



# Product Overview

2024-2025 Spotlight and Technical Information





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# Introduction

“At YINCAE, we don’t just develop advanced materials—we build solutions that empower our customers to achieve the impossible.

Our commitment to innovation, quality, and customer success is the driving force behind everything we do.”

**Dr. Wusheng Yin**  
FOUNDER & CEO

**20+**

Years of operations

**20+**

Locations worldwide

**2x**

Global Technology  
Award Winner

**150+**

Employees

INNOVATION AT ITS BEST



# Company Overview

## About Us

Founded in 2005 and headquartered in Albany, New York, YINCAE is a globally recognized leader in advanced micro-electronic materials for the computer microchip and optoelectronics industries. Our products enable faster, more efficient production at lower costs while maintaining high quality and supporting sustainable practices.

## Our Mission

YINCAE Advanced Materials, LLC is built on three pillars: exceeding performance standards, maximizing productivity, and reducing process costs. With deep expertise and agile support, YINCAE is committed to being a trusted partner that strengthens customer innovation, efficiency, and market competitiveness.

## Our Vision

At YINCAE Advanced Materials, our greatest asset is our customers. We are dedicated to delivering high-quality products that consistently meet and exceed customer expectations, ensuring reliable performance for their applications. Our commitment to excellence is driven by three core pillars: superior product quality, advanced technical support, and continuous innovation.

This unwavering focus is made possible by our exceptional team, streamlined operations, and an unwavering commitment to customer satisfaction. When customers choose YINCAE, they do so with confidence, knowing they are backed by industry-leading technology and service excellence.







# Solder Joint Encapsulants

## Overview

YINCAE's solder joint encapsulants are engineered to significantly boost product reliability by eliminating solder joint cracking in advanced assemblies, including CSP, BGA, flip chips, and PoP (package-on-package) configurations—especially in lead-free applications. These advanced adhesives actively remove metal oxides, ensuring stronger, more durable connections.

Our solder joint encapsulants create a robust 3D polymer network around each solder joint, providing enhanced mechanical support and protection. This technology offers numerous benefits:

- 5–10x Increase in Solder Joint Strength: Ensures superior durability and longevity.
- Significant Cost Reduction: Streamlines manufacturing processes by eliminating the need for traditional underfill.
- Underfill Elimination: Simplifies assembly and reduces material use.
- Improved Process Yield: Enhances consistency and reduces rework.
- Higher Throughput: Optimized for fast, efficient application.

These materials are highly versatile, with easy application methods, including dispensing, dipping, printing, or spraying. They minimize stress on components, deliver exceptional reliability, and provide outstanding mechanical resistance.

### Key Customer Benefits:

- Unmatched Reliability: YINCAE's solder joint encapsulants dramatically improve solder joint strength, making devices more durable in extreme environments.
- Streamlined Production: Reflowable underfills and ball attach adhesives allow manufacturers to combine multiple processes into a single step, saving time and reducing costs.
- Flexible Application Methods: Whether through dispensing, dipping, printing, or spraying, YINCAE's board-level materials integrate seamlessly into existing manufacturing lines.

### Highlights:

- Proven Performance: This category contains one of our most popular products. YINCAE's SMT 256 Series is recognized as **the world's first solder joint encapsulant**, providing unrivaled mechanical strength and reliability.
- Customizable Solutions: Formulations can be tailored to meet specific performance, process, and environmental requirements.
- Global Reach: With a robust supply chain and technical support network, YINCAE serves customers worldwide, ensuring consistent product availability and support.



# Solder Joint Encapsulant SMT 256



## Product Spotlight

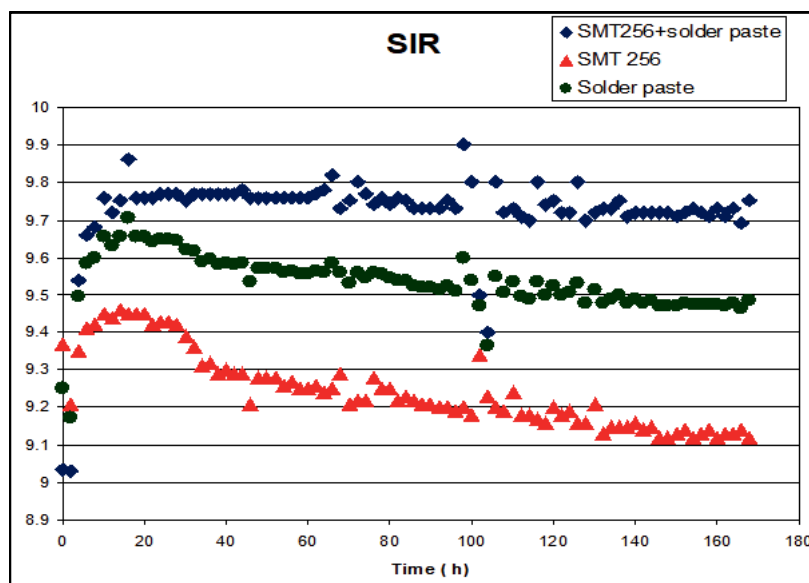
### Why Choose SMT 256?

