



# **Eco-friendly Management Standard**

**Quality Assurance Department**

## 1. Regulated Substances List

It is classified and regulated as Level A and Level B substances, and the supplier must be managed in accordance with the following classification.

### 1.1 Substance Level A

Substance Level A refers to substances whose use is prohibited by law of the local and relevant countries due to the fact that they are considered as harmful to human environment.

- 1) Level A-I: Substances as 6 kinds of environmental hazardous substances specified by EU RoHS Directive (2011/65 / EC), prohibited from delivery and use if the maximum acceptable concentration that Bluebird assigns is exceeded.

Division	Substance	Tolerance (mg / kg)	Regulation Law
1	Lead and compounds	Refer to Page 5.	EU RoHS/Battery/Packaging Directive EU REACH Regulation US California. Proposition 65
2	Cadmium and its compounds		EU RoHS/Battery/Packaging Directive EU REACH Regulation
3	Mercury and its compounds		EU RoHS/Battery/Packaging Directive EU REACH Regulation
4	Hexavalent chromium and its compounds		EU RoHS/Packaging Directive EU REACH Regulation
5	PBBs		EU RoHS Directive EU REACH Regulation
6	PBDEs		EU RoHS Directive EU REACH Regulation
7	DEHP (Bis phthalate)		EU RoHS Directive EU REACH Regulation / (EU) 2015/863
8	BBP (Benzylbutyl phthalate)		EU RoHS Directive EU REACH Regulation / (EU) 2015/863
9	DBP (Dibutyl phthalate)		EU RoHS Directive EU REACH Regulation / (EU) 2015/863
10	DIBP (Disobutyl phthalate)		EU RoHS Directive EU REACH Regulation / (EU) 2015/863

- 2) Level A-II: Substances as environmental hazardous substances restricted to use by national laws or international agreements other than EU RoHS Directive, prohibited from being delivered and used in case of the concentration exceeds the allowable concentration

Division	Substance	Tolerance (mg / kg)	Regulation Law
1	Polychlorinated biphenyls(PCBs) Polychlorinated naphthalenes(PCNs) Polychlorinated terphenyls(PCTs)	50	EU REACH Regulation OSPAR Priority Chemical
2	Pentachlorophenol (PCPs)	5	EU REACH Regulation PoHS
3	Paraffin chloride SCCP (Short-chain chlorinated paraffin, C10-13)	1000	OSPAR Priority Chemical EU REACH Regulation
4	Paraffin chloride MCCP (Medium-chlorinated paraffin, C14-C17)	1000	OSPAR Priority Chemical EU REACH Regulation PoHS
5	PFOS(Perfluorooctane sulfonate) Perfluorinated Compounds	Part: 50	EU REACH Regulation
6	Perfluorinated Compounds PFOA (Perfluorooctanoic acid)	Half / Finished Product: 1000 Fiber, Coating: 1µg / m <sup>2</sup>	EU REACH Regulation PoHS
7	Nickel and its compounds	0.28µg-Ni/m <sup>2</sup> /week	
8	Asbestos	N.D	EU REACH Regulation
9	Azo compounds	30	
10	Ugilec121, 141, DBBT	N.D	
11	Organic Tin compounds)	1000	EU REACH Regulation
12	Arsenic and its compounds)	100	
13	Ozone Depletion / Global Warming Substances	N.D	Montreal/Kyoto Protocol EU REACH Regulation
14	Polycyclic aromatic hydrocarbons	N.D	EU REACH Regulation Germany GS mark
15	Formaldehyde	0.1 or 0.15mg/m <sup>3</sup>	ChemG (Germany), Formalin Act (Denmark)
16	DMF(DimethylFumarate)	N.D	2009/251/EC Directive
17	Other than Phthalates_Level 1	Sum 1000	ANNEX XVII of REACH Regulation (EC) No 1907/2006 California Proposition 65 US CPSC Public Law 110-314
18	BisphenolA	N.D	France ACT N.2012-1442 of 24 Dec.2012 to suspend manufacture, import, export and placing on the market of any packaging for food containing Bisphenol A

