Chemicals contained in products

EPSON
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Package-type

Epson Package name; **QFP21-176PIN**
JEITA Package name; **P-LQFP176-2424-0.50**
Lead frame plating; **Lead(Pb) Free**
Weight; **1.96** [g] *Note1

Part	Subpart	Subpart weight [mg]	Substance name	CAS No.	Content *Note2 [mg]	Content *Note2 [ppm]	Application
IC Die	IC Die	31	Silicon	7440-21-3	30.7	999894	Base material
			Boron	7440-42-8	0.00006	2	Dopant
			Phosphorus	7723-14-0	0.0002	5	Dopant
			Aluminum	7429-90-5	0.0006	20	Metalization
			Arsenic *Note3	7440-38-2	0.0002	5	Dopant
			Fluorine *Note3	7782-41-4	0.00006	2	Dopant
			Titanium *Note3	7440-32-6	0.0006	20	Metalization
			Molybdenum *Note3	7439-98-7	0.0006	20	Metalization
			Tungsten *Note3	7440-33-7	0.0009	30	Metalization
			Cobalt *Note3	7440-48-4	0.00006	2	Metalization
	Stress buffer coat	0.61	Polyimide	-	0.61	1000000	Stress buffer coat *Note4
Package	Die Bonding material	2.6	Silver	7440-22-4	1.6	640000	Base material
			Epoxy resin	-	0.53	205000	Adhesive
			Phenol resin	-	0.21	80000	Adhesive
			Inorganic powder	-	0.13	48000	Additive
			Bismuth compound	-	0.07	27000	Ion trap
	Lead Frame Plating	22	Tin	7440-31-5	21.3	980000	Solder
			Bismuth	7440-69-9	0.43	20000	Solder
	Lead Frame	433	Copper	7440-50-8	409	945000	Conductor
			Silver	7440-22-4	2.2	5000	Inner l ead plating
			Others *Note5	-	21.6	50000	Additive
	Bonding Wire	4.5	Gold	7440-57-5	4.5	1000000	Conductor
	Mold resin	1467	Epoxy resin	-	73.3	50000	Base material
			Antimony trioxide	1309-64-4	5.9	4000	Flame retardant
			Halogenated compound(Brominations epoxy)	-	13.2	9000	Flame retardant
			Silica	60676-86-0/-	1184	807000	Filler
			Carbon black	1333-86-4	22.0	15000	Coloring agent
			Hardening chemical(ex:Phenol resin)	-	88.0	60000	Base material
			Organic phosphorous compound	-	7.3	5000	Hardening accelerator
			others	-	73.3	50000	Additive

Regarding the information of chemical substances

*Note1 The weight might be somewhat different depending on an individual built-in IC-chip specification like the size etc.
*Note2 Content data are estimated values based on supplier information and intended levels of content in product.
Actual measurements may vary from these values somewhat.
*Note3 Use or not-use of these substances depends on individual built-in IC-chip specification.
*Note4 The stress buffer coat may not be used depending on the individual model.
*Note5 The nickel, zinc, tin, silicon, iron, and the zinc oxide are included for the Cu type. And the carbon, silicon, and manganese are included for 42alloy type.