

## Pb-free Solder Spheres

- SnAgCuBiNi alloy
- Excellent solder joint reliability for small devices
- Excellent fatigue resistance

**LINQALLOY SACQ** solder spheres are Pb-free alloys that contain 92.45% Tin (Sn), 4% Silver (Ag), 0.5% Copper (Cu), 3% Bismuth (Bi), and 0.05% Nickel (Ni). **LINQALLOY SACQ** solder spheres offer better reliability than [SAC405](#), particularly for small and thin devices such as wafer level chip scale packages (WLCSP) and wafer level fan-out (WLFO) designs. They exhibit excellent fatigue resistance and solder joint reliability, ensuring durability even under demanding conditions. **SACQ** is also compatible with any flux type, which provides manufacturing flexibility.

### Chemical Composition according to the IPC J-STD006C

Element	Sn	Ag	Cu	Ni	Bi	Ge
Concentration [wt%]	Balance	3.90–4.10	0.45–0.55	0.04–0.06	2.50–3.50	0.014 (Maximum)

### Specifications

Property	Value	Unit
Spheroid Diameter	3 ± 0.03	mm
Solidus / Liquidus Melting Point	211/216	°C
Peak Reflow Temperature	245–250	°C
Density	7.56	g/cm <sup>3</sup>
Vickers Hardness	19	Hv
Tensile Strength	94.8	MPa
Young's Modulus	128.4	GPa
Elongation	21.8	%
Electrical Resistivity	13.0	μΩ·cm
Thermal Conductivity	70.8	W/m·K
Coefficient of Thermal Expansion	23.1	ppm/°C

### Storage and Handling

**LINQALLOY SACQ** is available in jars containing either 250,000 or 1 million solder spheres. The jars should be kept in a clean and dry environment. The product should be stored in sealed containers and should not be refrigerated. Probing of spheres in jars with fingers or other implements can damage the material by changing its shape or scoring the sphere surface or by contaminating the material. This could result in sphere placement difficulties. The shelf life of all solder spheres, stored in sealed jars that are not agitated, is 2 years.

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

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