged inhalation of solvent vapors and direct skin contact, and wear solvent-resistant gloves and eye protection.
LC-CC1397 (solvent-free): no flammability precautions are required for the liquid product; standard PPE applies.
In case of eye contact with any grade, flush immediately with clean water for 15 minutes and seek medical attention. Refer to the SDS before handling, storage and use.

# ACRYLIC CONFORMAL COATING LC-CC8102



## Key features

- Single-component modified acrylic in low-toxicity solvents
- Tack-free in 5 min; full cure 24 h at room temperature or 2 h at 70 °C
- Volume resistivity 8.5 × $10^{15}$ Ω·cm, dielectric strength 30 kV/mm
- Service range −40 °C to +120 °C
- Reworkable with a conformal coating remover
- UV fluorescent tracer for coverage inspection at 365 nm

## Description:

Silfluo LC-CC8102 is a single-component modified acrylic conformal coating for printed circuit board (PCB) protection, formulated with low-toxicity solvents and incorporating a built-in fluorescent UV tracer for inspection under UV light (blacklight, 365 nm).

Upon solvent evaporation, LC-CC8102 forms a continuous acrylic film providing moisture, salt spray, mildew and corrosive gas resistance across a service temperature range of −40 °C to +120 °C. The cured film can be reworked with a conformal coating remover, allowing component repair or replacement without mechanical damage to the PCB substrate.

## Applications:

1. PCB environmental protection: Applied to PCBs in smart metering, household consumer appliances and automotive electronics to protect against moisture ingress, salt spray (IEC 60068-2-52), mildew growth and corrosive atmospheric gases ($SO_2$, $H_2S$, $Cl_2$). Volume resistivity of 8.5 × $10^{15}$ Ω·cm and dielectric strength of 30 kV/mm maintain electrical isolation between conductors under humidity and condensation.
2. UV inspection: The built-in fluorescent UV tracer fluoresces under 365 nm UV blacklight, enabling automated optical inspection (AOI) or manual visual verification of coating coverage, film continuity and absence of voids or holidays. Inspect as soon as the tack-free time is reached (5 minutes at 23 °C), before full cure, so that rework is still easy while the film can be removed with solvent.

## Typical Uncured Liquid Properties:

| | |
|---|---|
| Appearance | Colorless to light yellow transparent liquid |
| Viscosity (mPa·s) | 52 |
| Specific gravity | 0.83 |
| Tack-free time (23 °C, 80 μm) | 5 min |

# ACRYLIC CONFORMAL COATING LC-CC8102 (CONTINUED)

## Cured Film Profile & Electrical Properties:

| | |
|---|---|
| Full cure time (80 μm) | 24 h at room temperature<br>2 h at 70 °C |
| Hardness (Shore A) | 60 |
| Adhesion (cross-cut test) | Class 0 (no detachment) |
| Elongation at break (%) | 20 |
| Volume resistivity (Ω·cm) | $8.5 \times 10^{15}$ |
| Dielectric strength (kV/mm) | 30 |
| Surface resistance (Ω) | $4.3 \times 10^{14}$ |
| Service temperature (°C) | −40 to 120 |

Standard conditions: 23 ± 2 °C, 50 ± 5% RH.

## Application Guidelines:

Surface preparation: Clean PCB surfaces of all flux residues, dust, grease and ionic contaminants before coating. Residual flux or ionic contamination beneath the cured film will cause adhesion failure and accelerated corrosion under humidity conditions. Use isopropanol (IPA) or a dedicated PCB cleaner; verify cleanliness by ion contamination test (IPC-TM-650 2.3.25 or equivalent) on critical assemblies.
Application methods: LC-CC8102 is suitable for spray, dip and brush application. Maintain a target wet film thickness of 80 μm to achieve the published cured film properties; other film thicknesses change the tack-free time, electrical properties and flexibility. Agitate the container thoroughly before use to redistribute the UV tracer uniformly.
Board orientation: Keep PCBs horizontal during coating and throughout the initial flash-off period (minimum 10 minutes at 23 °C) to prevent wet film flow, edge pooling or thinning on vertical surfaces before the film is tack-free.
Cure conditions: Allow 24 hours at room temperature (23 °C, 50% RH) for full cure before exposing coated assemblies to service conditions. Accelerated cure at 70 °C for 2 hours may be used in production; allow assemblies to cool to ambient temperature before handling or electrical testing.
Inspection and rework: Inspect under 365 nm UV blacklight after coating and after cure. For rework, apply a conformal coating remover to the area to be repaired and allow it to penetrate before mechanical removal. Recoat and re-inspect after rework.

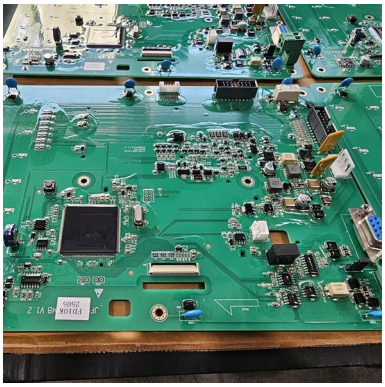
## Package & Storage:

In 1 kg and 5 kg containers; customized industrial packaging on request.
Store in a cool, dry and well-ventilated place at 5–28 °C, away from direct sunlight and ignition sources.
Shelf life: 12 months in original unopened packaging.
Transported as dangerous goods.

## Safety and Handling:

The uncured liquid contains solvents. Avoid direct skin contact and prolonged inhalation of vapors. If splashed into the eyes, flush immediately with plenty of clean water and seek medical attention. Refer to the SDS before use.

