



ASE ADVANCED SEMICONDUCTOR ENGINEERING, INC.

Package Material Composition and Mass Calculation

Customer: : GSI
 Package: : 14x22 119L LBGA
 Device Type: : 864018T=C(GS864018T)
 Die Size: : 378 X 647 mils
 Total Pck. Weight (g): 1.02284

	name	composition	CAS No.	%	mg.(ave)	mg.	%	PPM
Mold Compound	CEL-9750ZHF10AK-U					<u>356.67</u>	<u>34.87</u>	<u>348,706</u>
		Silica	60676-86-0	88-95%	326.53		31.92	319,240
		Epoxy resin1	Trade Secret	2-4%	10.70		1.05	10,461
		Epoxy resin2	Trade Secret	0.5-2%	4.46		0.44	4,359
		Phenolic resin	Trade Secret-2	1-3%	7.13		0.70	6,974
		Carbon black	1333-86-4	approx 0.2%	0.71		0.07	697
		Others	Trade Secret	approx 2%	7.13		0.70	6,974
Substrate	BT-substrate					<u>379.09</u>	<u>37.06</u>	<u>370,625</u>
GHPL830/CCL-HL832HS		SiO2	60676-86-0	10-12	41.70		4.08	40,769
AUS303		Acrylic	Trade Secret	9-11	37.91		3.71	37,062
		Epoxy	29690-82-2, 68541-56-0, 25068-38-6	6-10	30.33		2.96	29,650
		Bisphenol	13676-54-5	10-20	56.86		5.56	55,594
		Triazol	25722-66-1	15-20	66.34		6.49	64,859
		Cu	7440-50-8	30-40	137.97		13.49	134,889
		Ni	7440-02-0	1-2	5.69		0.56	5,559
		Au	7429-90-5	0.2-0.9	2.08		0.20	2,038
		Br	Trade Secret	0.01-0.1	0.21		0.02	204
Die	Silicon	Silicon	7440-21-3		75.72	<u>75.72</u>	<u>7.40</u>	<u>74,029</u>
Die Attach	FH-900T-25					<u>9.20</u>	<u>0.90</u>	<u>8,995</u>
		Novolak Epoxy Resin	Trade Secret	10-20	0.92		0.09	899
		Phenol Resin	Trade Secret	10-20	0.92		0.09	899
		Amorphous Silica	68611-44-9	0-10	0.46		0.04	450
		Acrylic Copolymer	Trade Secret	70-80	6.90		0.67	6,746
Wire	30um					<u>3.27</u>	<u>#VALUE!</u>	<u>#VALUE!</u>
		Au	7429-90-5	99.99	#VALUE!		#VALUE!	#VALUE!
		Ion Impurities	Trade Secret	0.01	#VALUE!		#VALUE!	#VALUE!
External Plating	Solder Ball 63Sn/37Pb_0.76mm					<u>202.16</u>	<u>19.76</u>	<u>197,646</u>
		Tin (Sn)	7440-31-5	63	127.36		12.45	124,517
		Lead (Pb)	7439-92-1	37	74.80		7.31	73,129
Total						1022.84	#VALUE!	#VALUE!

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.