ESP180N Series

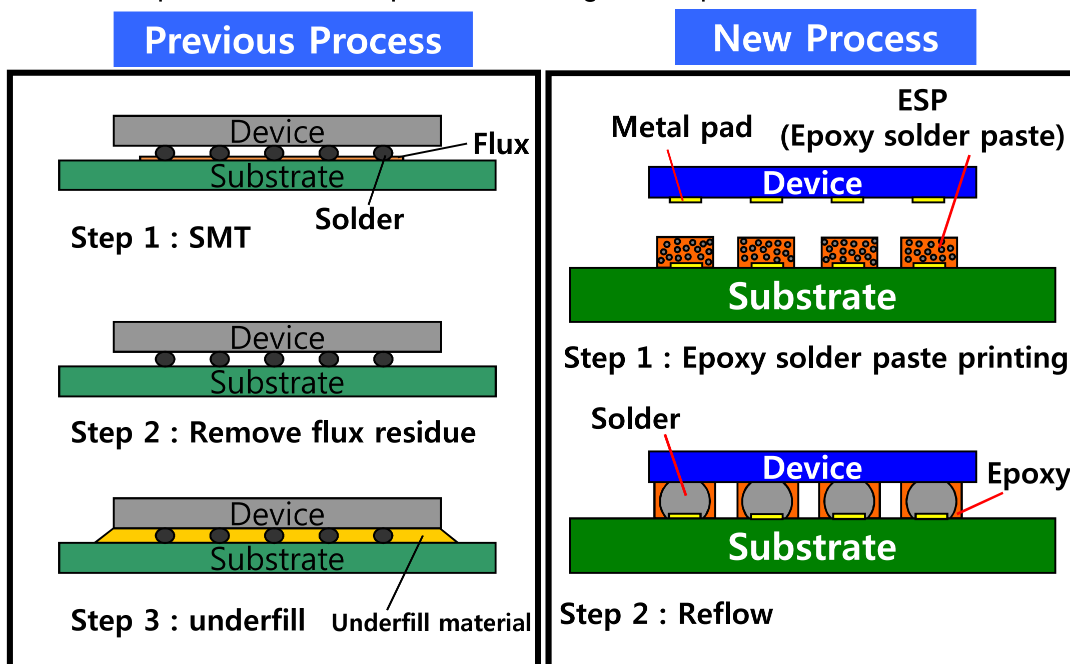
ESP180N Series is a low-temperature epoxy solder paste that can be applied through SMT process and obtain excellent results under low-temperature reflow conditions.

Application

- It can be used in SMT and die-bonding processes and semiconductor equipment industries that require a low-temperature operating environment.
- It is optimized for printing, dotting, and dispensing processes.

Characteristics & Advantages

- Reflow in low-oxygen or N2 atmosphere (<500 ppm O_2)
- Minimal change with the passage of time during continuous printing and has very consistent printing performance
- Excellent wetting performance and void minimization
- High reliability for soldering because of fewer resulting slump phenomena after printing
- Excellent recovery system with fewer occurrences of solder ball
- Efficient response to fine pitch
- Better bonding strength compared with a general solder paste
- SMT + Underfill process can be replaced with single SMT process



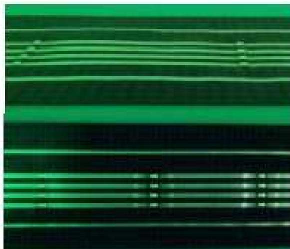
Hardness test

	ESP180PT4		SAC 305	
Package type	0603	1005	0603	1005
Average(g)	1034	1891	761	1282

ESP180PT4 showed higher adhesion 36%~48% than SAC305

Bending Test

- **Test method** KS C6471
  - bending radius 3mm, bending speed 130cycles/min, bending distance 25mm
  - Total 10,000 cycles
- **Test package** LED package (Sample size 9pcs)
- **Test result** Resistance data Pass (0.095ohm → 0.099ohm)



Passed bending test 10,000 cycles

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Technical Data Sheet

Product Information

Metal Alloy : 42Sn57.6Bi0.4Ag , 42Sn58Bi / Can be changed according to customer requirements

Powder size : Type 4 (20~38um),Type 5 (10~25um),Type 6 (5~15um)

Packing : 500g , Can be changed according to customer requirements

Physical characteristics

Spec.	Unit	Value	Measured
Color	-	Gray	Visual
Specific gravity	-	8.7	-
Thixotropic Index (TI)	-	0.4~0.7	MALCOM
Viscosity @ 25ºC	Pa.S	LV (40~80) MV (80~140) HV (140~ 230)	MALCOM(10rpm)
Tg	℃	72	TMA
Thermal Conductivity	W/mK	40	Laser Flash Diffusivity
Bending test	-	10,000 pass	KS C6471
SIR	Ohom	>1.0×10E9	JIS Z 3284
Reflow Condition	Refer to reflow profile(N_2)		

Powder size		Type 4	Type 5	Type 6
Metal contant (wt%)	LV	-	-	84.5
	MV	-	-	86
	HV	-	87	88

• Can be changed according to a customer’s process requirements (metal content and viscosity)

Working time

Classification	Unit	Value	Remark
Working time	Time	< 6 hours	-
Validity	Month	< 3 months	-40℃ in freezer

How to use

1) Defrosting

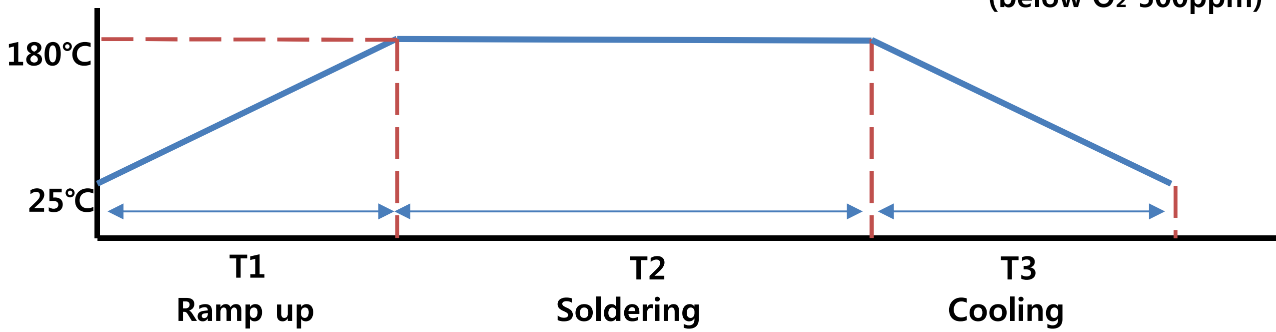
- Take it out from the refrigerator 2 hr before using it, and leave it at room temperature without opening its container. Frozen opening can cause solder ball problem.
- Open it for use when it reaches room temperature (20–25 ℃).

2) Mixing

- Manual mixing is recommended (2–3 min).
  Excessive mixing can cause a change in the paste's physical properties.

Spec.	RPM	Sec.
Auto Mixing(Jar)	500	15~20

Reflow Profile



Zone	T1	T2	T3	Peak Temp.
Temp(℃)	25~180	180	138℃ 이하	180℃
Time(sec)	60~100	120~160	3~8℃/sec	