Materials Declaration

Package	CSP_BGA
Body Size	13 X 13
Ball Count	237
Option	Pb-free
Ball Size	0.40 mm

Molding Compound

Item	% of Compound	Weight (g)	PPM
SiO2 Filler	85.0	1.60 E-01	386715
Epoxy resin	7.0	1.32 E-02	31847
Phenol Resin	6.5	1.22 E-02	29572
Metal Hydroxide	1.0	1.88 E-03	4550
Carbon Black	0.5	9.42 E-04	2275

Laminate

Item	% of Laminate	Weight (g)	PPM
BT-Epoxy	28.0	3.61 E-02	87242
Glass Fiber	25.0	3.22 E-02	77895
Copper	19.0	2.45 E-02	59200
Gold	11.0	1.42 E-02	34274
Solder Mask	9.4	1.21 E-02	29133
Nickel	7.8	1.01 E-02	24303

Solder Ball

	% of Solder Ball	Weight (g)	PPM
Sn	96.5	6.44 E-02	155567
Ag	3.0	2.00 E-03	4836
Cu	0.5	3.34 E-04	806

Bond Wires

	% of Wire	Weight (g)	PPM
Au	99.99	4.60 E-03	11118

Chip

	% of Chip	Weight (g)	PPM
Si	100.0	2.19 E-02	52876

Die Attach

Item	% of Die Attach	Weight (g)	PPM
Ag	76.0	2.45 E-03	5920
Epoxy Resin	24.0	7.74 E-04	1869

Molding Compound

Item	PPM	Method
Pb	Not Detected	USEPA3050B. ICP-AES
Cd	Not Detected	EN 1122 Method B:2001. ICP-AES
Hg	Not Detected	USEPA 3052. ICP-AES
Cr+6	Not Detected	USEPA 3060A & USEPA 7196A
PBB	Not Detected	Analysis was performed by GC/MS
PBDE	Not Detected	Analysis was performed by GC/MS

Die Attach Paste

Item	PPM	Method
Pb	5.00	US EPA Method 3052. ICP-OES
Cd	Not Detected	US EPA Method 3052. ICP-OES
Hg	Not Detected	US EPA Method 3052. ICP-OES
Cr+6	Not Detected	US EPA Method 3060A & 7196A. UV-VIS
PBB	Not Detected	Analysis was performed by GC/MS
PBDE	Not Detected	Analysis was performed by GC/MS

Laminate

Item	PPM	Method
Pb	Not Detected	US EPA Method 3052. ICP-OES
Cd	Not Detected	US EPA Method 3052. ICP-OES
Hg	Not Detected	US EPA Method 3052. ICP-OES
Cr+6	Not Detected	US EPA Method 3060A & 7196A. UV-VIS
PBB	Not Detected	Analysis was performed by GC/MS
PBDE	Not Detected	Analysis was performed by GC/MS

Package Totals

Weight (g)	PPM
4.14 E-01	997725

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

ADI Proprietary

Materials Declaration

Package	CSP_BGA
Body Size	13 X 13
Ball Count	237
Option	Standard
Ball Size	0.40 mm

Molding Compound

Item	% of Compound	Weight (g)	PPM
Silica	75.5	1.40 E-01	337903
Epoxy resin	20.0	3.71 E-02	89511
Antimony trioxide	3.0	5.56 E-03	13426
Carbon black	1.5	2.78 E-03	6714

Laminate

Item	% of Laminate	Weight (g)	PPM
BT-Epoxy	25.0	3.46E-02	83478
Glass Fiber	25.0	2.83E-02	68300
Copper	19.0	5.72E-02	138154
Solder Mask	12.2	8.66E-03	20916
Nickel	11.0	1.56E-03	3768
Gold	7.8	2.90E-04	700

Solder Ball

	% of Solder Ball	Weight (g)	PPM
Sn	62.0	4.14 E-02	99937
Pb	36.0	2.40 E-02	58028
Ag	2.0	1.34 E-03	3224

Bond Wires

	% of Wire	Weight (g)	PPM
Au	99.99	4.46 E-03	10774

Chip

	% of Chip	Weight (g)	PPM
Si	100.0	1.81 E-02	43634

Die Attach

Item	% of Die Attach	Weight (g)	PPM
Ag	70.0	6.24 E-03	15071
Epoxy Resin	20.0	1.78 E-03	4306
Silane	5.0	4.46 E-04	1077
Amine	5.0	4.46 E-04	1077

Package Totals

Weight (g)	PPM
4.14 E-01	1000000

Molding Compound

Item	PPM	Method
Pb	None Detected	US EPA Method 3052. ICP-OES
Cd	None Detected	US EPA Method 3052. ICP-OES
Hg	None Detected	US EPA Method 3052. ICP-OES
Cr+6	None Detected	US EPA Method 3060A & 7196A. UV-VIS
PBB	None Detected	Analysis was performed by GC/MS
PBDE	None Detected	Analysis was performed by GC/MS

Die Attach Paste

Item	PPM	Method
Pb	None Detected	US EPA Method 3052. ICP-OES
Cd	None Detected	US EPA Method 3052. ICP-OES
Hg	None Detected	US EPA Method 3052. ICP-OES
Cr+6	None Detected	US EPA Method 3060A & 7196A. UV-VIS
PBB	None Detected	Analysis was performed by GC/MS
PBDE	None Detected	Analysis was performed by GC/MS

Laminate

Item	PPM	Method
Pb	Not Detected	US EPA Method 3052. ICP-OES
Cd	Not Detected	US EPA Method 3052. ICP-OES
Hg	Not Detected	US EPA Method 3052. ICP-OES
Cr+6	Not Detected	US EPA Method 3060A & 7196A. UV-VIS
PBB	Not Detected	Analysis was performed by GC/MS
PBDE	Not Detected	Analysis was performed by GC/MS

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