In a rapidly evolving electronics landscape, where device performance and durability are critical, SMT 256 provides a robust solution that not only protects solder joints but also simplifies the manufacturing process. Unlike conventional solder joint protection methods, SMT 256 forms a durable 3D polymer network around solder joints during the reflow process. This network offers superior mechanical strength, effectively preventing solder joint cracking and eliminating the need for traditional underfilling.

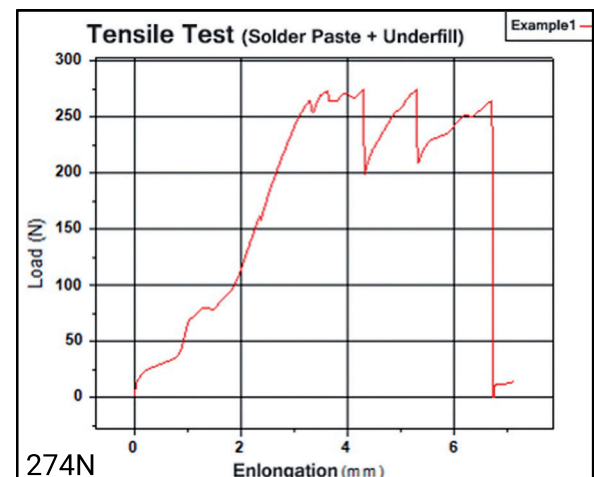
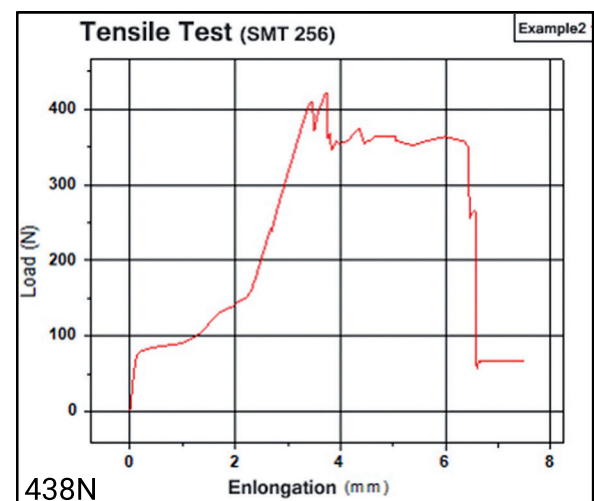
- Flux function that can remove metal oxide from pads and bumps to allow solder joints to form
- The pull strength of solder joints using SMT 256 is 5x higher than that using flux, and with a smaller standard deviation.
- Easily reworkable

The formulation is halide-free and non-toxic, ensuring safety for operators and sustainability for the environment.

**SMT 256 has the ability to resist failure from temperature and humidity changes.**



**Pull Strength of SMT 256 is nearly double that of just solderpaste and underfill.**



Product Type:

Solder Joint Encapsulants - Core Product Family

YINCAE's Solder Joint Encapsulants Core Product Family—comprising SMT 256, SMT 256 BC, SMT 266, and SMT 138—are advanced materials engineered to enhance the reliability and performance of solder joints in electronic assemblies. Together, this product category provides a comprehensive range of solutions for ensuring robust, long-lasting solder joints in demanding electronic environments.

Product	SMT 256	SMT 256 BC	SMT 266	SMT 138
Description	A versatile solder joint encapsulant designed for high-reliability applications such as CSP, BGA, Flip Chip, and PoP. It features a 3D polymer network that enhances solder joint reliability by eliminating cracking and minimizing thermal cycling damage.	A black liquid variant of the SMT 256 series, offering similar performance with a focus on enhanced thermal protection and process visibility.	A spray adhesive designed for rapid application across large surfaces, forming a thin polymer film over solder joints. Ideal for automated jetting applications and can be brushed during rework.	A low-temperature solder joint encapsulant paste with excellent electrical and thermal conductivity. This product is specifically designed for lead-free applications, providing a conductive, self-leveling adhesive that offers superior drop test performance.
Applying Method	Dipping, Dispensing, Printing	Dipping, Dispensing, Printing	Spraying	Dipping, pin transfer, dispensing, printing
Curing Conditions	230-260°C, 4-5min	230-260°C, 4-5min	230-260°C, 4-5min	230-260°C, 4-5min
Viscosity	5-20kcp	8-10kcp	6-10 cp	50-100kcp
C.T.E	65ppm/K	65ppm/K	65ppm/K	23.5ppm/k

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Product Type:

Solder Joint Encapsulant Paste



YINCAE's Solder Joint Encapsulant Pastes are high-performance solderable adhesives that enhance joint reliability with superior electrical conductivity, thermal performance, and oxide protection. Available in high and low-temperature variants, they support multiple soldering methods, forming a protective polymer network during reflow that improves drop test durability and thermal cycling. Available in T4 - T10.

