Package Material Composition and Mass Calculation

Customer : NVL
Package : VFQFN 32L 5x5PKG
Device Type : nRF52811-QCAA#1X
Die Size(mm) : 2.499x2.481
Total Pkg. Wt (g): **0.07582**

Provided By : Sara Chang
Date : 11/15/2018
Rev. :

	name	vendor	material composition	CAS No.	%	mg.(ave)	mg.	%	PPM
Mold Compound	EME-G700LA TypeLA	SUMITOMO					32.50	42.864%	428,636
			Epoxy Resin	Trade secret	5-10%	2.43750		3.215%	32,148
			Phenol Resin	Trade secret	1-5%	0.97500		1.286%	12,859
			Silica(Amorphous) A	60676-86-0	70-80%	24.37500		32.148%	321,477
			Silica(Amorphous) B	7631-86-9	10-20%	4.61500		6.087%	60,866
			Carbon black	1333-86-4	0.1 - 1%	0.09750		0.129%	1,286
Leadframe	C194_Ag	SHINKO					38.44	50.692%	506,918
			Copper(Cu)	7440-50-8	0.9723	37.37085		49.288%	492,877
			Iron(Fe)	7439-89-6	2.07%	0.79562		1.049%	10,493
			Phosphorus(P)	7723-14-0	0.01%	0.00384		0.005%	51
			Zinc(Zn)	7440-66-6	0.08%	0.03075		0.041%	406
			Silver(Ag)	7440-22-4	0.61%	0.23446		0.309%	3,092
Die_1	Silicon		Silicon	7440-21-3	100%		3.02	3.988%	39,878
Die Attach_1	EN-4900G*	HITACHI					0.54	0.706%	7,062
			Silver(Ag)	7440-22-4	72-82%	0.39622		0.523%	5,226
			Acrylic resin	Trade secret	6-11%	0.04819		0.064%	636
			Polybutadiene derivative	Trade secret	2-9%	0.02677		0.035%	353
			Butadiene copolymer	Trade secret	< 2.0 %	0.00803		0.011%	106
			Acrylate	Trade secret	3-8%	0.03213		0.042%	424
			Epoxy resin	Trade secret	1-4%	0.01339		0.018%	177
			Peroxide	Trade secret	< 1.0%	0.00268		0.004%	35
			Additive	Trade secret	< 2.0%	0.00803		0.011%	106
Wire_1	Cu wire	NIPPON					0.18	0.237%	2,372
			Copper(Cu)	7440-50-8	≥96.55%	0.17909		0.2362%	2,362
			Palladium(Pd)	7440-05-3	≤3.1%	0.00022		0.0003%	3
			Gold(Au)	7440-57-5	≤0.35%	0.00054		0.0007%	7
External Plating	Sn plating	SHENMAO					1.15	1.513%	15,134
			Tin(Sn)	7440-31-5	>99.97%	1.14747		1.513%	15,134
Total							**75.82**	**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.
- Due to Leadframe and substrate is belong "re-make product" by other homogeneous material , so it's composition will be different with SDS