

Find comments and changes since last revision at the end of the document.

The Sony Ericsson Lists of Banned and Restricted Substances

1 Purpose

The purpose is to comply with the Sony Ericsson Environmental Quality Policy and to meet legislative and market requirements in the countries, where we sell products.

2 Directive

The lists contained in this document specify the chemical substances that are banned or restricted for the use in certain circumstances in Sony Ericsson's products and manufacturing operations.

Sony Ericsson will work with its suppliers to eliminate such substances in procured material.

The substances in question are categorized in two classes, namely banned substances and restricted substances

- Banned substances are prohibited from being added to our products, even in low concentrations,
- Restricted substances may be used only under very limited conditions and are generally targeted for elimination and shall be phased out as soon as possible and replaced with technically and economically acceptable alternatives.

The ban or restriction does not apply in any case where such a presence derives from natural impurities, that is, an undesired presence in very small concentrations.

3 Application

Sony Ericsson's suppliers, vendors and manufacturing partners are responsible for implementing their respective part of these requirements and guidelines. Product management, product design functions, industrialization, sourcing, CTO office and manufacturing & supply chain management functions shall internally implement their respective part of these requirements and guidelines

The Sony Ericsson list of banned substances (in products)

Group of substances	Substance	CAS-number	Main areas of use	Main risks
Metals and their compounds	Beryllium oxide (BeO)	1304-56-9	Component heat sink	Carcinogenic
	Cadmium and its compounds	Various	Stabilizers or pigments in plastics, ceramics in capacitors, batteries	Toxic
	Chromium (VI) compounds	Various	Corrosion inhibitors, pigments in plastics and inks, leather tanning	Allergenic, carcinogenic
	Lead and its compounds	Various	Plastics, printing inks, solders, surface finishes	Bioaccumulative
	Mercury and its compounds	Various	Batteries	Toxic
	Nickel, nickel alloys except in steel alloys and nickel compounds. Application see clause 4.	Various	Decorative metal finishes, barrier layers	Allergenic
Halogenated flame retardants	Polybrominated biphenyls (PBBs)	Various	Plastics	Bioaccumulative
	Polybrominated diphenylethers (PBDEs)	Various		Ecotoxic
	Tetrabromobisphenol-A (TBBA), reactive or additive. Exemptions see clause 4.	79-94-7	Printed boards, plastics	Bioaccumulative
	All others. Exemptions see clause 4.	Various	Plastics	
Polymers	All chlorinated polymers including polyvinylchloride (PVC) and PVC blends	Various	Packaging, electronic and mechanical equipment	Corrosion and/or risk of formation of chlorinated dibenzodioxins and -furans at uncontrolled fire
Chlorinated hydrocarbons	Chloroparaffins (C10-C13; Cl > 50 weight %)	63449-39-8	Lubricants, plasticizers, flame retardants	Bioaccumulative
	Hexachlorobenzene	118-74-1	Pigment feedstock	Carcinogenic
	Polychlorinated biphenyls (PCBs)	1336-36-3	Lubricants, oils for capacitors	Bioaccumulative
	Polychlorinated naphthalenes (PCNs)	70776-03-3	Lubricants, preservatives	
	Polychlorinated terphenyls (PCTs)	61788-33-8		
Other organic compounds	Azocolorants that can decompose to carcinogenic aromatic amines and azodyes listed in EU directives 2002/61/EC and 2003/3/EC. Applicable only when in direct and prolonged skin contact.	Various	Plastics and leather	Carcinogenic
	Formaldehyde	50-00-0	Textiles, leather, wood preservatives	
	Organic tin compounds (Tributyl tin and triphenyl tin compounds)	Various	Stabilizers in plastics and printing inks	Toxic
Other inorganic compounds	Asbestos	Various	Insulators	Carcinogenic

The Sony Ericsson list of banned substances (in production)

Group of substances	Substance	CAS-number	Main areas of use	Main risk
Halogenated hydrocarbons	Chlorofluorocarbons (CFCs)	Various	Solvents and refrigerants	Ozone depletion
	Chloroflourohydrocarbons (HCFCs)	Various		
	Methyl bromide. Not applicable for certain regulated quarantine and pre-shipment purposes.	74-83-9	Pesticide	
	Carbon tetrachloride	56-23-5	Solvents	
	Chlorobromomethane	74-97-5		
	n-bromopropane	106-94-5		
	1.1.1-trichloroethane	71-55-6		
	Methylene chloride	75-09-2		
	Tetrachloroethylene (Perchloroethylene)	127-18-4		
	Trichloroethylene	79-01-6		
Other organic compounds	Nonylphenol	25154-52-3	Surfactants	Bioaccumulative
	Nonylphenolpolyglycoethers (Nonylphenoethoxylates)	9016-45-9		

