



**Package Material Composition and Mass Calculation**

Customer : NVL  
 Package : nRF52832-CIAA  
 Device Type : WLCSP  
 Die Size(mm) : 2.916x3.186  
 Total Pkg. Wt (g): 0.00651

Provided By : ASECL  
 Date : 11/28/2017  
 Rev. :

	name	material composition	CAS No.	%	mg.(ave)	mg.	%	PPM
Silicon	Silicon	Silicon	7440-21-3	100%		4.26005	<u>65.472%</u>	<u>654.722</u>
Polymer 1/2	PBO (HD8820)					0.19092	<u>2.934%</u>	<u>29.342</u>
		γ-Butyrolactone (γ-Butyrolact 96-48-0		45 - 55%	0.09639		1.481%	14,815
		1-Methoxy-2-propyl acetate ( 108-65-6		1 - 10%	0.00955		0.147%	1,467
		Ethanol (Ethanol)	64-17-5	<1%	0.00095		0.015%	147
		N-Methyl-2-pyrrolidone (N-Me 872-50-4		<1%	0.00002		0.000%	3
		Non regulated ingredients (N Trade secret		<45%	0.08400		1.291%	12,910
RDL	RDL					0.35263	<u>5.420%</u>	<u>54.196</u>
		Titanium (Ti)	7440-32-6	100%	0.00419		0.064%	644
		Copper(Cu)	7440-50-8	100%	0.34844		5.355%	53,552
UBM	UBM					0.14347	<u>2.205%</u>	<u>22.050</u>
		Titanium (Ti)	7440-32-6	100%	0.00082		0.013%	126
		Copper(Cu)	7440-50-8	100%	0.14265		2.192%	21,924
Solder Ball	SnAgCu405					1.55958	<u>23.969%</u>	<u>239.690</u>
		Tin (Sn)	7440-31-5	95.50%	1.48940		22.890%	228,904
		Silver (Ag)	7440-22-4	4%	0.06238		0.959%	9,588
		Copper(Cu)	7440-50-8	0.50%	0.00780		0.120%	1,198
<b>Total</b>						<b>6.51</b>	<b>100%</b>	<b>100000</b>

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.