# UV/MOISTURE DUAL-CURE CONFORMAL COATING LC-CC7900-150D



## Key features

- Solvent-free polyurethane acrylate: no VOC emissions during application and cure
- UV cure; moisture cure completes shadowed areas
- Elongation at break 199%, Shore A 60
- UL 94 V0; operating range −60 °C to +135 °C
- Dielectric strength 23 kV/mm
- UV fluorescent tracer for coverage inspection at 365 nm

## Description:

Silfluo LC-CC7900-150D is a single-component, solvent-free polyurethane acrylate conformal coating with a UV/moisture dual-cure mechanism. UV exposure initiates rapid free-radical crosslinking of the acrylate network; a secondary moisture-cure reaction proceeds in shadowed areas where UV light cannot penetrate, completing crosslinking without additional process steps.

The solvent-free formulation eliminates VOC emissions during application and cure. A built-in fluorescent UV tracer allows coverage inspection under 365 nm UV blacklight. The cured film achieves UL 94 V0 flame retardancy and an operating temperature range of −60 °C to +135 °C.

## Applications:

1. PCB environmental protection: Applied to PCBs in smart metering, household consumer appliances and automotive electronics to protect against moisture, condensation, salt spray, mildew and corrosive gases. Elongation at break of 199% accommodates differential thermal expansion between the cured film and the PCB substrate during thermal cycling from −60 °C to +135 °C without film cracking or delamination, which matters for automotive underhood and outdoor electronics.
2. Shadowed component protection: The dual-cure mechanism overcomes the coverage limit of UV-only coatings. Components with shadowed areas (through-hole components, tall SMD components, connector housings) are fully crosslinked by moisture cure, without repositioning the board for additional UV passes. Basic cure in shadowed areas takes about 3 days at 23 °C / 50% RH; ultimate mechanical and electrical properties are reached in 7–14 days.

## Typical Uncured Liquid Properties:

| | |
|---|---|
| Base material | Polyurethane acrylate |
| Appearance | Colorless to pale yellow liquid |
| Viscosity (mPa·s) | 150 |
| Specific gravity (23 °C) | 1.10 |
| Surface dry energy (mJ/cm$^2$) | 1000 |

# UV/MOISTURE DUAL-CURE CONFORMAL COATING LC-CC7900-150D (CONTINUED)

## Cured Film Profile & Electrical Properties:

| | |
|---|---|
| Adhesion (cross-cut test) | Class 0 |
| Hardness (Shore A) | 60 |
| Tensile strength (MPa) | 3.57 |
| Elongation at break (%) | 199 |
| Volume resistivity (Ω·cm) | $3.7 \times 10^{14}$ |
| Dielectric constant (1 MHz) | 3.2 |
| Dielectric strength (kV/mm) | 23 |
| Surface resistance (Ω) | $4.3 \times 10^{14}$ |
| Flame retardancy (UL 94) | V0 |
| Operating temperature (°C) | −60 to 135 |

Standard conditions: 23 ± 2 °C, 50 ± 5% RH.

## Application & Curing Guidelines:

Surface preparation: Clean PCB surfaces of all flux residues, dust, grease, fingerprints and ionic contaminants before coating. Verify cleanliness by ion contamination test (IPC-TM-650 2.3.25 or equivalent) on critical assemblies.

Application methods: Manual brushing, automated selective spray coating and dip coating. If the material has been agitated, let it stand until air bubbles have dissipated. Keep boards horizontal during coating and the initial UV cure to prevent wet film flow on vertical surfaces.

UV cure: Expose coated boards to UV light at the wavelength and intensity specified for the UV lamp system in use. Minimum surface dry energy: 1,000 mJ/cm$^2$. Cure speed depends on UV intensity (mW/cm$^2$), wavelength, film thickness and lamp-to-substrate distance; verify the cure state by a tack test after UV exposure. The film is tack-free immediately after an adequate UV dose.

Moisture cure (shadowed areas): Moisture cure proceeds automatically at ambient conditions after UV exposure. Basic cure: about 3 days at 23 °C / 50% RH. Ultimate properties (tensile strength, elongation, electrical): 7–14 days at 23 °C / 50% RH. Higher temperature and relative humidity accelerate the moisture cure; below 40% RH or 15 °C, extend the cure time accordingly.

Multi-layer application: Apply a second coat only after the first layer is fully tack-free following UV exposure. Do not apply over wet or partially moisture-cured films.

Inspection: Inspect under 365 nm UV blacklight after UV cure to verify coverage and find skipped areas or pinholes. Rework uncured or poorly covered areas by brush before moisture cure begins in those zones.

Cleanup: Remove uncured material with IPA, MEK or an equivalent organic solvent before cure. Cured film removal requires mechanical abrasion or a dedicated conformal coating remover.

# UV/MOISTURE DUAL-CURE CONFORMAL COATING LC-CC7900-150D (CONTINUED)

## Package & Storage:

In 1 kg opaque metal cans; other pack sizes (e.g. 5 kg or larger) available on request.
Store tightly sealed in a cool, dry and dark place at 8–25 °C. Shelf life: 6 months in original unopened packaging.
Transported as non-dangerous goods.

## Safety and Handling:

Avoid skin contact with the uncured material. In case of eye contact, rinse immediately with plenty of water and seek medical attention. Refer to the SDS before use.



# CONTACT US


Nanjing Silfluo New Material Co., Ltd.

B1 Building, Huizhi Science Park, No. 8 Hengtai Road,
Nanjing Economic and Technological Development Zone, Nanjing, China (210033)

+86 183 5181 7618 (Phone / WhatsApp / WeChat)

inquiry@silfluo.com

www.silfluosilicone.com



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