19	HBCDD	N.D	Norway: Product Regulation No. 922 of 2004 - Amendment; ANNEX XVII of REACH Regulation (EC) No 1907/2006
20	Nonylphenol, Noylphenol Ethoxylate	N.D	Turkey Hazardous Chemical Content of some Consumer Products

### 1.2 Level B- I

It refers to substances that are suspected to be harmful to humans and the global environment, being dispose of in a certain period of time spontaneously by the company

Division	Substance	Tolerance (mg/kg)	Do not use
1	Vinyl chloride resin (PVC, Polyvinyl chloride)	N.D	2020.01.01
2	Brominated Flame Retardants(PBBs, PBDEs)	Br : 800 (HBCDD : 100)	2020.01.01
3	Chlorine Flame Retardant	Cl : 800	2020.01.01
4	Halogen (Br, Cl)	Br: 800, Cl: 800 Br+Cl: 1500	2020.01.01

# PVC is exempt when it comes to wire and its belongings.

### 1.3 Level B-II

It refers to substances that are suspected to be harmful to humans and the global environment, not prohibited at this time but expected to be banned in the future.

Division	Substance
1	Selenium and its compounds, including alloy
2	Bismuth and its compounds, including alloy
3	Volatile Organic Compound
4	Triclosan
5	Surfactants
6	Boron and its compounds
7	Acrylamide
8	2-methoxyethanol
9	2-ethoxyethanol
10	2-ethoxyethyl acetate
11	Hydrazine

12	1-methyl-2-pyrrolidone
13	1,2,3-trichloropropane

## 2. Management standards for RoHS and Halogen

The parts and all materials provided to Bluebird shall meet RoHS and Halogen material standards by each homogenous material as follows.

### 2.1 RoHS and Halogen Precision Analysis

- 1) Subject : All homogeneous materials consisting of the part Note 1)
- 2) Test Method: IEC62321 (RoHS) / EN14582, EN50267-2-1 (Halogen)
  - \*\* The same analysis method but with different method name is allowed
- 3) Maximum allowable value for each substance : see the table below
- 4) Validity: 2 years
- 5) Test and Analysis Institution: Hazardous Substance Analysis Lab with ISO17025 certification from a national accreditation organization.

Division		RoHS										Halogen		
		Pb	Cd	Hg	Cr6+	PBBs	PBDEs	BBP	DBP	DEHP	DIBP	Br	Cl	Br+Cl
Organic matter	plastic, Paint, Ink, Paper, glue	800	80	800	800	800	800	800	800	800	800	800	800	1500
	metal	800	80	800	Negative	-	-	-	-	-	-	-	-	-
Mineral	ceramic, glass	800	80	800	800	-	-	-	-	-	-	-	-	-
	Packing materials	Sum 100 (& Cd <50)		-	-	-	800	800	800	800	800	800	800	1500
Surface treatment Note 2)	Plating deposition Anodizing	800	75	500	Negative	-	-	-	-	-	-	-	-	-
Battery Cell Note 3)		40	20	5	-	-	-	-	-	-	-	800	800	1500
Solder Note 4)	Solder Bar/Wire/Ball Cream(paste)	800	75	500	500	500	500	-	-	-	-	800	800	1500

Note 1) Homogeneous material: Material with no longer separated into individual substances by mechanical means

-Mechanical means: In principle, means of dismantling screws, cutting, shredding, grinding, grinding.

Note 2) Surface treatment: plating / deposition / anodizing

- Base material (metal / plastic): Precise analysis (RoHS, Halogen) with raw material before post-processing
- Post-processing (surface treatment): Performs precise analysis (RoHS) of raw materials.

Note 3) Battery Cell: Accurately analyze the battery cell according to the EU Battery directive.

Battery homogeneous materials other than cells comply with RoHS regulations.

But, Halogen material is analyzed by the homogeneous material unit of all batteries including cells.

Note 4) Precision analysis of solder

RoHS: Solder (wire, ball, bar, cream (paste)) is analyzed.

Halogen: Solder is separated into Alloy and Flux to analyze only Flux