Package Material Composition and Mass Calculation

Customer : NVL
Package : VFQFN 16L 4x4x0.9PKG
Device Type : nRF21540-QDAA-T#3X
Die Size(mm) : 1.93x1.66
Total Pkg. Wt (mg): **49.10414**

Provided By : Anna Chang
Date : 2/7/2020
Rev. :

	name	vendor	material composition	CAS No.	%	mg.(ave)	mg.	%	PPM
Mold Compound	EME-G700LA TypeL-A	SUMITOMO					20.80	42.359%	423,589
			Epoxy Resin	Trade secret	5-10%	1.87200		3.812%	38,123
			Phenol Resin	Trade secret	1-5%	0.62400		1.271%	12,708
			Silica(Amorphous) A	60676-86-0	70-80%	16.36960		33.336%	333,365
			Silica(Amorphous) B	7631-86-9	5-10%	1.87200		3.812%	38,123
			Carbon black	1333-86-4	0.1 - 1%	0.06240		0.127%	1,271
Leadframe	C194_Ag	HDS					24.85	50.601%	506,010
			Iron(Fe)	7439-89-6	2.097~2.276%	0.52179		1.063%	10,626
			Phosphorus(P)	7723-14-0	0.015~0.131%	0.02485		0.051%	506
			Zinc(Zn)	7440-66-6	0.050~0.175%	0.02485		0.051%	506
			Copper(Cu)	7440-50-8	84.929~97.718	24.15024		49.182%	491,817
			Silver(Ag)	7440-22-4	0.120~12.48%	0.12424		0.253%	2,530
			Lead(Pb)	7439-92-1	0.000~0.009%	0.00124		0.003%	25
Die_1	Silicon		Silicon	7440-21-3	100%		2.34	4.773%	47,728
Die Attach 1	EN-4900G*	HITACHI					0.28	0.563%	5,635
			Silver(Ag)	7440-22-4	72-82%	0.20474		0.417%	4,170
			Acrylic resin	Trade secret	6-11%	0.02490		0.051%	507
			Polybutadiene derivative	Trade secret	2-9%	0.01383		0.028%	282
			Butadiene copolymer	Trade secret	< 2.0 %	0.00415		0.008%	85
			Acrylate	Trade secret	3-8%	0.01660		0.034%	338
			Epoxy resin	Trade secret	1-4%	0.00692		0.014%	141
			Peroxide	Trade secret	< 1.0%	0.00138		0.003%	28
			Additive	Trade secret	< 2.0%	0.00415		0.008%	85
Wire 1	Cu wire	NIPPON					0.17	0.351%	3,512
			Copper(Cu)	7440-50-8	≥96.55%	0.17174		0.3497%	3,497
			Palladium(Pd)	7440-05-3	≤3.1%	0.00021		0.0004%	4
			Gold(Au)	7440-57-5	≤0.35%	0.00052		0.0011%	11
External Plating	Sn plating	SHENMAO					0.66	1.353%	13,525
			Tin(Sn)	7440-31-5	>99.97%	0.66416		1.353%	13,525
Total							**49.10**	**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