Product	SMT 256 EP	SMT 256 ED	SMT 138P	SMT 138 ED
Description	A high-temperature solderable paste designed for Pb-free applications, providing superior electrical and thermal conductivity. It is self-leveling and self-soldering, making it an ideal choice for applications requiring robust, high-reliability connections.	A dispensable high-temperature solderable paste offering excellent thermal and electrical performance. It is specifically designed for applications where precise dispensing is required.	A low-temperature solderable conductive paste optimized for 138°C Pb-free applications. It is a self-leveling, rapid-cure adhesive designed for sensitive components where low thermal exposure is critical.	A versatile solder joint encapsulant for both low and high-temperature applications, offering excellent electrical conductivity (10–30 $\mu\Omega/\text{cm}$ ) and rapid curing.
Applying Method	Printing	Dispensing	Printing	150°C, 10-15min for reflow profile
Curing Conditions	230-260°C, 4-5min	230-260°C, 4-5min	150°C, 10-15min for reflow profile	150°C, 10-15min for reflow profile
Viscosity	350-450KCP	10-30KCP	350-500kcp	50-100kcp
C.T.E	23.5ppm/k	23.5ppm/k	23.5ppm/k	23.5ppm/k

Zero Flux Residue

Ball Attach Adhesive

Product	NC 256	BP 256
Description	A no-clean flux designed to deliver almost zero flux residues after soldering, providing excellent soldering wetting without the need for a cleaning process. It is optimized for CSP, BGA, Flip Chip, and PoP applications, particularly in lead-free environments. NC 256 is compatible with underfill and can be paired with YINCAE SMT 158HA for a completely residue-free process.	A specialized ball attach adhesive designed to enhance solder joint reliability in ball bumping applications for CSP, BGA, Flip Chip, and PoP assemblies. It provides a protective 3D polymer network around each solder bump, significantly improving drop test performance and eliminating the need for post-soldering cleaning.
Applying Method	Dipping, pin transfer, dispensing, printing	Pin transfer, Printing
Curing Conditions	230-260°C, 4-5min	230-260°C, 4-5min
Viscosity	3-10kcp	15-35kcp
C.T.E	N/A	65ppm/k



# Underfill Materials

## Overview

YINCAE's underfills are designed to provide superior protection and enhanced reliability for advanced electronic assemblies, including CSP, BGA, PoP, and flip-chip applications. Our underfills offer a range of solutions from fast-flow capillary underfills to reflowable and non-flow options, ensuring optimized performance in diverse manufacturing environments.

YINCAE underfills offer fast room-temperature flow into gaps smaller than  $1\mu\text{m}$  and easily cover large chips up to  $100\text{mm} \times 100\text{mm}$ . They are fully compatible with no-clean flux residues, eliminate the cleaning process, and prevent solder joint deformation even after  $5 \times 260^\circ\text{C}$  reflows. Designed for extreme durability, they withstand temperatures over  $400^\circ\text{C}$  and as low as  $-273^\circ\text{C}$ , while minimizing warpage and offering high thermal conductivity. Many formulations combine underfill and fluxing function into a streamlined 2-in-1 or 3-in-1 process, maximizing efficiency, reliability, and providing thermal conductivity.

### Featured:

YINCAE's UF 158D is **the world's first diamond underfill**, offering unmatched thermal conductivity (8-10 W/mK) and mechanical strength for high-power electronics.

### Highlights

- **Extreme Thermal Stability:** Operates reliably across a wide temperature range from  $-273^\circ\text{C}$  to over  $400^\circ\text{C}$ , making it suitable for even the most demanding thermal environments.
- **Advanced Mechanical Shock Resistance:** Delivers outstanding drop-test performance with durability two orders of magnitude higher than standard solder paste, ensuring superior impact resistance and long-term reliability.
- **Precise Capillary Flow for Ultra-Fine Gaps:** Achieves fast, room-temperature capillary flow, penetrating gaps as small as  $10\mu\text{m}$  without preheating, ensuring complete, void-free underfilling.
- **Exceptional Adhesion and Shear Strength:** Provides high adhesion to multiple substrates (silicon, FR4, ceramics, metals) with lap shear strength reaching up to 3,500 psi, maintaining integrity under extreme stress.
- **Versatile Curing Capabilities:** Offers multiple curing options including snap-cure (sub- $120^\circ\text{C}$ ), reflowable underfill (soldering and underfilling in one step), and UV-curable formulations, providing unmatched flexibility for various applications.

### Manufacturing Benefits:

- **Eliminates Voids and Defects:** Optimized flow properties ensure consistent coverage without void formation, even in high-density assemblies.
- **Streamlined Manufacturing:** Reflowable options like NF 160 allow for simultaneous soldering and underfilling, reducing process steps and improving throughput.
- **Enhanced Reliability:** Robust mechanical protection reduces the risk of solder joint failure, even under thermal cycling and mechanical stress.
- **Flexible Application Methods:** Our underfills can be dispensed, dipped, printed (stencil or screen), or applied using pin transfer for maximum process flexibility.



Product Type:

High Temperature Capillary Underfills

Standard high-purity epoxy underfills designed for advanced electronic packages, offering strong thermal and mechanical performance. All have a 5x260°C pass, and no resin bleed.

