

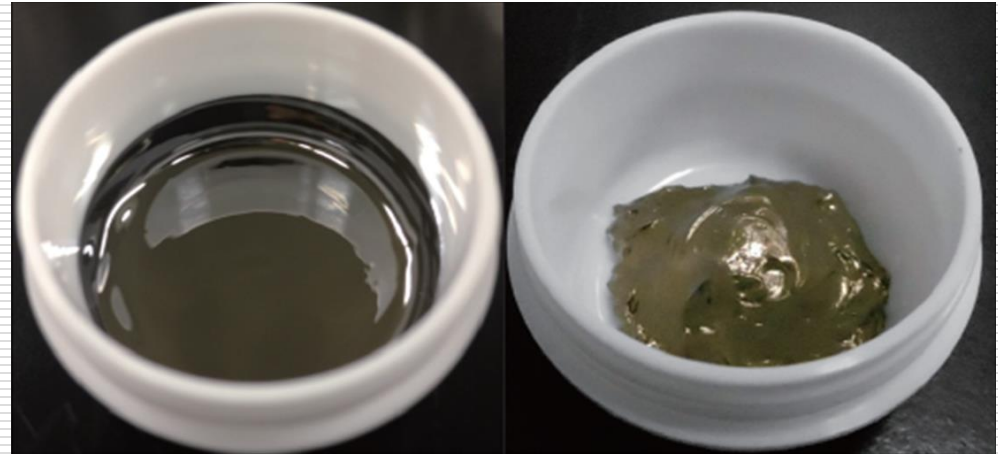
FlowMetal™ for Die-Attach use

Distributor :  TAIYO WIRE CLOTH

Manufacturer :  Bando Chemical Industries, Ltd., Kobe, Japan

Confidential

Die-attach Material, FlowMetal™



- Internal manufactured Ag nanoparticle-based paste
- Ag content is adjustable, e.g. 85-97 wt%
- Not contain Pb

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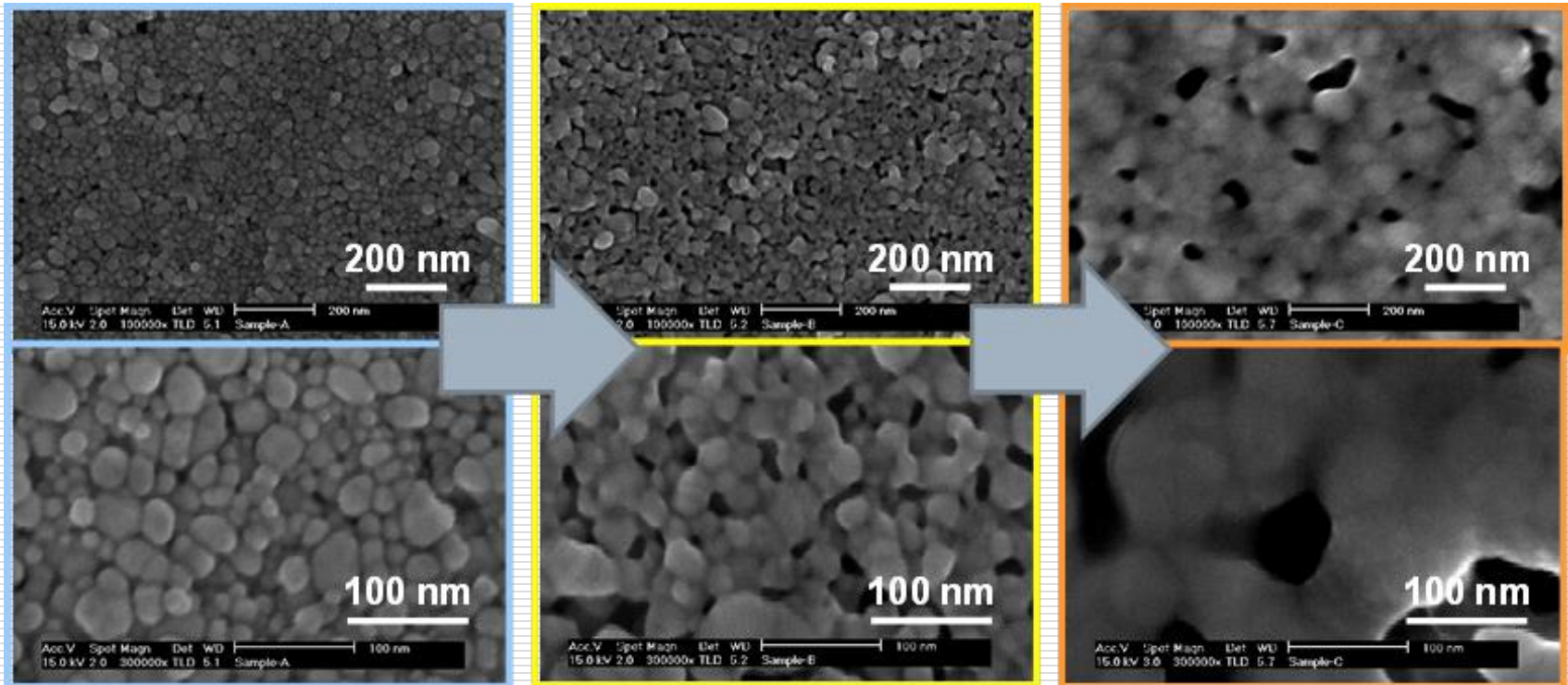
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Sintering of Ag nanoparticle-based paste

