**Principle**

Nanopastes consist of (usually metallic) nanoparticles and organic additives (surfactants, binder, solvents). Joining with nanopastes is based on the high sintering activity of nanoscaled metal particles (esp. via surface diffusion). Upon heating of the paste, its organic components are removed and sintering of the nanoparticles becomes activated, i.e. the particles aggregate and coalesce. This way, bonding between the individual particles and to the component surfaces is achieved. Up to now, especially Ag-based nanopastes are commercially available. Other nanopastes, e.g. for high-temperature applications, are in development.

**Advantages (Ag-nanopastes)**
- very high electrical conductivity
- very high thermal conductivity
- high temperature stability in comparison to Sn-based solders
- Temperature profile and process comparable to Sn-solder pastes

**Typical applications**
- Ag: Joining of components for high-power electronics (die attach or assembly groups on heat sinks)
- Cu: all-Cu interconnects (in evaluation)

**Our expertise**
- Development of joining processes with commercial nanopastes
- Nanopastes with tailored properties (under development)

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