Product	UF 158HA	UF 158EN	UF 158LA
Description	A high-temperature capillary underfill compatible with no-clean flux, offering excellent thermal cycling resistance without the need for post-process cleaning.	A fast-flowing, high-temperature capillary underfill that combines rapid application with excellent mechanical shock resistance for advanced packages.	A low viscosity, fast-flowing, high-temperature capillary underfill designed for rapid processing, delivering strong mechanical performance and high process yield.
Viscosity	15-25Kcp	15-25Kcp	15-25Kcp
Curing Conditions	150-170°C	150-170°C	150-160°C
Tg (°C)	200/245	200/245	145
C.T.E	22 ppm/K	21 ppm/k	22 ppm/k

Fast Flow, Reworkable Underfills

These are optimized for fast flow rates and ease of reworking, making them suitable for high-volume production.

Product	UF 158UL	UF 88UL
Description	An extreme fast flow, reworkable underfill with superior drop test performance, making it suitable for complex multi-chip configurations.	A super-fast flow, reworkable underfill that ensures void-free filling at room temperature (10u gap flow), ideal for high-speed production environments.
Viscosity	450-900cp	100-200cp
Curing Conditions	110-150°C	120-150°C
Tg (°C)	130	100-110
C.T.E	28 ppm/K	55 ppm/k

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Product Type:

High Temperature Underfills

These underfills are specifically engineered to enhance heat dissipation, making them ideal for applications where thermal management is key. All are reworkable, and good for all chips.

Product	UF 158D	UF 158A3	UF 158A2
Description	A high thermal conductivity (8-10 W/mK) diamond underfill designed for advanced electronic packages, offering outstanding thermal cycling performance and excellent mechanical shock resistance. It features fast flow, and superior heat dissipation.	A high thermal conductivity underfill (3-4 W/mK) engineered for superior heat dissipation and mechanical reliability in advanced electronic assemblies.	A high thermal conductivity underfill (2-3 W/mK) designed for efficient heat dissipation and robust mechanical protection in advanced electronic packages.
Viscosity	8-10kcp	8-10kcp	5-8kcp
Curing Conditions	150°C	150°C	150°C
Tg (°C)	149	135	135
C.T.E	15 ppm/K	22 ppm/k	22 ppm/k

Low Temperature, Fast Cure Underfills

These products are designed to cure quickly at lower temperatures, making them ideal for heat-sensitive applications.

Product	UF 120HA	UF 120LA
Description	A snap-cure (<120°C) underfill optimized for low-temperature applications, providing strong adhesion and reliable ideal of optoelectronic chips. Passing 5x260°C reflow.	A high-purity, low-temperature curing underfill with fast flow properties, good for efficient assembly of advanced electronic packages.
Viscosity	15-25Kcp	6000-9000cp
Curing Conditions	120°C	150°C
Tg (°C)	160	150
C.T.E	20 ppm/K	28 ppm/k

Product Type:

Reflowable Underfills

Capable of combining soldering and underfilling in a single process, optimizing manufacturing efficiency.

Product	NF 160	NF 160 L	NF 158R
Description	A reflowable underfill that combines soldering and underfilling in one process, providing enhanced component reliability and cost-effective manufacturing. It is designed for high-temperature soldering reflow (e.g., SAC) and is suitable for BGA, chip scale package (CSP), package-on-package, and flip chip applications.	A low-temperature, reflowable underfill offering fast application, high process yield, and strong mechanical protection for sensitive electronic components. Ideal for high-speed production environments, it is compatible with BGA, CSP, and flip chip applications.	A filled fluxing underfill that combines fluxing and underfilling in one step, providing strong thermal cycling performance, excellent mechanical shock resistance, and high process yield. It is suitable for flip chips, chip scale packages, ball grid array devices, and multi-chip modules.
Viscosity	8-10kcp	8-10kcp	70-120kcp
Curing Conditions	150°C	150°C	Typical high temperature reflow profile
Tg (°C)	149	135	125
C.T.E	60 ppm/K	65 ppm/k	50 ppm/k

Additional Products

Product	Description	Viscosity	Curing Conditions	Tg (°C)	C.T.E	Key Features
EN 158B2	Underfill Encapsulant	25-45kcp	150°C	149	20 ppm/k	Good flowability and fill
DM 158NN	Dam Encapsulant	280-600kcp	120-150°C	156	22 ppm/k	Easy to form high thin wall
ACP 158	Solderable Underfill	15-25Kcp	Thermal Compression Bonding Process	149	30 ppm/k	Fine pitch application, Z-direction electrically conductive

For more technical information, please contact us at [info@yincae.com](mailto:info@yincae.com)



# Die Attach Materials

## Overview

YINCAE's die attach materials are advanced adhesives engineered for the secure and efficient bonding of semiconductor dies to various substrates, ensuring high thermal and electrical conductivity, excellent adhesion, and long-term reliability. These materials are designed to meet the stringent demands of modern electronic assemblies, including high-power devices, LEDs, CSPs (Chip Scale Packages), QFPs (Quad Flat Packages), and heat spreader bonding applications.

Our die attach solutions reduce process complexity by eliminating the need for solder flux, cleaning steps, or additional underfill. They offer outstanding thermal conductivity, low outgassing, and superior reliability under harsh conditions such as thermal cycling and high reflow temperatures. This leads to improved device performance, longer operational life, and reduced total manufacturing cost.