Dry only

120°C

180°C



Distributor :

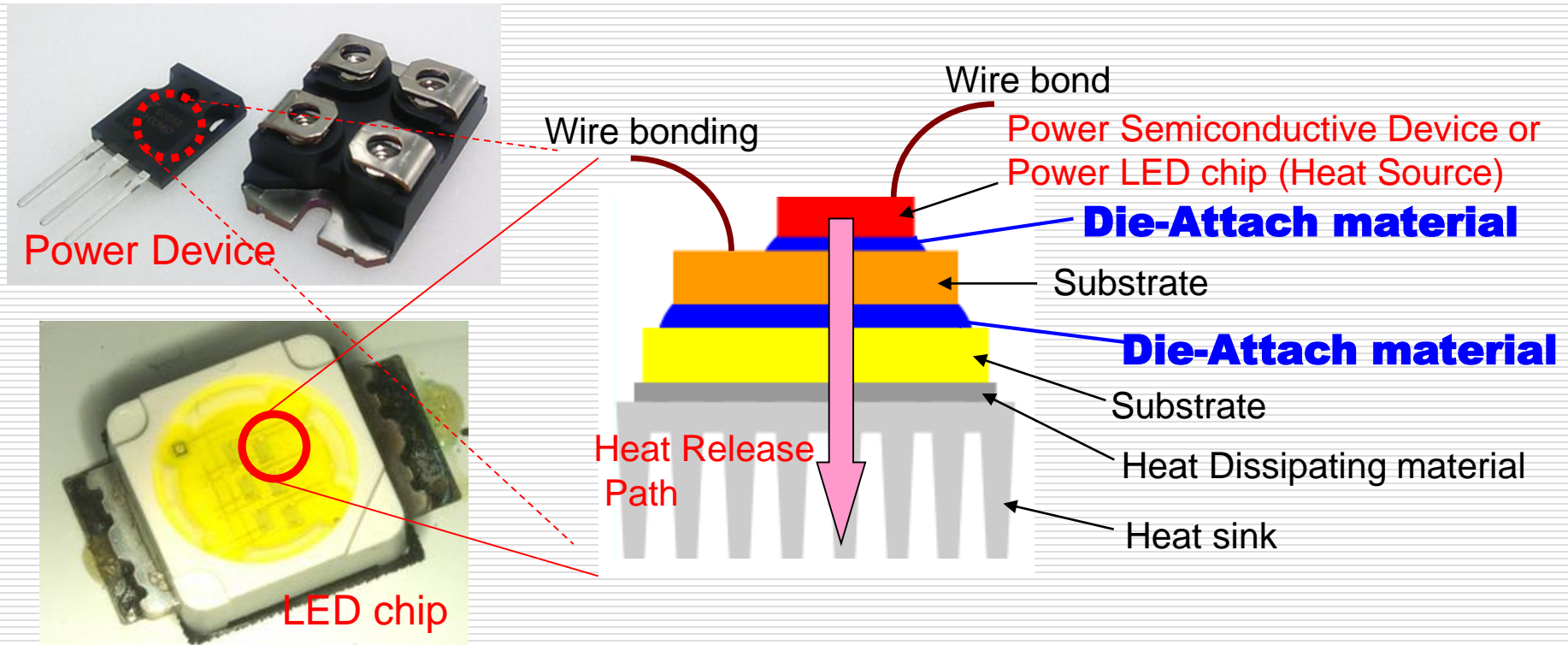
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Application for Die-Attach material



