Chemicals contained in products

EPSON
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Package-type

Epson Package name; **VFBGA10H-144 / Halogen free**
JEITA Package name; **(P-VFBGA-144-1010-0.80)**
Solder ball Type; **Lead(Pb) Free**
Weight; **0.16** [g] *Note1

Part	Subpart	Subpart weight [mg]	Substance name	CAS No.	Content *Note2 [mg]	Content *Note2 [ppm]	Application
IC Die	IC Die	5.5	Silicon	7440-21-3	5.5	999894	Base material
			Boron	7440-42-8	0.00001	2	Dopant
			Phosphorus	7723-14-0	0.00003	5	Dopant
			Aluminum	7429-90-5	0.0001	20	Metalization
			Arsenic *Note3	7440-38-2	0.00003	5	Dopant
			Fluorine *Note3	7782-41-4	0.00001	2	Dopant
			Titanium *Note3	7440-32-6	0.0001	20	Metalization
			Molybdenum *Note3	7439-98-7	0.0001	20	Metalization
			Tungsten *Note3	7440-33-7	0.0002	30	Metalization
			Cobalt *Note3	7440-48-4	0.00001	2	Metalization
	Stress buffer coat	0.11	Polyimide	-	0.11	1000000	Stress buffer coat *Note4
Package	Substrate	41.24	Glass-cloth	-	7.20	132000	Reinforcement
			Silica	-	1.70	66000	Filler
			Epoxy resin	-	8.10	164300	Base material
			Acrylate resin	-	2.40	85000	Base material
			Pigment	-	1.00	49300	Additive
			Organic filler	-	0.14	3400	Filler
			Arsenic	7440-38-2	0.04	85	Burning resistance
			Chromium compound	-	0.001	14	Burning resistance
			Copper	7440-50-8	17.30	419901	Copper foil
			Nickel	7440-02-0	2.70	64000	Plating
			Gold	7440-57-5	0.66	16000	Plating
	Die Bonding material	2.86	Epoxy resin	-	1.90	670000	Adhesive
			Acrylic resin	-	0.96	330000	Adhesive
	Solder ball	28.68	Tin	7440-31-5	27.50	957500	Solder ball
			Silver	7440-22-4	0.96	35000	Solder ball
			Copper	7440-50-8	0.22	7500	Solder ball
	Bonding Wire	3.10	Gold	-	3.10	1000000	Conductor
	Mold resin	78.45	Epoxy resin	-	3.90	50000	Base material
			Silica	60676-86-0/-	68.50	873000	Filler
			Carbon black	1333-86-4	0.16	2000	Coloring agent
			Hardening chemical(ex:Phenol resin)	-	3.90	50000	Base material
			Organic phosphorous compound	-	0.39	5000	Hardening accelerator
			Others	-	1.60	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.