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Tables:

Table I EDX Analysis of Co nanoparticle added sample:

Location	Percentage of Cobalt (%)	Element Symbol	Atomic Concentration (%)	Weight Concentration (%)
Solder Matrix	0.5	Bi	62.27	74.57
		Sn	37.02	25.19
		Co	0.71	0.24
	1	Bi	51.9	62.56
		Sn	46.23	36.48
		Co	1.87	0.96
	2	Bi	36.15	50.69
		Sn	59.96	47.77
		Co	3.89	1.54
Interfacial IMC Layer	0.5	Cu	56.115	68.31
		Sn	43.615	30.93
		Co	0.27	0.76
	1	Cu	56.25	67.57
		Sn	43.14	30.82
		Co	0.61	1.61
	2	Cu	55.9	66.49
		Sn	43.05	30.08
		Co	1.05	3.43

Table II Average IMC Thickness after different thermal aging temperature and different reaction time:

Temperature (°C)	Percentage of Cobalt (%)	Reaction Time (minutes)	Average Thickness (µm)
0	0	7560	1.37
		30240	1.37
	0.5	7560	1.25
		30240	1.25
70	0	7560	0.6
		30240	1.82
	0.5	7560	0.35
		30240	1.69
85	0	7560	0.62
		30240	2.45
	0.5	7560	0.55
		30240	1.77
100	0	7560	0.8
		30240	3.2
	0.5	7560	0.58
		30240	2.37
160	0	5	0.75
		30	2.14
	0.5	5	0.66
		30	1.34
180	0	5	0.91
		30	2.29
	0.5	5	0.82
		30	1.43
200	0	5	1.29
		30	3.24
	0.5	5	1.07
		30	1.87