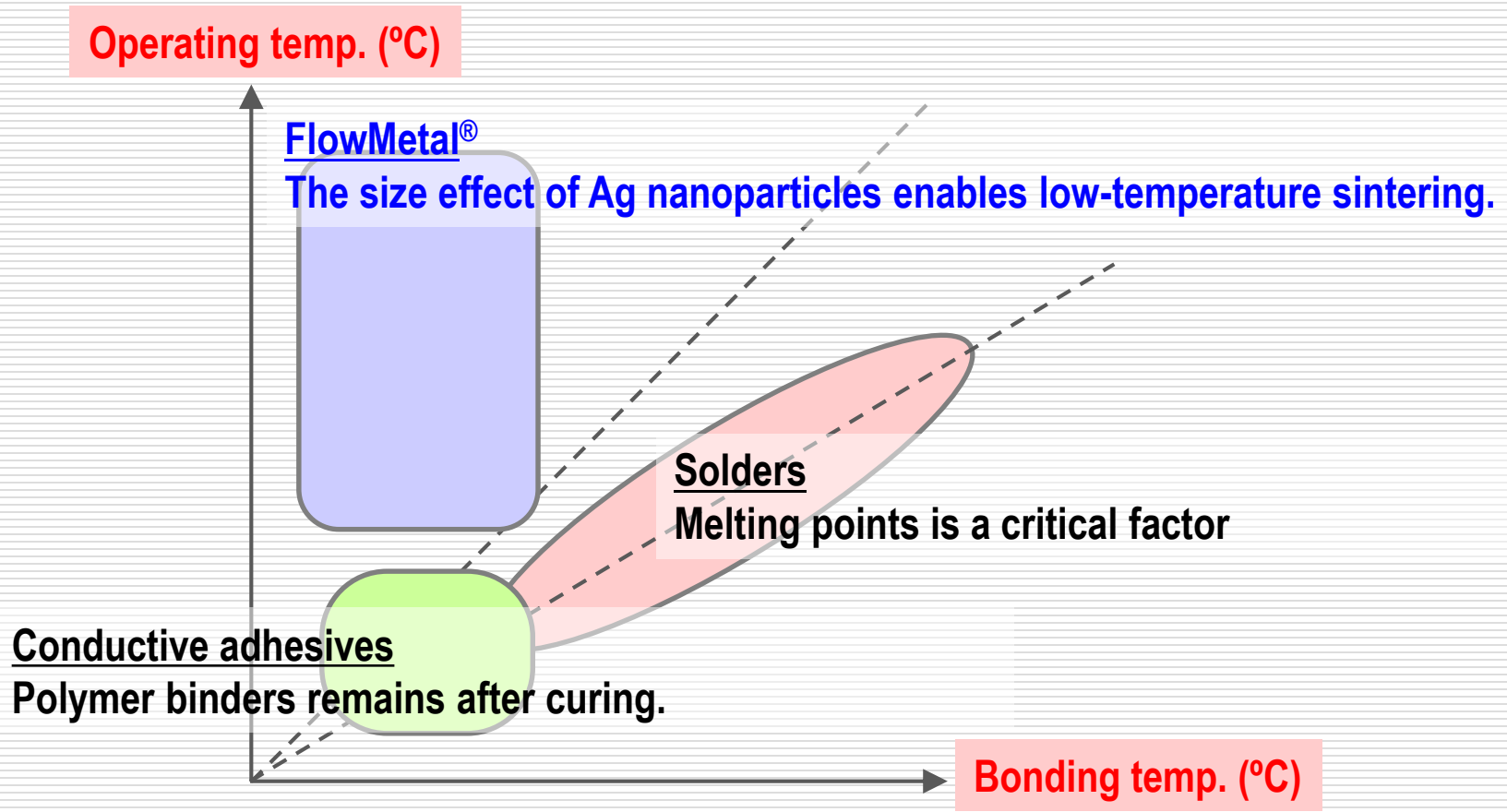
➤ To bond chip and substrate mechanically, thermally and electrically

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Concept of FlowMetal™



FlowMetal® can provide high thermal durability to the junction.

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Comparison with Other Die-attach Materials

Material	Shear strength [MPa]	Thermal conductivity [W/mK]	Volume resistivity [$\mu\Omega\text{cm}$]	Pressure in process
Nano-Ag sinter, FlowMetal®	>50	>140	<5	Not required
Micro-Ag sinter	>50	>140	<5	Mandatory
Resin-containing nano-Ag sinter	~50	~100	~7	Not required
Au-20Sn solder	>30	57	10	Not required
Pb-5Sn solder	>30	35	21	Not required
Sn-3Ag-0.5Cu solder	>30	50	11	Not required
Conductive adhesive	10	<10	>100	Not required

