ASE ADVANCED SEMICONDUCTOR ENGINEERING,INC.

Package Material Composition and Mass Calculation

Customer: : GSI
Package: : 14x22 119L SNW LBGA
Device Type: : GS81284x\xxB
Die Size: : Bottom die 378 X 647 mils / 4.5 mil , spacer die 314milX600mil/4 mil , Top die 378 X 647 mils / 4.5 mil
Total Pck. Weight (g): 1.00257

	name	composition	CAS No.	%	mg.(ave)	mg.	%	PPM
Mold Compound	KE-G2250LKDS					280.34	27.96	279,621
		Silica	60676-86-0	75-95%	252.31		25.17	251,659
		Epoxy resin1		1-10%	15.42		1.54	15,379
		Phenolic resin		2-7%	12.62		1.26	12,583
Substrate	BT-substrate					379.09	37.81	378,118
CCL-HL832 +		SiO2	60676-86-0	10-12	41.70		4.16	41,593
GHPL830+AUS303		Acrylic	Trade Secret	9-11	37.91		3.78	37,812
		Epoxy	29690-82-2, 68541-56-0, 25068-38-6	6-10	30.33		3.02	30,249
		Bisphenol	13676-54-5	10-20	56.86		5.67	56,718
		Triazine	25722-66-1	15-20	66.34		6.62	66,171
		Cu	7440-50-8	30-40	137.97		13.76	137,616
		Ni	7440-02-0	1-2	5.69		0.57	5,672
		Au	7429-90-5	0.2-0.9	2.08		0.21	2,080
		Br	Trade Secret	0.01-0.1	0.21		0.02	208
Die	Silicon	Silicon	7440-21-3		115.88	115.88	11.56	115,583
Die Attach	FH-900-25					27.40	2.73	27,330
		Novolak Epoxy Resin	Trade Secret	10-20	2.74		0.27	2,733
		Phenol Resin	Trade Secret	10-20	2.74		0.27	2,733
		Amorphous Silica	68611-44-9	0-10	1.37		0.14	1,366
		Acrylic Copolymer	Trade Secret	70-80	20.55		2.05	20,497
Wire	25um					5.57	0.56	5,556
		Au	7429-90-5	99.99	5.57		0.56	5,555
		Ion Impurities	Trade Secret	0.01	0.00		0.00	1
External Plating	Solder Ball (63Sn/37Pb)_0.76mm					194.29	19.38	193,792
		Tin (Sn)	7440-31-5	63	122.40		12.21	122,089
		Lead (Pb)	7439-92-1	37	71.89		7.17	71,703
Total						**1002.57**	**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.