The Sony Ericsson list of restricted substances (in products)

Group of substances	Substance	CAS-number	Main areas of use	Main risks	Phase out date
Metals and their compounds	Antimony and its compounds except in solder alloys (< 2% Sb)	Various	Flame retardants in plastics	Toxic, negative for recycling	1/1 2008
	Beryllium, beryllium alloys and beryllium compounds	Various	Connectors	Carcinogenic	1/1 2008
Halogenated flame retardants	Tetrabromobisphenol-A (TBBA), reactive or additive. Exemptions see clause 4.	79-94-7	Epoxy resin of the adhesive for dynamic Flexible Printed Circuit boards under mechanical stress and molds and substrates for electrical components	Bioaccumulative	1/1 2008
	All others. Exemptions see clause 4.	Various			
Plasticizers	Phthalates	Various	Polyvinylchloride (PVC)	Bioaccumulative, ecotoxic	1/1 2008
Other inorganic compounds	Perchlorates	Various	Primary Li/MnO ₂ (CR) batteries	Disruption of hormone production	TBD

The Sony Ericsson list of restricted substances (in production)

Group of substances	Substance	CAS-number	Main area of use	Main risk
Halogenated hydrocarbons	Fluorocarbons (FCs)	Various	Refrigerants	Global warming potential
	Fluorohydrocarbons (HFCs) except refrigerants	Various	Solvents	
	Perfluorooctane sulphonate (PFOS) related substances	Various	Metal plating	Bioaccumulative, ecotoxic

4 Comments

Phase-out date: The date when a substance must not be used in new products based on new electrical platforms.

Cadmium and its compounds: The acceptable maximum concentration value (MCV) in each homogeneous material is 5 mg/kg (ppm) for plastics, inks, paints, rubber and resins and 100 mg/kg (ppm) for all other materials. Special requirements are valid for packaging materials and batteries. Cadmium in optical and filter glass is exempted.

Chromium (VI) compounds: The acceptable MCV in each homogeneous material is 10 mg/kg (ppm) for leather and 1000 mg/kg (ppm) for all other materials. Special requirements are valid for packaging materials and batteries.

Lead and its compounds: The acceptable MCV in each homogeneous material is 100 (ppm) for plastics, inks, paints, rubber and resins and 1000 mg/kg (ppm) for all other materials. Special requirements are valid for packaging materials and batteries.

Lead and its compounds in the following applications are exempted:

- in glass of electronic components
- as an alloying element in steel up to 0.35 % lead by weight, in aluminum up to 0.4 % lead by weight and in a copper alloy up to 4 % lead by weight
- in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead)
- in electronic ceramic parts
- in compliant pin connector systems
- in optical and filter glass
- in solders consisting of more than two elements for the connection between the pins and the package of microprocessors with a lead content of more than 80 % and less than 85 % by weight
- in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages
- as an impurity/an alloying element in all other metals and alloys up to 0.1 % lead by weight

Mercury and its compounds: The acceptable MCV in each homogeneous material is 5 mg/kg (ppm) for plastics, inks, paints, rubber and resins and 1000 mg/kg (ppm) for all other materials. Special requirements are valid for packaging materials and batteries.

Nickel, nickel alloys except in steel alloys and nickel compounds: The ban is applicable to metal surfaces including metal plated plastic surfaces when in direct and prolonged skin contact. The maximum acceptable emission rate of nickel is 0.5 $\mu\text{g}/\text{cm}^2 \cdot \text{week}$ when tested according to EN 1811:1999.



Halogenated flame retardants: The ban is applicable to chlorinated and brominated flame retardants, i.e organic compounds containing chlorine and/or bromine.

