Package Material Composition and Mass Calculation

Customer: GSI
Package: 14X22 HFC BGA 260L
Device Type: GS8673xxxxBGK
Die Size: 10.80x13.42 mm
Total Pck. Weight (mg): 1735.3

Provided By: Corn Chen
Date: 2012/06/14

	name	composition	CAS No.	%	mg.(ave)	mg.	%	PPM
underfill	ASE UA32					30	1.73	17,288
		1,6-Bis(2,3-epoxypropoxy)naphthalene	27610-48-6	10~20	4.50		0.26	2,593
		Bisphenol F type liquid epoxy resin	9003-36-5	5~15	3.00		0.17	1,729
		Bisphenol A type liquid epoxy resin	25068-38-6	5>	0.75		0.04	432
		Amine type hardener	trade secret	5~15	3.00		0.17	1,729
		Silicon dioxide	60676-86-0	55~65	17.85		1.03	10,286
		Carbon black	1333-86-4	1>	0.15		0.01	86
		Additive	trade secret	5>	0.75		0.04	432
Substrate	AUS 320					373.8	21.54	215,409
		Acrylic Resin	N/A	1.42	5.31		0.31	3,059
		Phthalcyanine Blue, Organic Pigment	N/A	0.018	0.07		0.004	39
		Barium Sulfate, Silica, Talc	N/A	0.43	1.61		0.09	926
		Aromatic Carbonyl Compound	N/A	0.16	0.60		0.03	345
		Amine Compound	N/A	0.01	0.04		0.002	22
		Levelling Agents & Others	N/A	0.06	0.22		0.01	129
		Diethylene Glycol Monomethyl Ether Acetate	N/A	0.51	1.91		0.11	1,099
		Dipropylene Glycol Monomethyl Ether	34590-94-8	0.25	0.93		0.05	539
		High Boiling Point Petroleum Solvent	N/A	0.50	1.87		0.11	1,077
		Dipropylene Glycol Monomethyl Ether Acetat	N/A	0.07	0.26		0.02	151
		Acrylic Monomer	N/A	0.21	0.78		0.05	452
		Epoxy Resin	N/A	0.59	2.21		0.13	1,271
		Barium Sulfate	7727-43-7	0.42	1.57		0.09	905
	HL832NX-A+GHPL							
		Continuous Filament Fiber Glass	65997-17-3	25.95	97.00		5.59	55,899
		Bismaleimide	105391-33-1	8.07	30.17		1.74	17,384
		Triazine	25722-66-1	8.07	30.17		1.74	17,384
		Epoxy Resin	9003-36-5	7.50	28.04		1.62	16,156
		Epoxy Resin	N/A	7.50	28.04		1.62	16,156
		Inorganic filler	21645-51-2	0.29	1.08		0.06	625
		Inorganic filler	N/A	0.29	1.08		0.06	625
	Immersion Tin							
		Tin	N/A	0.13	0.49		0.03	280
	Cu plating							
		Copper	7440-50-8	4.03	15.06		0.87	8,681
	Cu foil							
		Copper	7440-50-8	33.14	123.88		7.14	71,387
	SOP(SAC 305)							
		Tin	7440-31-5	0.37	1.38		0.08	797
		Silver	7440-22-4	0.01	0.04		0.002	22
		Copper	7440-50-8	0.002	0.01		0.0004	4
Thermally conductive silicone a	AD01					10	0.576	5,763
		Aluminum oxide	1344-28-1	45	4.50		0.26	2,593
		Vinylpolydimethylsiloxane	68083-19-2	27.5	2.75		0.16	1,585
		Vinyl containing resin	68584-83-8	3	0.30		0.02	173
		Treated Filler	68909-20-6	24.5	2.45		0.14	1,412
Die	Silicon	Silicon	7440-21-3	100	151.30	151.3	8.719	87,190
Bump	98.2Sn/1.8Ag					6.1	0.352	3515.242
		98.2Sn of Bump	7440-31-5	98.2	5.99		0.345	3451.968
		1.8Ag of Bump	7440-22-4	1.8	0.11		0.006	63.274
Solder ball	SnAgCu 95.5/4/0.5_0.6mm					220.8	12.72	127,240
		Tin	7440-31-5	95.5	210.86		12.15	121,514
		Silver	7440-22-4	4.0	8.83		0.51	5,090
		Copper	7440-50-8	0.5	1.10		0.06	636
Heatslug	(Copper/Nickel/Chrome)					943	54.34	543,422
		Copper	7440-50-8	99.35	937		53.99	539,890
		Nickel	7440-02-0	0.6	5.66		0.33	3,261
		Chrome	-	0.05	0.47		0.03	272
Ink	Marken 4461					0.3	0.017	173
		Carbon black	1333-86-4	60	0.18		0.010	104
		Triethyl phosphate triethyl	78-40-0	13	0.04		0.002	22
		Formaldehyde	50-00-0	13	0.04		0.002	22
		Isobutyl alcohol	78-83-1	3	0.01		0.001	5
		Phenol	108-92-5	3	0.01		0.001	5
		Propylene glycol monomethyl ether acetate	108-65-6	8	0.02		0.001	14
Total						1735.300	100	1000000