

Standards Pertaining to Procurement Restrictions for the Inclusion of Chemical Substances in Products (for Suppliers)

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NEC Corporation

Principle

In principle, NEC (including the NEC Group) does not procure products containing any of the “banned substances” or “conditionally banned substances” in Table 1. NEC's suppliers are basically not supposed to use any of the “banned substances” or “conditionally banned substances” in Table 1 in the products they sell to NEC. This requirement is concerned with product quality and if a product contains any of the “banned substances” or “conditionally banned substances” in Table 1 without the consent of NEC, this will be regarded as a quality defect and the supplier shall assume liability for defect warranty as per the contract.

Table 1 List of Banned Substances

Classification	No.	Name of Substance Group
Banned substances	1	PCB (Polychlorinated byphenyl)
	2	Polychlorinated naphthalenes (with more than 3 chlorine atoms)
	3	Bis (tributyltin) oxide
	4	Tributyltin compounds and triphenyltin compounds
	5	Asbestos
	6	Short-chained chlorinated paraffin (carbon number: 10-13, chlorine content: 50 wt%)
	7	Ozone depleting substances (Montreal Protocol on Substances: Class I)
Conditionally banned substances	8	Cadmium and its compounds
	9	Lead and its compounds
	10	Mercury and its compounds
	11	Chromium VI compounds
	12	PBB (Polybrominated biphenyl)
	13	PBDE (Polybrominated diphenyl ether)
	14	Nickel and its compounds (Scope: components that come into contact with human body)
	15	Azo dye (Scope: components that come into contact with human body)

1 Purpose

NEC has internally and externally declared that it will give priority to the environmentally conscious products of companies that actively address environmental conservation by establishing the “GREEN PROCUREMENT GUIDELINES (FOR SUPPLIERS)” in August 2002.

Since then, the social environment surrounding environmental products has considerably changed. For example, restrictions on substances used in products have increased. Especially, the RoHS Directive^{*1} established by the European Commission basically restricts the use of specified substances in electrical and electronic products sold in the European Union from July 2006. Furthermore, similar laws and regulations are established or scheduled to be established in other countries. Products free from banned substances are also being demanded in Japan as customers' requirement of green procurement.

NEC is determined to conform to the domestic and international restrictions that pertain to product substances. Therefore, materials, parts and other products that NEC procures to make up NEC systems as well as electrical and electronic products are required to conform to such restrictions basically.

2 Scope of Application

Standards hereof cover all of the tangible products that are procured to make up NEC systems as well as electrical and electronics products basically.

3 Banned Substances and Conditionally Banned Substances^{*2}

The restriction details of conditionally banned substances are shown in Table 2. Examples and descriptions of the substances prohibited by the RoHS Directive are in “Appendix 1.”

It is prohibited to intentionally use banned substances. Even impurities must not contain any more conditionally banned substances than the acceptable levels of concentration in Table 2.

Unless otherwise specified, the values in Table 2 are regarded as the acceptable concentrations. If drawings, specifications or other documents regarding procured products include specific acceptable concentrations, those specifications are to be used. Note that the supplier has a responsibility to check and guarantee the content and concentration.

4 Calculation of Concentration

The concentration is calculated per “part.” The concentration should be lower than the acceptable concentration in every part of product.

The part refers to the homogeneous block that cannot be further divided.

For part examples, refer to “Appendix 2.”

The denominator for concentration calculation is the “part's mass.”

The numerator for concentration calculation is the “mass of banned substance in that part.” In the case of metallic compounds, convert the value into the net weight of the metallic element (Example: The molecular weight of cadmium chloride (CdCl_2) is 183 and that of cadmium is 114. So, cadmium accounts for 62% of cadmium chloride. Hence, if the part contains 1 g. of cadmium chloride, the weight of cadmium would be 0.62 g.).

5 Request for Warranty Submission

NEC requires the supplier to submit a warranty to prove that none of the products contain any more banned substances than the acceptable levels of concentration. The submitted warranty should be approved by the supplier's representative. Even if a warranty is not submitted, the supplier is not excused from liability for defect warranty.

