

SAC125N Solder Spheres

- Pb-free solder spheres
- Low cost Sn/Ag/Cu alloy
- Compatible with all flux types

**LINQALLOY SAC125N** solder spheres are Pb-free alloys composed of 98.3% Sn, 1.2% Ag, 0.5% Cu, and 0.05% Ni (Sn98.3Ag1.2Cu0.5Ni0.05), commonly referred to as SAC125Ni. The addition of a small amount of nickel improves oxidation resistance and helps stabilize the solder microstructure. SAC125N solder spheres are used in BGA, CSP, LBGA, PBGA, and CBGA components for lead-free soldering applications.

**LINQALLOY SAC125N** solder spheres are compatible with a wide range of industry-standard flux systems and formulations. They provide excellent solder joint reliability and strong resistance to thermomechanical fatigue. With their rapid wetting characteristics, these solder spheres ensure consistent solderability and reliable joint formation across various assembly processes.

Elemental Composition (in wt%)

| Sn      | Ag        | Cu        | Sb     | Cd     | Al     | Bi     | As     | Fe     | Zn     | Pb     |
|---------|-----------|-----------|--------|--------|--------|--------|--------|--------|--------|--------|
| Balance | 1.10–1.30 | 0.45–0.55 | ≤0.120 | ≤0.005 | ≤0.005 | ≤0.150 | ≤0.010 | ≤0.020 | ≤0.005 | ≤0.100 |

Technical Specifications

| Property                       | Value              | Unit  |
|--------------------------------|--------------------|-------|
| Alloy Composition              | Sn98.3 Ag1.2 Cu0.5 | %     |
| Solidus / Liquidus Temperature | 217 / 225          | °C    |
| Peak Reflow Temperature        | 245–250            | °C    |
| Density                        | 7.33               | g/cm³ |
| Vickers Hardness               | 11                 | Hv    |
| Tensile Strength               | 41                 | MPa   |
| Young’s Modulus                | 51                 | GPa   |
| Elongation                     | 46                 | %     |
| Electrical Resistivity         | 13                 | μΩ·cm |
| Thermal Conductivity           | 67                 | W/m·K |

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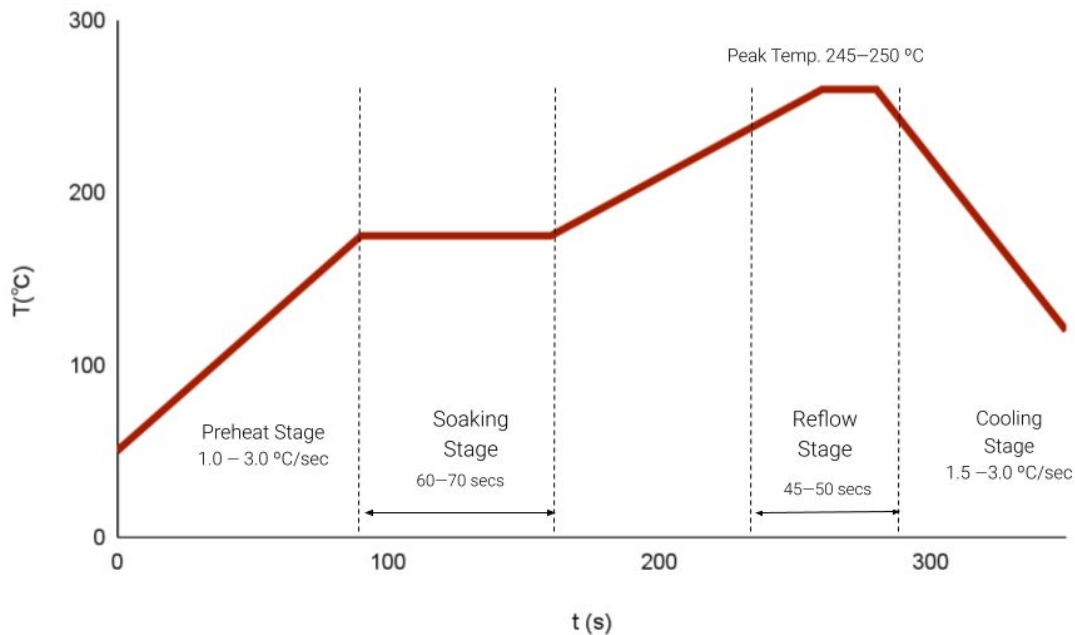
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## Recommended Reflow Process

| Preheating Stage       |                             | Soaking Stage    |                             | Reflow Stage    |                          | Cooling Stage          |
|------------------------|-----------------------------|------------------|-----------------------------|-----------------|--------------------------|------------------------|
| Preheat Rate<br>[°C/s] | Preheat<br>Temperature [°C] | Soaking Time [s] | Soaking<br>Temperature [°C] | Reflow Time [s] | Peak<br>Temperature [°C] | Cooling Rate<br>[°C/s] |
| 1.0 – 3.0              | 170                         | 60–70            | 170–180                     | 45–50           | 245–250                  | 1.5–2.0                |

## Reflow Profile



## Storage and Handling

**LINQALLOY SAC125N** solder spheres are available in jars containing either 250,000 or 1 million spheres. To maintain their quality, the jars should be stored in a clean, dry environment and kept in sealed containers. The product should not be refrigerated. Avoid probing the spheres with fingers or other implements, as this can alter their shape, score their surface, or introduce contaminants, potentially causing placement difficulties.

**SAC125N** solder spheres are packed in jars with inert gas (nitrogen) and are sealed with shrink-wrapped plastic to prevent oxidation. When stored properly in sealed jars and without agitation, the shelf life of the solder spheres is 2 years.

For safe handling information on this product, consult the Material Safety Data Sheet (MSDS).

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