Chemicals contained in products

EPSON
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Package-type

Epson Package name； **PFBGA10U-160 / Halogen free**
JEITA Package name； **(P-TFBGA-160-1010-0.65)**
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	21.9	Silicon	7440-21-3	21.9	999894	Base material
			Boron	7440-42-8	0.00004	2	Dopant
			Phosphorus	7723-14-0	0.00011	5	Dopant
			Aluminum	7429-90-5	0.0004	20	Metalization
			Arsenic *Note3	7440-38-2	0.00011	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	0.0007	30	Metalization
			Cobalt *Note3	7440-48-4	0.00004	2	Metalization
	Stress buffer coat	0.44	Polyimide	-	0.44	1000000	Stress buffer coat *Note4
Package	Substrate	39.4	Glass-cloth	-	6.90	175310	Reinforcement
			Silica	-	1.60	40790	Filler
			Epoxy resin	-	7.80	197180	Base material
			Acrylate resin	-	2.30	57800	Base material
			Pigment	-	1.00	25520	Additive
			Organic filler	-	0.13	3400	Filler
			Zinc	7440-66-6	0.036	920	Burning resistance
			Chromium	7440-47-3	0.0012	30	Burning resistance
			Copper	7440-50-8	16.50	419050	Copper foil
			Nickel	7440-02-0	2.50	64000	Plating
			Gold	7440-57-5	0.63	16000	Plating
	Die Bonding material	2.72	Epoxy resin	-	1.80	670000	Adhesive
			Acrylic resin	-	0.92	330000	Adhesive
	Solder ball	12.85	Tin	7440-31-5	12.30	957500	Solder ball
			Silver	7440-22-4	0.45	35000	Solder ball
			Copper	7440-50-8	0.10	7500	Solder ball
	Bonding Wire	3.10	Gold	7440-57-5	3.10	1000000	Conductor
	Mold resin	109.47	Epoxy resin	-	5.50	50000	Base material
			Silica	60676-86-0/-	95.50	873000	Filler
			Carbon black	1333-86-4	0.22	2000	Coloring agent
			Hardening chemical(ex:Phenol resin)	-	5.50	50000	Base material
			Organic phosphorous compound	-	0.55	5000	Hardening accelerator
			others	-	2.20	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.