Chemicals contained in products

EPSON
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Package-type

Epson Package name; **PFBGA13U-177 / Mold : Halogen free**
JEITA Package name; **(P-TFBGA-177-1313-0.80)**
Solder ball Type; **Lead(Pb) Free**
Weight; **0.32** [g] *Note1

Part	Subpart	Subpart weight [mg]	Substance name	CAS No.	Content ※2 [mg]	Content ※2 [ppm]	Application
IC Die	IC Die	19	Silicon	7440-21-3	19.3	999894	Base material
			Boron	7440-42-8	0.00004	2	Dopant
			Phosphorus	7723-14-0	0.0001	5	Dopant
			Aluminum	7429-90-5	0.0004	20	Metalization
			Arsenic *Note3	7440-38-2	0.0001	5	Dopant
			Fluorine *Note3	7782-41-4	0.00004	2	Dopant
			Titanium *Note3	7440-32-6	0.0004	20	Metalization
			Molybdenum *Note3	7439-98-7	0.0004	20	Metalization
			Tungsten *Note3	7440-33-7	0.0006	30	Metalization
			Cobalt *Note3	7440-48-4	0.00004	2	Metalization
	Stress buffer coat	0.39	Polyimide	-	0.39	1000000	Stress buffer coat *Note4
Package	Substrate	71	Glass-cloth	-	3.7	52140	Reinforcement
			Silica	-	1.9	26180	Filler
			Halogenated compound(Brominations epoxy)	-	5.9	81400	Flame retardant
			Epoxy resin	-	6.2	86280	Base material
			Acrylate resin	-	3.9	54600	Base material
			Pigment	-	3.4	46800	Additive
			Organic filler	-	0.19	2600	Filler
			Arsenic	7440-38-2	0.002	26	Burning resistance
			Chromium compound	-	0.001	20	Burning resistance
			Copper	7440-50-8	44.9	629154	Copper foil
			Nickel	7440-02-0	1.2	16900	Plating
			Gold	7440-57-5	0.28	3900	Plating
	Die Bonding material	5.0	Epoxy resin	-	3.4	670000	Adhesive
			Acrylic resin	-	1.6	330000	Adhesive
	Solder ball	36	Tin	7440-31-5	34.6	957500	Solder ball
			Silver	7440-22-4	1.2	35000	Solder ball
			Copper	7440-50-8	0.27	7500	Solder ball
	Bonding Wire	2.2	Gold	7440-57-5	2.2	1000000	Conductor
	Mold resin	185	Epoxy resin	-	9.3	50000	Base material
			Silica	60676-86-0/-	161.80	873000	Filler
			Carbon black	1333-86-4	0.37	2000	Coloring agent
			Hardening chemical(ex:Phenol resin)	-	9	50000	Base material
			Organic phosphorous compound	-	0.91	5000	Hardening accelerator
			others	-	3.7	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.