## Highlights

- **Exceptional Thermal Conductivity:** Offers high thermal conductivity up to 90 W/mK (TM 150E), ensuring efficient heat dissipation for high-power applications such as LEDs, QFPs, and power devices.
- **High Mechanical Strength and Reliability:** Provides exceptional adhesion to multiple substrates (copper, aluminum, glass, ceramic) with shear strength reaching 6,800 psi (DA 90UV), maintaining bond integrity under stress.
- **Versatile Curing Options:** Supports multiple curing methods including low-temperature snap-cure, thermal curing (90°C to 230°C), and UV curing for rapid processing and high throughput.
- **Advanced Moisture and Chemical Resistance:** Formulations with low moisture absorption (<0.1%) and resistance to harsh environments, including MIL-STD-883E and IPC-CC-830 compliance for high reliability.
- **Superior Electrical Conductivity:** Anisotropic and isotropic conductive options with electrical conductivity matching metal surfaces (resistivity as low as 0.00003  $\Omega$ -cm), making them suitable for high-performance electronic assemblies.



Type	Product Name	Appearance	Thermal Conductivity (W/mK)	Tg (°C)	Application Method	Cure Temperature Range	Key Features
Conductive	DA 90	Gray	2-5	N/A	Dispense or print	90-120°C	Silver-filled, high reliability
	DA 120F	Gray	2-5	79	Dispense or print	120°C	Silver-filled, high reliability
	DA 90-50	Silver-filled	2-5	N/A	Dispense or print	170-190°C	Silver filled, highly conductive, solvent-free and fast cure
	DA 150	Silver-filled	1-5	118	Pin transfer	150°C	One-component, thermosetting insulating adhesive for LED (GaN) bonding
Non-Conductive	DA 90B	Gray	2-5	N/A	Dispense or print	150-170°C	Silica-filled, non-conductive
	DA 120	Yellowish	N/A	-35	Dispense	120°C	Flexible, low Tg, excellent adhesion
	DA 158N	White	2-3	138	Dispense	150°C	Thermal conductive & insulating
Solderable Conductive	TM 150E	Silver	60-90	N/A	Die attach	150°C	High conductivity, solderable
	TM 150 Series	Silver	60-90	N/A	Die attach	180°C	Self-soldering, no outgassing
	TM 150EB	Silver	>86	N/A	Die attach	150-170°C	Ultra-high thermal conductivity
	TM 150EB2	Silver		39	Die attach	140-170°C	Moderate conductivity, fast cure
	TM 230	Silver	58	N/A	Die attach	230°C	Ultra-fast bonding and thermal durability.
UV + Thermal Cure	DA 90UV	Off-white	N/A	145	Dispense or print	UV + Thermal	UV cure, low moisture absorption
Diamond-Filled	TM 158D	Gray	60	132	Dispense	150°C	Diamond-filled, 60W/mK thermal



# Optoelectronic Materials

## Overview

YINCAE's optoelectronic materials are specialized adhesives designed for bonding and encapsulation in optical, photonic, and display applications. The product line includes UV-curable, dual-cure, and low-temperature adhesives tailored for lens attachment, LCD sealing, fiber optics, and wafer-level bonding. These materials ensure high transparency, precise alignment, and strong adhesion to glass, metal, and polymer substrates.

Our optoelectronic adhesives offer rapid UV or thermal curing, excellent moisture resistance, and bubble-free optical clarity for enhanced device reliability and visual performance. With low outgassing, minimal yellowing, and compatibility with lead-free soldering, they maintain stable performance even after multiple reflow cycles. These materials simplify assembly, increase throughput, and meet stringent industry standards.

## Technical Advantages:

- Ultra-Fast UV Curing with Dual Cure Option: Instant UV curing within seconds, with thermal post-cure capability for maximum reliability (DA 90UV, LEN 66L, WL 66L).
- Exceptional Optical Clarity and Adhesion: High transparency with minimal yellowing, making them ideal for lens attachment, LCD lamination, and touch screen bonding.
- Low Thermal Stress for Sensitive Components: Formulations with low glass transition temperatures (T<sub>g</sub> as low as 10°C for LEN 66AL) minimize thermal stress on delicate substrates.
- Superior Moisture Resistance and Durability: Outstanding moisture resistance (humidity resistance 85°C/85% RH for 120 days), ensuring long-term performance in high-humidity environments.
- High Refractive Index and Low Shrinkage: Offers high refractive index options (1.5 to 1.52), with minimal shrinkage during curing, maintaining precise optical alignment for optoelectronic devices.