6 Analysis Measurement

NEC may perform acceptance test against procured products to analyze and measure the restricted substances and substance groups. NEC can also request analysis and measurement from the supplier. If the analysis result (including the analysis result obtained by NEC's customer) proves that the product contains any more banned substances than the acceptable levels of concentration, NEC will ask the supplier to conduct a thorough investigation to determine the cause (this includes pursuit of liability for defect warranty).

7 Exemption

Standards hereof do not apply when NEC agrees on the exemption in writing and so on, or if drawings, specifications or other documents clarify the exemption.

8 Revision

The modifications made to standards hereof are posted on the NEC Website.

Standards hereof are subject to change without prior notice. Confirm with the ordering department.

*1: RoHS Directive:

Abbreviation of the Restriction of the use of certain Hazardous Substances in electrical and electronic equipment (2002/95/EC). This EU law prohibits the sales of electrical and electronic products containing specific heavy metals (lead, mercury, cadmium, hexavalent chromium) or bromine flame retardant (PBB and PBDE) in the EU market after July 1, 2006.

*2: Conditionally Banned Substances:

Although these substances are basically banned from products, there are conditions regarding the object, application, threshold and other items. For details, refer to Table 2. Note that NEC now regards four elements conventionally specified as "totally banned substances" (lead, mercury, cadmium, hexavalent chromium) as "conditionally banned substances."

Table 2 Restrictions on Conditionally Banned Substances

No.	Name of Substance Group		Major Application or Scope	Threshold
8	Cadmium and its compounds	a	All excluding the following b,c and d. (based on the RoHS Directive 2002/95/EC)	*1
		b	Additives(stabilizer and coloring agent) added to plastic and resin, paint, pigment, ink	100 ppm
		c	Plating (Except for electrical contact plating for reliability)	Intentional addition prohibited
		d	Fluorescent lamps	Intentional addition prohibited
		e	Batteries (based on EU Battery Directive 2006/66/EC)	*2
		f	Packaging materials (based on EU Packaging and Packaging Waste Directive 94/62/EC)	*3
9	Lead and its compounds	a	All applications (based on the RoHS Directive 2002/95/EC)	*1
		b	Packaging materials (based on EU Packaging and Packaging Waste Directive 94/62/EC)	*3
10	Mercury and its compounds	a	All applications (based on the RoHS Directive 2002/95/EC)	*1
		b	Batteries (based on EU Battery Directive 2006/66/EC)	*2
		c	Packaging materials (based on EU Packaging and Packaging Waste Directive 94/62/EC)	*3
11	Chromium VI compounds (other than metallic chromium and alloy)	a	All applications (based on the RoHS Directive 2002/95/EC)	*1
		b	Packaging materials (based on EU Packaging and Packaging Waste Directive 94/62/EC)	*3
12	Polybrominated biphenyl (PBB)	a	All applications	1000 ppm
13	Polybrominated diphenyl ether (PBDE)	a	All applications	1000 ppm
14	Nickel and its compounds	a	Especially for components that come into contact with the human body	Intentional addition prohibited
		b	All excluding the above is exempted.	–
15	Azo dye	a	Positions that may form specific amine (in Table 3) and especially for components that come into contact with the human body	Intentional addition prohibited
		b	All excluding the above is exempted.	–

*1: Threshold of Cadmium is 100ppm. Threshold of each Lead, Mercury, Chromium VI, PBB or PBDE is 1000ppm.

: The applications not listed in Table 2 shall be followed ANNEX of the RoHS Directive.

*2: Threshold of Cadmium is 20ppm. Threshold of Mercury in a button cell is 2%, and in another type of battery is 5ppm. The denominator for concentration calculation is a “total weight of a battery”.

*3: Threshold of the total weight of Cadmium, Lead, Mercury and Chromium VI is 100ppm.