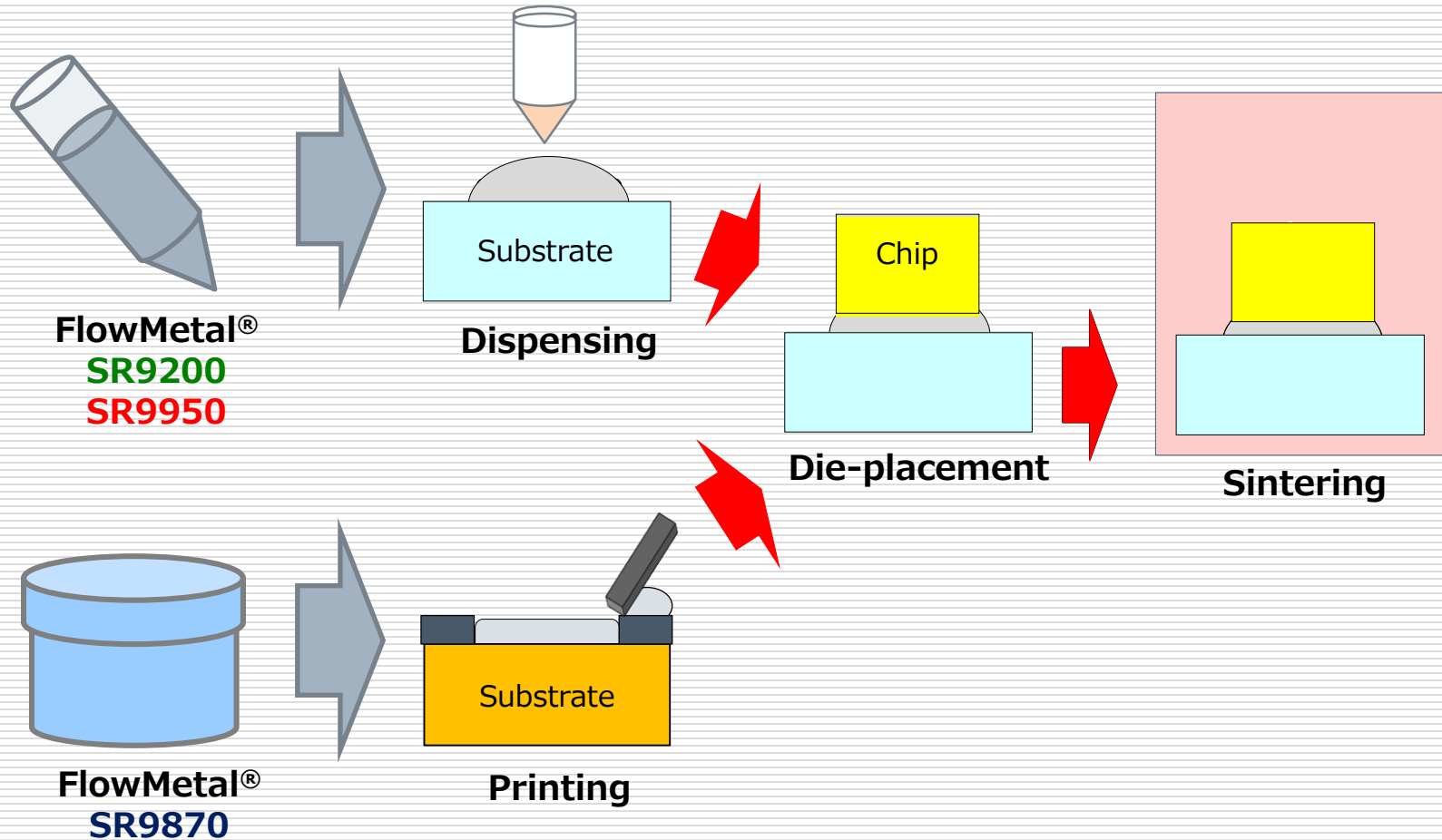
FlowMetal® contains a large amount of nano-Ag particles so that it can be sintered with no pressure and it shows excellent thermal and electrical conductivities.

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Advantages of Pressureless FlowMetal™



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Lineup of FlowMetal™ for die-attach

		SR9200	SR9950	SR9870
Features		Lowest sintering temp.	Available die size larger than SR9200; Better for SiC	Bonding to bare Cu surface without pressure
Application		LED, UV-LED, LD (small dies, ~1.5mm)	RF, Power (middle dies, ~5mm)	Power, UV-LED (large dies, ~10mm)
Surface required		Ag, Au	Ag, Au	Cu , Ag, Au
Process conditions	Printing method	Pin-transfer, Dispenser	Dispenser	Stencil
	Sintering atmosphere	Air	N₂ /Air	N₂ /Air
	Temperature (°C)	150	200	275
	Time (min)	90	60	30
	Pressure (MPa)	Pressureless	Pressureless	Pressureless
Properties after sintering	Shear strength (MPa)	>70	>120	>40
	Thermal conductivity (W/mK)	140	215	300
	Electric resistivity (μΩcm)	5	3	2

Distributor :



Manufacturer :



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Thank you for your attention

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