Type	Product Name	Key Applications	Cure Method	T <sub>g</sub> (°C)	CTE (ppm/°C)	Special Features
<i>UV Die Attach</i>	DA 90UV	Optical & Fiber Optic Devices	UV + Thermal	145	20	High adhesion, low moisture absorption
<i>Optical Bonding</i>	LEN 66AL	Lens, LCD, Touch Screen	UV	10	80	Fast UV cure, flexible
	LEN 66L	Lens, LCD, Touch Screen	UV	98	80	Non-yellowing, high reliability
	WL 66L	Wafer-Level Lens	UV + Thermal	120	65	Non-yellowing, bubble-free, high clarity
	WL 66O	Wafer-Level Lens	UV + Thermal	120	65	Non-yellowing after 3 reflows
	OA 66AL	Touch Screen, LCD	UV + Thermal	110	65	Flexible bond, bubble-free
<i>Encapsulant</i>	UVA 88E Series	LED, CMOS Sensors	UV + Thermal	80 - 135	65; 182	Excellent solvent resistance, reflow compatible
<i>LCD Sealant</i>	LCD 66F	LCD End Sealing	UV	18	75	Low moisture absorption, flexible seal

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# Wafer Level Materials

## Overview

### *ACP 120 Series*

Our ACP 120 series offers a high-performance antioxidation coating for solderable and metal surfaces, including zinc, nickel, steel, and aluminum. It delivers exceptional anti-oxidation, anti-corrosion, and anti-rust protection, along with high thermal resistance. The coating dries at room temperature and remains easily reworkable when wet. With benefits like eliminating the need for gold plating, reducing costs, being environmentally friendly, supporting high throughput, and providing a large process window, it ensures a cost-effective and versatile solution.

### *WL 66 Series*

Our WL 66 series is a UV-curable adhesive specifically engineered for wafer-level and optical lens attachment. It ensures flawless, bubble-free optical coverage while delivering exceptional moisture and high-temperature resistance. The adhesive maintains crystal-clear transparency over time, resisting yellowing for long-lasting optical clarity.

## Highlights

- High-Performance Nano Coating (ACP 120): ACP 120 offers a game-changing anti-oxidation solution for solderable surfaces, eliminating the need for gold plating. It delivers exceptional environmental sustainability with high-cost reduction, making it an ideal choice for cost-conscious applications.
- Versatile Dual Cure UV Adhesive (WL 66C, WL 66L, WL 66O): These UV-curable adhesives provide flexible application options for wafer-level lens and optical lens attachment. Their dual-cure capability ensures bubble-free optical clarity, moisture resistance, and heat tolerance without yellowing, making them suitable for high-precision optical applications.
- Low-Cost Exposure Agent (EB 25): As a bump tip exposure agent for wafer-level underfill, EB 25 combines low cost with high process yield and easy handling, making it a practical choice for efficient, high-volume production.
- Robust Conductive Adhesive (ACP 158): ACP 158 stands out with its high electrical conductivity and superior process yield, making it an ideal choice for CSP, BGA, LGA, and Flip Chip applications. It provides strong anisotropic bonding while maintaining excellent thermal and electrical performance.
- Efficient Wafer Level Underfill (WL 125, WL 125F): These pre-applied underfill solutions for wafer-wafer and chip bonding offer consistent reliability with high process yield. Their B-stage curing ensures robust adhesion and thermal performance, making them ideal for high-reliability applications.



Type	Product	Description	Applying Method	Curing Conditions	Viscosity	C.T.E.	Features
<i>Nano Coating</i>	ACP 120	Anti-oxidation solderable coating for gold replacement	Dip Immersion Spray	Room Temp.	12 - 15 s	N/A	High cost reduction, Environmentally friendly
<i>Exposure Agent</i>	EB 25	EB 25 is a bump tip exposure agent for wafer level underfill	Print Spin Coat	Room Temp.	5 - 10 s	N/A	Low cost, Easy handling, High process yield
<i>Wafer Level Protective Coating</i>	WCP 45	Aqueous polymer coating, protects small bumps during dicing	Dip Spin Coat Spray	Room Temp.	10 - 15 s	N/A	Easy cleaning
<i>Wafer Level Optical Adhesive</i>	WL 66C	Dual cure UV bonding adhesive for wafer level lens or optical lens attachment	Dispense	UV cure (365nm light, 2 - 5W/cm <sup>2</sup> )	10 - 30 kcp	65	Non-yellowing, Moisture resistant, High temp. resistant
	WL 66H	Wafer level die attach adhesive for wafer level lens, optical lens, and die attachment	Dispense Print	1.5 - 2 hr 100°C	2 - 5 kcp	65	Low temp. cure, High reliability
	WL 66L	Dual cure UV bonding adhesive for wafer level lens or optical lens attachment	Dispense	UV cure (365nm light, 2-5W/cm <sup>2</sup> )	1.5 - 4.5 kcp	65	Non-yellowing, Moisture resistant, High temp. resistant
	WL 66O	Dual cure UV bonding adhesive for wafer level lens or optical lens attachment	Dispense	UV cure (365nm light, 2-5W/cm <sup>2</sup> )	30 - 80 kcp	65	Non-yellowing, Moisture resistant, High temp. resistant

