Chemicals contained in products

Package-type

Epson Package name; **PFBGA10U-121 / Halogen free**
JEITA Package name; **(P-TFBGA-121-1010-0.80)**
Solder ball Type; **Lead(Pb) Free**
Weight; **0.19** [g] *Note1

Part	Subpart	Subpart weight [mg]	Substance name	CAS No.	Content ※2 [mg]	Content ※2 [ppm]	Application
IC Die	IC Die	29.7	Silicon	7440-21-3	29.7	999914	Base material
			Boron	7440-42-8	0.00006	2	Dopant
			Phosphorus	7723-14-0	0.00015	5	Dopant
			Aluminum	7429-90-5	0.0006	20	Metalization
			Arsenic *Note3	7440-38-2	0.00015	5	Dopant
			Fluorine *Note3	7782-41-4	0.00006	2	Dopant
			Titanium *Note3	7440-32-6	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	0.59	Polyimide	-	0.59	1000000	Stress buffer coat *Note4
Package	Substrate	40.3	Glass-cloth	-	7.10	175310	Reinforcement
			Barium Sulfate	7727-43-7	1.60	40790	Additive
			Epoxy resin	-	7.90	197180	Base material
			Acrylate resin	-	2.40	57800	Base material
			Pigment	-	1.00	25520	Additive
			Organic filler	-	0.13	3400	Filler
			Zinc	7440-66-6	0.037	920	Characteristic preserve
			Chromium	7440-47-3	0.0012	30	Characteristic preserve
			Copper	7440-50-8	16.90	419050	Copper foil
			Nickel	7440-02-0	2.60	64000	Plating
			Gold	7440-57-5	0.64	16000	Plating
	Die Bonding material	2.84	Epoxy resin	-	1.90	670000	Adhesive
			Acrylic resin	-	0.94	330000	Adhesive
	Solder ball	23.54	Tin	7440-31-5	22.50	957500	Solder ball
			Silver	7440-22-4	0.86	35000	Solder ball
			Copper	7440-50-8	0.18	7500	Solder ball
	Bonding Wire	1.20	Gold	7440-57-5	1.20	1000000	Conductor
	Mold resin	91.84	Epoxy resin	-	4.60	50000	Base material
			Silica	60676-86-0/-	80.20	873000	Filler
			Carbon black	1333-86-4	0.18	2000	Coloring agent
			Hardening chemical(ex:Phenol resin)	-	4.60	50000	Base material
			Organic phosphorous compound	-	0.46	5000	Hardening accelerator
			others	-	1.80	20000	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.