Materials Declaration

Package	BGA
Body Size	19 x 19 mm
LeadCount	484
Option	SnPbAg
Ball Size	0.45 mm

Molding Compound

Item	% of Compound	Weight (g)	PPM
Fused Silica	72.77	3.15 E-01	219446
Epoxy Resin	10.33	4.47 E-02	31151
Phenol Resin	10.33	4.47 E-02	31151
Crystalline Silica	4.69	2.03 E-02	14143
Carbon Black	0.94	4.07 E-03	2835
Antimony Trioxide	0.94	4.07 E-03	2835
Subtotal		4.33 E-01	301562

Laminate

Item	% of Laminate	Weight (g)	PPM
BT Resin	27.00	1.86 E-01	129463
Glass fiber	25.00	1.72 E-01	119874
Cu	18.00	1.24 E-01	86309
Ni	11.00	7.57 E-02	52744
Soldermask	11.00	7.57 E-02	52744
Au	8.00	5.50 E-02	38359
Subtotal		6.88 E-01	479494

Solder Ball

Item	% of Plating	Weight (g)	PPM
Sn	62.0	1.20 E-01	83862
Pb	36.0	6.99 E-02	48695
Ag	2.0	3.88 E-03	2705
Subtotal		1.94 E-01	135262

Bond Wires

Item	% of Wire	Weight (g)	PPM
Au	99.99	1.35 E-02	9442

Chip

Item	% of Chip	Weight (g)	PPM
Si	100.0	9.03 E-02	62941

Die Attach

Item	% of Die Attach	Weight (g)	PPM
Ag	70.0	1.13 E-02	7910
Epoxy resin	20.0	3.24 E-03	2260
Amine	5.0	8.11 E-04	565
Silane	5.0	8.11 E-04	565
Subtotal		1.62 E-02	11300

Weight (g)	PPM
1.43 E+00	1000000

Mold Compound

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

Die Attach

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

Note: The information provided in this declaration are true to the best of ADI's knowledge.
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ANALOG DEVICES

Materials Declaration

Package	BGA
Body Size	19 x 19 mm
LeadCount	484
Option	Pb-free
Ball Size	0.45 mm

Molding Compound

Item	% of Compound	Weight (g)	PPM
Silica fused	86.20	3.73 E-01	264287
Epoxy resin	6.00	2.60 E-02	18397
Phenol resin	6.00	2.60 E-02	18397
Metal hydroxide	1.50	6.49 E-03	4599
Carbon black	0.30	1.30 E-03	920
Subtotal		4.33 E-01	306599

Laminate

Item	% of Laminate	Weight (g)	PPM
BT Resin	27.00	1.86 E-01	131625
Glass fiber	25.00	1.72 E-01	121876
Cu	18.00	1.24 E-01	87751
Ni	11.00	7.57 E-02	53625
Soldermask	11.00	7.57 E-02	53625
Au	8.00	5.50 E-02	39000
Subtotal		6.88 E-01	487501

Solder Ball

Item	% of Plating	Weight (g)	PPM
Sn	96.50	1.65 E-01	116909
Ag	3.00	5.13 E-03	3635
Cu	0.50	8.55 E-04	606
Subtotal		1.71 E-01	121149

Bond Wires

Item	% of Wire	Weight (g)	PPM
Au	99.99	1.35 E-02	9599

Chip

Item	% of Chip	Weight (g)	PPM
Si	100.0	9.03 E-02	63992

Die Attach

Item	% of Die Attach	Weight (g)	PPM
Ag	75.0	1.18 E-02	8371
Diester	12.0	1.89 E-03	1339
Epoxy resin	5.0	7.87 E-04	558
Functionalized ester	5.0	7.87 E-04	558
Functionalized urethane	3.0	4.72 E-04	334
Subtotal		1.57 E-02	11160

Weight (g)	PPM
1.41 E+00	1000000

Mold Compound

Item	PPM	Method
Pb	None Detected	USEPA 3050B. ICP-AES
Cd	None Detected	EN1122: Method B:2001. ICP-AES
Hg	None Detected	USEPA 3052. ICP-AES
Cr+6	None Detected	USEPA 3060A & 7196A.
PBB	None Detected	Analysis was performed by GC/ECDMS or HPLC/DAD/MS.
PBDE	None Detected	Analysis was performed by GC/ECDMS or HPLC/DAD/MS.

Die Attach

Item	PPM	Method
Pb	5.0 PPM	USEPA 3052. ICP-OES
Cd	None Detected	USEPA 3052. ICP-OES
Hg	None Detected	USEPA 3052. ICP-OES
Cr+6	None Detected	USEPA 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	None Detected	USEPA 3052. ICP-OES
Cd	None Detected	USEPA 3052. ICP-OES
Hg	None Detected	USEPA 3052. ICP-OES
Cr+6	None Detected	USEPA 3060A & 7196A. UV-VIS
PBB	None Detected	Analysis was performed by GC/MS.
PBDE	None Detected	Analysis was performed by GC/MS.

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ANALOG DEVICES

ADI Proprietary