Table 3 Specific Amines

Substance Name	Chemical Formula	CAS No.
4-Aminoazobenzene	C ₁₂ H ₁₁ N ₃	60-09-3
<i>o</i> -Anisidine	C ₇ H ₉ NO	90-04-0
2-Naphthylamine	C ₁₀ H ₉ N	91-59-8
3,3'-Dichlorobenzidine	C ₁₂ H ₁₀ Cl ₂ N ₂	91-94-1
4-Aminobiphenyl	C ₁₂ H ₁₁ N	92-67-1
Benzidine	C ₁₂ H ₁₂ N ₂	92-87-5
<i>o</i> -Toluidine	C ₇ H ₉ N	95-53-4
4-Chloro-2-methylaniline	C ₇ H ₈ ClN	95-69-2
2,4-Toluenediamine	C ₇ H ₁₀ N ₂	95-80-7
<i>o</i> -Aminoazotoluene	C ₁₄ H ₁₅ N ₃	97-56-3
5-Nitro- <i>o</i> -Toluidine	C ₇ H ₈ N ₂ O ₂	99-55-8
3,3'-Dichloro-4,4'-diamino-diphenylethane	C ₁₃ H ₁₂ Cl ₂ N ₂	101-14-4
4,4'-Methylenedianiline	C ₁₃ H ₁₄ N ₂	101-77-9
4,4'-Diaminodiphenylether	C ₁₂ H ₁₂ N ₂ O	101-80-4
<i>p</i> -Chloroaniline	C ₆ H ₆ ClN	106-47-8
3,3'-Dimethoxybenzidine	C ₁₄ H ₁₆ N ₂ O ₂	119-90-4
3,3'-Dimethylbenzidine	C ₁₄ H ₁₆ N ₂	119-93-7
2-Methoxy-5-methylaniline	C ₈ H ₁₁ NO	120-71-8
2,4,5-Trimethylaniline	C ₉ H ₁₃ N	137-17-7
4,4'-Diaminodiphenylsulfide	C ₁₂ H ₁₂ N ₂ S	139-65-1
2,4-Diaminoanisole	C ₇ H ₁₀ N ₂ O	615-05-4
4,4'-Diamino-3,3'-Dimethyldiphenylethane	C ₁₅ H ₁₈ N ₂	838-88-0

* This list is based on the guidelines of the Japan Green Procurement Survey Standardization Initiative (JGPSSI).

[Revision History]

***Revision to Ver. 2** (December 2004)

- Full-fledged revision to ban more substances. In line with this revision, the title was changed from “Standards for Procurement Restriction on Substances Prohibited by the RoHS Directive” to “Standards Pertaining to Procurement Restrictions for the Inclusion of Chemical Substances in Products.”

***Revision to Ver.3** (July 2008)

-Minor amendment of sentences in Article1 and 2.

-Amend Battery Directive in Table 2.

[Appendix 1] Details of Substances and Substance Groups Prohibited by the RoHS Directive

Substance (group) name	PBDEs (polybrominated diphenyl ether)	
Major application	Plastic flame retardants (especially for PCBs and resin parts)	
Typical substance name and CAS no.	Substance name	CAS no.
	PBDE (bromine number 4: tetra)	40088-47-9
	PBDE (bromine number 5: penta)	32534-81-9
	PBDE (bromine number 6: hexa)	36483-60-0
	PBDE (bromine number 7: hepta)	68928-80-3
	PBDE (bromine number 8: octa)	32536-52-0
	PBDE (bromine number 9: nona)	63936-56-1
	PBDE (bromine number 10: deca)	1163-19-5
Blank		

Substance (group) name	PBBs (polybrominated biphenyls)	
Major application	Plastic flame retardants (especially for PCBs and resin parts)	
Typical substance name and CAS no.	Substance name	CAS no.
	PBBs	59536-65-1
	Blank	