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Type	Product	Description	Applying Method	Curing Conditions	Viscosity	C.T.E.	Features
<i>Conductive Adhesive</i>	ACP 158	Anisotropic conductive adhesive for CSP, BGA, LGA, and Flip Chip applications	Dispense	In-line curing or 5 - 10 min 150°C	5 - 8 kcp	30/135	High electrical conductivity, High process yield
<i>Wafer Level Underfill</i>	WL 125	Pre-applied wafer level underfill for wafer-wafer, chip-wafer, and chip-chip bonding	Print Spin Coat	In-line or TCB	10 - 100 ccp	65/175	B-stage temp. 125°C
	WL 125F	Pre-applied wafer level underfill for wafer-wafer, chip-wafer, and chip-chip bonding	Print Spin Coat	In-line or TCB	5 - 6 kcp	30/115	High reliability
<i>Temporary Bonding Adhesive</i>	WTA 60	Sacrificial wafer temporary bonding adhesive	Dispense Spin Coat	Room Temp.	3 - 8 kcp	N/A	Easy removal and cleaning

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# Thermal Interface Materials

## Overview

YINCAE's thermal interface materials series solderable conductive adhesives offer rapid curing, self-filling, self-leveling, and self-soldering capabilities, making them ideal for die attach applications in LED, CSP, QFP, and more. These adhesives outperform traditional conductive adhesives (Ag) with superior electrical and thermal conductivity and eliminate common soldering issues such as outgassing, die skewing, shifting, and solder bleeding. Once cured, the soldered interface is protected by a durable 3D polymer network, ensuring reliability even in harsh environments.

- TGP reactive thermal grease products ensure an ultra-thin bond line (BLT), eliminating microbubbles at rough interfaces. During operation, they transform into a thermal gel or thermal pad, delivering the performance of a phase change material for superior heat management.
- TCA series cures at low temperatures while providing exceptional adhesion to copper, aluminum, steel, glass, ceramics, and most plastics.
- TEC products offer both thermal conductivity and anisotropic electrical conductivity. During curing, they achieve metal-like conductivity, ensuring reliable performance across diverse applications.

## Highlights:

- Exceptional Thermal Conductivity: With products like TM 150, TM 150E, and TM 158 reaching 60 W/m·K, these materials offer industry-leading heat transfer capabilities.
- Rapid and Versatile Curing Options: The chart showcases a wide range of curing conditions, from ultra-fast 60-second cures at 230°C (TM 230) to gradual curing over service time (TGP 110), accommodating diverse manufacturing processes.
- Specialized Formulations with Reactive Properties: The TGP series features reactive thermal greases that eliminate micro-bubbles at rough interfaces, ensuring consistent, ultra-thin bond lines and superior thermal management.
- Diamond-Filled for Enhanced Performance: TM 158 is a standout with diamond filler technology, delivering superior thermal conductivity and withstanding high operating temperatures up to 400°C.
- Optimized for Reliability and Durability: Products like TCA 136 and TGP 110A emphasize high reliability and excellent environmental resistance, making them ideal for long-term, high-performance applications.

Type	Product	Description	Applying Method	Curing Conditions	Viscosity	C.T.E.	Features
<i>Solderable Conductive Adhesive</i>	TM 150	Rapid cure, self-filling, self-leveling, and self-soldering adhesive	Dispense	30 min 180°C	20 - 50 kcp	23.5	Thermal Conductivity 60 W/mK
	TM 150E	Rapid cure, self-filling, self-leveling, and self-soldering adhesive	Dispense	30 min 150°C	20 - 50 kcp	23.5	Thermal Conductivity 60 W/mK
	TM 158	Highly conductive adhesive designed to withstand application temperatures up to 400°C	Dispense	In-line or 15 - 30 min 150°C	800 - 1600 cp	18/98	Diamond filled, Thermal Conductivity 60 W/mK
	TM 230	Rapid cure, self-filling, self-leveling, and self-soldering adhesive	Dispense	60 sec, 230°C	30 - 45 kcp	21.7	Thermal Conductivity 58 W/mK
<i>Thermal Conductive Adhesive</i>	TCA 136	Highly conductive adhesive with excellent adhesion strength to copper, aluminum, steel, ceramic, glass and most plastics	Dispense	60 - 90 min 136°C	20 - 50 kcp	30	High thermal conductivity, Low ownership cost
	TEC 135	Thermal conductive and anisotropic electrical adhesive	Dispense	30 - 45 min 135°C	20 - 50 kcp	30	Water resistant, Excellent weatherability
	TGP 88A	Reactive thermal grease, eliminates micro-bubbles at rough interfaces and has an very thin BLT	Dispense	2 - 3 hr 88°C	20 - 50 kcp	30	Excellent thermal conductivity
	TGP 100	Reactive thermal grease, eliminates micro-bubbles at rough interfaces and has an very thin BLT	Dispense	5 min 150°C	20 - 50 kcp	30	High reliability, Low ownership cost, High thermal conductivity
	TGP 110	Reactive thermal grease, eliminates micro-bubbles at rough interfaces and has an very thin BLT	Dispense	Cures over service time	20 - 50 kcp	30	High reliability, Excellent thermal conductivity
	TGP 110A	Reactive thermal grease, eliminates micro-bubbles at rough interfaces and has an very thin BLT	Dispense	15 - 30 min 110°C	20 - 50 kcp	30	High reliability, Excellent thermal conductivity

For more technical information, please contact us at [info@yincae.com](mailto:info@yincae.com)



# Conformal Coatings

## Overview

### *UVC 88 Series*

Our UVC 88 series offers highly fluorescing, one-part, 100% solid, dual-cure acrylated polyurethane conformal coatings. Engineered for exceptional chemical resistance, surface hardness, flexibility, and moisture protection, these coatings ensure reliable surface protection against dust, chemicals, and harsh environmental conditions. Their advanced formulation maintains strong fluorescence for easy inspection under UV light, while a secondary heat cure effectively completes curing in shadowed areas, ensuring comprehensive coverage.