The acceptable MCV of polybrominated biphenyls (PBBs) and polybrominated diphenylethers (PBDEs) in each homogeneous material is 1000 mg/kg (ppm). The acceptable MCV in each epoxy resin printed wiring board (PWB) material (laminate, prepreg and resin coated copper (RCC) foil) and component material (substrate and mold) is when calculated on

- its resin (without glass fibers and/or other fillers):
 - 1 800 mg/kg (ppm) bromine
 - 1 800 mg/kg (ppm) chlorine
 - 3 000 mg/kg (ppm) bromine+chlorine
- its resin and reinforcement (with glass fibers and/or other fillers):
 - 900 mg/kg (ppm) bromine
 - 900 mg/kg (ppm) chlorine
 - 1 500 mg/kg (ppm) bromine+chlorine

The acceptable MCV:s in epoxy resin adhesives calculated on each homogeneous material are the same as for PWB materials calculated on their resin.

The acceptable MCV in all other plastics calculated on each homogeneous material is

- 900 mg/kg (ppm) bromine
- 900 mg/kg (ppm) chlorine
- 1 500 mg/kg (ppm) bromine+chlorine

PBBs and PBDEs shall be calculated as above.

These two areas of use are exempted:

- Halogenated flame retardants in the epoxy resin of the adhesive for dynamic Flexible Printed Circuit boards under mechanical stress until the end of 2007.
- Halogenated flame retardants in the epoxy resin of molds and substrates for electrical components until the end of 2007. However products based on electrical platforms and electrical components launched before 2007 may continue to use those components.

Other metals and their compounds: The acceptable MCV in each homogeneous material is 1000 mg/kg (ppm). Antimony in solder is accepted up to 2% by weight and beryllium in berylliumcopperalloys up to 3% by weight.

Other substances: The acceptable MCVs in each textile or leather article of the listed aromatic amines and azodyes in the EU directive 2003/3/EC are 30 mg/kg (30 ppm) and 1000 mg/kg (1000 ppm) respectively.

In general, the limit value for formaldehyde emission is 0.1 ml/m³ (special testing procedure). For textiles and leather the acceptable MCVs in each article are 30 mg/kg (30 ppm) in direct and 300 mg/kg (300 ppm) not in direct skin contact respectively.

The acceptable MCV in each homogeneous material is 50 mg/kg (50 ppm) for polychlorinated biphenyls (PCBs), polychlorinated naphthalenes (PCNs) and polychlorinated (PCTs), 100 mg/kg (100 ppm) for asbestos and 1000 mg/kg (1000 ppm) for most other substances.

A specified MCV for perchlorates in batteries is not applicable.

Packaging: The acceptable sum concentration of cadmium, mercury, lead and hexavalent chromium in each packaging component is 100 mg/kg (ppm). In each cured printing ink the acceptable MCV of cadmium and lead must not exceed 5 mg/kg (5 ppm) and 100 mg/kg (100 ppm) respectively.

5 Changes since last revision

General	<ol style="list-style-type: none"> 1. Changed: The columns Chemical name have been deleted and merged with the columns substance.
Banned substances in products	<ol style="list-style-type: none"> 1. Changed: Halogenated flame retardants: No specification of separate PBBs and PBDEs. All PBBs and PBDEs are banned. 2. Changed: Halogenated flame retardants: Corrected the TBBA CAS-number to 79-94-7. 3. Changed: Polymers: All chlorinated polymers including polyvinylchloride (PVC) and PVC blends. 4. Added: Chlorinated hydrocarbons: Hexachlorobenzene. 5. Added/changed: Other organic substances: Substance: Azocolorants that can decompose to carcinogenic aromatic amines and azodyes listed in the EU directives 2002/61/EC and 2003/3/EC. 6. Changed: Other organic substances: Azocolorants etc: Main area of use: Plastics and leather. 7. Added: Other organic substances: Formaldehyde: Main area of use: Textiles, leather.
Restricted substances in products	<ol style="list-style-type: none"> 1. Changed: Metals and its compounds: Substance: Beryllium, beryllium alloys and beryllium compounds. 2. Changed: Halogenated flame retardants: Main area of use: Epoxy resin of the adhesive for dynamic Flexible Printed Circuit boards under mechanical stress and the molds and substrates for electrical components. 3. Deleted: Group of substances: Polymers. 4. Added: Group of substances: Other inorganic compounds. Perchlorates.
Comments	<ol style="list-style-type: none"> 1. Changed: Halogenated flame retardants: These two areas of use are exempted: <ul style="list-style-type: none"> • Halogenated flame retardants in the epoxy resin of the adhesive for dynamic Flexible Printed Circuit boards under mechanical stress until the end of 2007. • Halogenated flame retardants in the epoxy resin of molds and substrates for electrical components until the end of 2007. However products based on electrical platforms and electrical components launched before 2007 may continue to use those components. 2. Added: Other substances.