



# LIQUID METAL PASTES

## GMAP / SMAP PRODUCT DATASHEET

Advanced thermal interface materials for AI, high-power chips, advanced packaging, and extreme-environment thermal management.

| GMAP                                                                                                                                                             | SMAP                                                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TIM 1.5 / TIM 2<br>Glittery Metal Alloy Paste                                                                                                                    | TIM 1<br>Superior Metal Alloy Paste                                                                                                                                  |
| <ul style="list-style-type: none"><li>• Easy spreading and wetting</li><li>• Stable resistance at low pressure</li><li>• 100°C / 200-hour anti-sagging</li></ul> | <ul style="list-style-type: none"><li>• Package-interface material</li><li>• Passed five high-temperature reflow cycles</li><li>• Process peak above 260°C</li></ul> |

Third-party unit test: GMAP-series thermal conductivity >15 W/m·K.

# PRODUCT SELECTION AND KEY CHARACTERISTICS

| PARAMETER             | GMAP                                                                                            | SMAP                                                                       |
|-----------------------|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| Recommended interface | TIM 1.5 / TIM 2                                                                                 | TIM 1                                                                      |
| Primary use           | Ultra-thin interface between chip and heat sink                                                 | Package interface and high-temperature process                             |
| Material behavior     | Easy coating, wetting, and conformity; reduced concern about migration and high surface tension | Retains material within the defined area after high-temperature processing |
| Validation focus      | >15 W/m·K; 100°C / 200-hour anti-sagging; drop-test thermal-resistance evaluation               | >260°C; five mass-reflow cycles                                            |

## WETTING AND STABLE RESISTANCE

GMAP combines strong wetting and conformity to fill microscopic gaps. Under ultra-thin TIM conditions, it maintains stable thermal resistance even as applied pressure changes.



GMAP conformity and wetting help fill microscopic surface gaps. Under ultra-thin TIM conditions, its resistance is less sensitive to applied pressure.

# SPACE-GRADE APPLICATION POTENTIAL

We have a dedicated professional team committed to helping customers overcome thermal bottlenecks through materials, module design and simulation, thermal performance evaluation, manufacturing processes, and automation solutions.

|                                                                                                                                                                                                                                    |                                                                                                                                                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Space-environment potential</b><br><br>Boiling point above 2,000°C, extremely low vapor pressure, a wide temperature range, and potential resistance to radiation aging support evaluation for vacuum and extreme environments. | <b>1-meter drop evaluation</b><br><br>Free-fall tests at 1, 3, and 5 drops assess appearance, leakage, and thermal-resistance change before and after impact.       |
| <b>High-temperature anti-sagging</b><br><br>Material stability is observed at 100°C for 200 hours on heat-sink, chip-side, and glass surfaces.                                                                                     | <b>High-temperature reflow</b><br><br>SMAP remained within the defined area after five mass-reflow cycles above 260°C.                                              |
| <b>System-level results</b><br><br>GMAP+ achieved lower chip temperatures on gaming GPU, RTX 3060 Ti, and PS5 platforms under specific test conditions.                                                                            | <b>Integrated thermal solution</b><br><br>Support includes TIM materials, thermal-module design, simulation, performance evaluation, manufacturing, and automation. |

Space-environment statements describe material characteristics and application potential, not certification. Qualification must be completed for each mission profile.

## CONTACT

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