### *EMC 25*

Our EMC 25 is a silver-filled, one-part epoxy conductive coating designed for superior EMI shielding and anti-static protection. This high-performance coating adheres seamlessly to glass and plastic surfaces, providing a reliable conductive barrier against electromagnetic interference. Its versatile curing options—ranging from room temperature to accelerated heat cure—ensure flexible application across various environments. EMC 25 delivers consistent electrical conductivity and robust surface protection, making it an ideal choice for sensitive electronic components and enclosures.

### **Technical Advantages:**

- Superior EMI Shielding: EMC 25 offers industry-leading EMI shielding and anti-static protection, essential for sensitive electronic applications, ensuring signal integrity and device reliability.
- Flexible Dual-Cure Technology: UVC 88B and UVC 88G utilize a dual-cure process (UV + thermal) that guarantees complete curing even in shadowed areas, enhancing durability and chemical resistance.
- Fluorescing Coatings for Easy Inspection: UVC 88F and UVC 88P feature high fluorescence, making them easily inspectable under UV light, ensuring consistent coating coverage and quality control.
- Biocompatible Hydrogel Coating: UVC 88G stands out with its hydrogel formulation, providing a flexible, moisture-resistant protective layer ideal for delicate or biomedical applications.
- Versatile Application Methods: With options for spray, dip, and dispense methods, these coatings accommodate various manufacturing processes, making them adaptable for both rigid and flexible substrates.



Type	Product	Description	Applying Method	Curing Conditions	Viscosity	C.T.E.	Features
<i>Conformal Conductive Coating</i>	EMC 25	Silver filled, one part epoxy conductive coating for glass and plastic surfaces	Spray	24 - 48 hr Room Temp or 1 - 2 hr 60°C	18 - 26 s	75	EMI shielding, Anti-static protection
<i>Conformal Coating</i>	UVC 88B	Highly biocompatible one part, dual cure polymer flexible coating	Dip, Dispense, Spray	UV (365nm UV, intensity 2 - 5 W/cm <sup>2</sup> ), then 1 hr at 110°C	238 cp	75	Excellent flexibility, chemical and moisture resistance
	UVC 88F	Highly fluorescing, one part 100% solid acrylated polyurethane coating	Dip, Dispense, Spray	UV (365nm UV, intensity 2 - 5 W/cm <sup>2</sup> ), then 1 hr at 110°C	238 cp	75	For flexible substrates
	UVC 88G	Highly biocompatible one part, dual cure polymer flexible hydrogel coating	Dip, Dispense, Spray	UV (365nm UV, intensity 2 - 5 W/cm <sup>2</sup> ), then 1 hr at 110°C	300 - 500 cp	75	Excellent flexibility, chemical and moisture resistance
	UVC 88P	Highly fluorescing one part, dual cure polymer coating	Dip, Dispense, Spray	UV (365nm UV, intensity 2 - 5 W/cm <sup>2</sup> ), then 1 hr at 110°C	126 cp	75	For rigid substrates

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# Additional

## Customizable Solutions

At YINCAE, we understand that every application is unique. That's why most, if not all, of our advanced materials are fully customizable to meet specific customer requirements. Whether it's adjusting viscosity, optimizing curing profiles, modifying thermal or electrical properties, or offering a variety of packaging options, we provide tailored solutions for diverse industries and specialized applications.

## Environmentally Friendly

At YINCAE, we are committed to sustainability and environmentally friendly solutions without compromising on performance. Our advanced materials are designed with eco-conscious practices in mind, featuring low-toxicity formulations, reduced emissions, and the elimination of hazardous cleaning processes. Our no-clean, lead-free, and low-energy curing technologies minimize environmental impact while maintaining exceptional product reliability. We continuously innovate to provide high-performance materials that align with sustainable manufacturing practices.

# Locations



## Americas

Albany, New York  
Arlington Heights, Illinois  
Baja, Mexico  
Calgary, AB, Canada  
Minneapolis, Minnesota  
Morganville, New Jersey  
Portland, Oregon  
San Diego, California  
Sao Paulo, Brazil  
Toronto, ON, Canada  
West Palm Beach, Florida

Email us for a specific office: [info@yincae.com](mailto:info@yincae.com)

## Europe

Berlin, Germany  
Breda, Holland  
Meaux, France  
Thalwil, Switzerland  
Warsaw, Poland

## Asia - Pacific

Beijing, China  
Changsha, China  
Melbourne, Australia  
Penang, Malaysia  
Seoul, Korea  
Shanghai, China  
Shenzhen, China  
Singapore  
Taguig, Philippines  
Taipei, Taiwan  
Tokyo, Japan  
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