



Package Material Composition and Mass Calculation

Customer: GSI
 Package: LQFP 14X20 (L MATRIX) 100L
 Device Type: GS88xxxxCGT
 Die Size: 5871X4458 um
 Total Pkg. Wt (g): **0.9415**

Provided By: JayBJ Chang
 Date: 2011/11/14

	name	material composition	CAS No.	%	mg.(ave)	mg.	%	PPM
Mold Compound	CEL-9510HFL-U	Epoxy Resin-1	Trade secret	2~4	18.34	<u>655.0</u>	<u>69.57</u>	<u>695,698</u>
		Epoxy Resin-2	Trade secret	1~3	13.1		1.95	19,480
		Hardener2	Trade secret	2~5	19.65		1.39	13,914
		Carbon Black	1333-86-4	Approx. 0.2	1.31		2.09	20,871
		Silica	60676-86-0	86~93	602.6		0.14	1,391
							64.00	640,042
Leadframe	C7025	Cu	7440-50-8	Balance	229.795	<u>250.0</u>	<u>26.55</u>	<u>265,534</u>
		Fe	7439-89-6	0.20max	0.45		24.41	244,073
		Si	7440-21-3	0.250-1.200	2.5		0.05	478
		Mn	7439-96-5	0.10max	0.2		0.27	2,655
		Ni	7440-02-0	2.200-4.200	10		0.02	212
		Zn	7440-66-6	1.0max	2		1.06	10,621
		Mg	7439-95-4	0.050-0.300	0.625		0.21	2,124
		Ag	7440-22-4	0.0738-1.998	4		0.07	664
		*Polyimide	Trade secret	0.0936 min	0.375		0.42	4,249
		*NBR	9003-18-3	0.0156 max	0.02		0.04	398
		*Bismaleimide	79922-55-7	0.0156 max	0.02		0.00	21
		*Phenol resin	28453-20-5	0.0134 max	0.015		0.00	16
Die	Silicon	Silicon	7440-21-3	100%	13.8	<u>13.8</u>	<u>1.47</u>	<u>14,657</u>
Die Attach	Hitachi FH-900T-25	Novolak Epoxy Resin	64425-84-4	10~30	0.69	<u>4.6</u>	<u>0.49</u>	<u>4,886</u>
		Phenol Resin	Trade Secret	10~30	0.69		0.07	733
		Amorphous Silica	68611-44-9	5~20	0.23		0.07	733
		Acrylic Copolymer	Trade Secret	20~75	1.04		0.02	244
		Polyethylene Terephthala	25038-59-9	30~50	1.50		0.11	1,099
		Poliurethane	39278-79-0	10	0.46		0.16	1,588
							0.05	489
Wire	Au	Au	7440-57-5	99	1.49	<u>1.5</u>	<u>0.16</u>	<u>1,593</u>
		Pd	7440-05-3	1	0.02		0.16	1,577
							0.00	16
External Plating	Matte Sn	Tin	7440-31-5	100	16.6	<u>16.6</u>	<u>1.76</u>	<u>17,631</u>
							1.76	17,631
Total						941.5	100	1000000

DISCLAIMER

- The above material declaration can be used only as reference in identifying the Hazardous material content of the product.
- ASE does not guarantee the Material composition accuracy as it is based on the data provided by outside sources and has not been validated.
- This material declaration does not include data from any active and passive component assembled in the package.

Will products contain the following RoHS defined substances?			
Mercury and its Compounds	Yes	No	X
Cadmium and its Compounds	Yes	No	X
Lead and its Compounds	Yes	No	X
Hexavalent Chromium and its Compounds	Yes	No	X
Polybrominated biphenyls (PBB)	Yes	No	X
Polybrominated diphenyl ethers (PBDE)	Yes	No	X
Is this Product meet ROHS Compliance?	Yes	X	No