Device Material Content

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Package: 672 fpBGA with SnAgCu Solder Balls **(90nm and 65nm products)**
Total Device Weight 3.30 Grams
MSL: 3
Peak Reflow Temp: 250°C

November, 2009	% of Total Pkg. Wt.	Weight (g)	% of Total Pkg. Wt.	Weight (g)	Substance	CAS #	Notes / Assumptions:
Die	1.48%	0.0489			Silicon chip	7440-21-3	Die size: 8.11 x 8.34 mm
Mold	36.73%	1.212					Mold Compound Density between 1.8 and 2.1 grams/cc
			32.61%	1.076	Silica (Fused or Amorphous)	60676-86-0	85 to 95% Silica Fused or Amorphous (LSC uses 88.8% in our calculation)
			1.84%	0.0606	Epoxy resin	-	1.5 to 8% Epoxy resin (LSC uses 5% in our calculation)
			1.47%	0.0485	Phenol resin	-	3 to 6% Phenol resin (LSC uses 4% in our calculation)
			0.07%	0.0024	Carbon Black	1333-86-4	Carbon Black appox. 0.2%
			0.73%	0.0242	Other	-	Others approx. 2%
D/A Epoxy	0.21%	0.0069					Die attach epoxy Density: 4 grams/cc
			0.16%	0.0054	Silver (Ag)	7440-22-4	70 to 90% Silver (LSC uses 78% in our calculation)
			0.01%	0.0003	Epoxy Resin	-	1 to 10% Epoxy Resin (LSC uses 5% in our calculation)
			0.02%	0.0008	Diester	-	5 to 20% Diester (LSC uses 12% in our calculation)
			0.01%	0.0003	Functionalized Ester	-	1 to 10% Functionalized Ester (LSC uses 5% in our calculation)
Wire	0.60%	0.0197			Gold (Au)	7440-57-5	0.8 to 1.0 mil diameter; 1 wire per solder ball
Solder Balls	19.89%	0.656					Qualified Solder ball compositions:
			19.19%	0.633	Tin (Sn)	7440-31-5	Sn96.5/Ag3/Cu0.5
			0.60%	0.0197	Silver (Ag)	7440-22-4	
			0.10%	0.0033	Copper (Cu)	7440-50-8	
Substrate	18.87%	0.623					
			12.83%	0.424	Glass fiber	65997-17-3	60 to 75% glass fiber (LSC uses 68% in our calculation)
			6.04%	0.199	BT Resins	-	
Foil	22.23%	0.734			Copper (Cu)	7440-50-8	

Notes:
The values listed above are nominal values based on studies of representatives of this particular package type, and are believed to be as accurate as possible.
Constituent substances and proportions in epoxy materials are before curing.
The information provided above is representative of the package as of the date listed, and is subject to change at any time.
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