

LeafPowderTM CuSn

May, 2020

LeafPowder™

2

- Nano & micron size powder

(nanometer : thickness, micrometer : particle size)

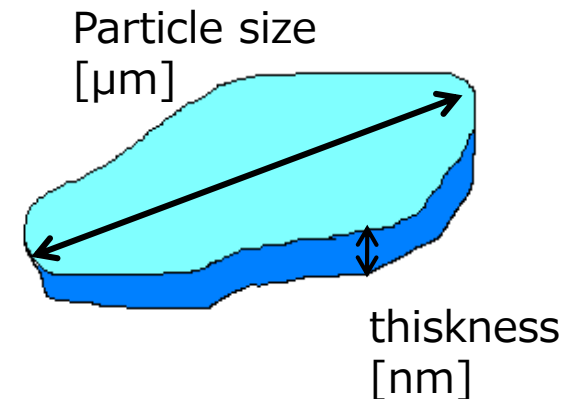
→ expect for bulk material function & quantum effect

- High aspect ratio & Scale-like shape

→ thinner & high adhesion

- Flexible selection of materials

→ possible to make various compounds
by stacking layer technology



All other values are either nominal values or typical (typ.) values, and are not guaranteed

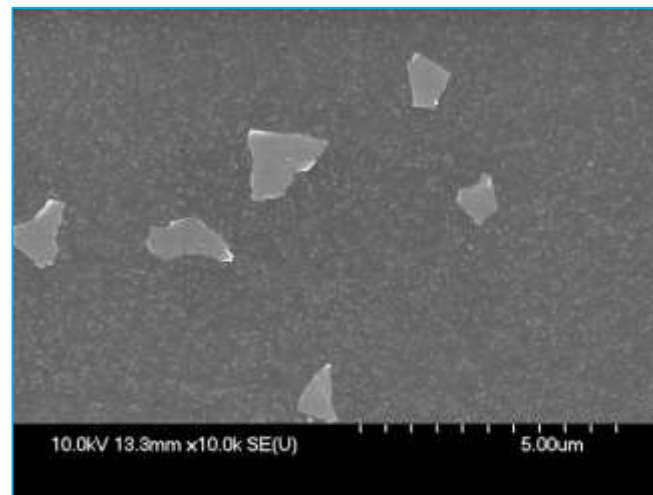
LeafPowder™ CuSn

high aspect ratio scale-like powder to achieve both metallic image and antibacterial function

- LeafPowder™ CuSn (prototype)
 - ✓ For antibacterial pigment

Grade	Contents	Ave. particle size	Dispersion solvent
SP3-01	10wt%	1μm	Butyl acetate

Typ. value	
Ave. size	1μm
Thickness	20 nm
Solvent	Butyl acetate
Concentration	10 wt%



SEM image of LeafPowder™ CuSn

LeafPowder™ CuSn

✓ Antibacterial test (shake flask method)

◆ Result

CuSn	Number of bacteria over time				
	initial	24hrs-1	24hrs-2	24hrs-3	Ave.
<i>E.coli</i>	2.3×10^5	<10	<10	<10	<10
<i>St.aureus</i>	2.2×10^5	<10	<10	<10	<10

 **Not detected**

Control		Number of bacteria over time				
control		initial	24hrs-1	24hrs-2	24hrs-3	Ave.
<i>E.coli</i>		2.3×10^5	1.2×10^8	1.5×10^8	1.4×10^8	1.4×10^8
<i>St.aureus</i>		2.2×10^5	1.3×10^6	1.5×10^6	1.9×10^6	1.6×10^6


* <10 : not detected

unit : CFU/Sample

✓ As additive for antibacterial function

CuSn ink (solvent : binder : CuSn = 60 : 40 : 1) (JIS Z 2801)

Bacteria	Number of bacteria over time					
	Sample	initial	24hrs-1	24hrs-2	24hrs-3	Ave.
E.coli	CuSn ink	1.0×10^5	7.3×10^6	5.1×10^6	7.9×10^6	6.8×10^6
	Control	1.0×10^5	1.4×10^7	1.2×10^7	1.6×10^7	1.4×10^7
St.aureus	CuSn ink	1.1×10^5	8.8×10^2	1.0×10^3	1.0×10^3	9.6×10^2
	Control	1.1×10^5	1.4×10^5	1.7×10^5	1.8×10^5	1.6×10^5

 **Reduce bacterial growth by low concentration !**

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