Materials Declaration

Package	CSP BGA
Body Size	12 X 12
Ball Count	289
Option	Pb-free
Ball Size	0.30 mm

Molding Compound

Substance	% of Compound	Weight (g)	PPM
Silica	86.20	2.55 E-01	587290
Epoxy resin	6.00	1.78 E-02	40879
Phenol Resin	6.00	1.78 E-02	40879
Metal Hydroxide	1.50	4.44 E-03	10220
Carbon Black	0.30	8.89 E-04	2044
Subtotal	100.00	2.96 E-01	681310

Laminate

Substance	% of Laminate	Weight (g)	PPM
Copper	45.60	4.73 E-02	108759
Glass Cloth	10.63	1.10 E-02	25350
Core Resin	9.36	9.71 E-03	22332
Filler	4.30	4.46 E-03	10261
Copper Foil	25.31	2.62 E-02	60357
May contain Chlorine (refer to test reports)			
May contain Bromine (refer to test reports)			
Laminate Core Subtotal	95.20	9.87 E-02	227058
Soldermask Acrylate Resin	0.903	9.36 E-04	2154
Barium Sulfate	0.798	8.27 E-04	1903
Epoxy Resin	0.459	4.75 E-04	1094
Dipropylene glycol monomethyl ether	0.336	3.48 E-04	801
Solvent naphta (petroleum), Heavy arom	0.322	3.34 E-04	768
Diethylene glycol monoethyl ether acetate	0.262	2.72 E-04	625
Acrylic Ester Monomer	0.133	1.38 E-04	317
Talc	0.091	9.43 E-05	217
Morpholine Derivatives	0.088	9.07 E-05	209
Urethane Resin	0.046	4.72 E-05	109
Silane Compounds	0.032	3.34 E-05	77
Triazine derivatives	0.012	1.24 E-05	29
Pigment Green	0.009	9.33 E-06	21
Silica	0.009	9.43 E-06	22
Pigment Yellow	0.001	1.09 E-06	3
May contain Chlorine (refer to test reports)			
May contain Bromine (refer to test reports)			
Soldermask Subtotal	3.5	3.63 E-03	8347
Nickel	1.10	1.14 E-03	2624
Gold	0.20	2.07 E-04	477
Subtotal	100.00	1.04 E-01	238506

Solder Ball

Substance	% of Solder Ball	Weight (g)	PPM
Tin	96.50	2.92 E-02	67143
Silver	3.00	9.07 E-04	2087
Copper	0.50	1.51 E-04	348
Subtotal	100.00	3.02 E-02	69578

Bond Wires

Substance	% of Wire	Weight (g)	PPM
Gold	99.99	2.60 E-04	599

Chip

Substance	% of Chip	Weight (g)	PPM
Doped Silicon	100.0	4.00 E-03	9201

Die Attach Material

Substance	% of Die Attach	Weight (g)	PPM
Silver	66.1	2.32 E-04	533
Polymeric material	16.5	5.79 E-05	133
Acrylate resin	6.2	2.17 E-05	50
Diester resin	6.2	2.17 E-05	50
Functionalized urethane resin	2.5	8.69 E-06	20
Epoxy resin	2.5	8.69 E-06	20
Subtotal	100.0	3.50 E-04	806

Molding Compound

Substance	PPM	Method
Lead	None Detected	Draft IEC 62321. ICP-OES.
Cadmium	None Detected	Draft IEC 62321. ICP-OES.
Mercury	None Detected	Draft IEC 62321. ICP-OES.
Chromium+6	None Detected	Draft IEC 62321. UV-VIS.
Polybrominated biphenyls (PBB)	None Detected	Draft IEC 62321. GC-MSD.
Polybrominated Diphenyl Ethers (PBDE)	None Detected	Draft IEC 62321. GC-MSD.

Die Attach Paste

Substance	PPM	Method
Lead	None Detected	Draft IEC 62321. ICP-OES.
Cadmium	None Detected	Draft IEC 62321. ICP-OES.
Mercury	None Detected	Draft IEC 62321. ICP-OES.
Chromium+6	None Detected	Draft IEC 62321. UV-VIS.
Polybrominated biphenyls (PBB)	None Detected	Draft IEC 62321. GC-MSD.
Polybrominated Diphenyl Ethers (PBDE)	None Detected	Draft IEC 62321. GC-MSD.

Package Totals

Weight (g)	PPM
4.35 E-01	1000000

Note: The information provided in this declaration are true to the best of ADI's knowledge.
ADI derived most of the information listed in this declaration from documents provided by third parties, and assumes no liability to any inaccuracy of such information.

ANALOG DEVICES