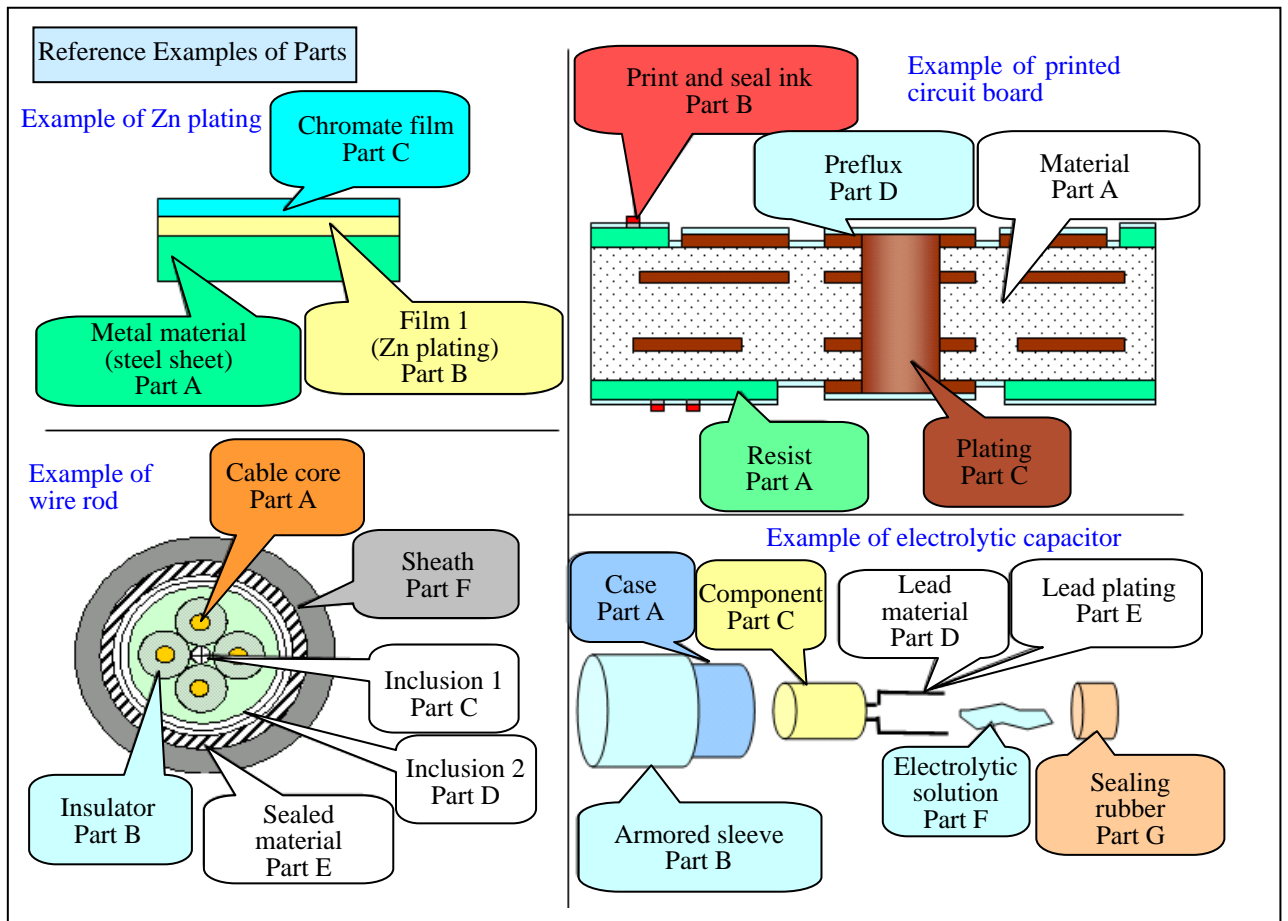
Substance (group) name	Cadmium and its compounds	
Major application	Pigment, dye, and stabilizer for plastic, paint, ink and surface finishing (such as plating)	
Typical substance name and CAS no.	Substance name	CAS no.
	Metal cadmium	7440-43-9
	Cadmium oxide	1306-19-0
	Cadmium chloride	10108-64-2
	Cadmium sulfate	10124-36-4
	Cadmium sulfide	1306-23-6
	Cadmium stearate	2223-93-0
	Blank	

Substance (group) name	Mercury and its compounds	
Major application	Rubber stiffener, pigment, paint, ink, relay, switch, sensor, plastic stabilizer	
Typical substance name and CAS no.	Substance name	CAS no.
	Metallic mercury	7439-97-6
	Mercuric (II) chloride	7487-94-7
	Mercury (II) oxide	21908-53-2
	Blank	

Substance (group) name	Lead and its compounds	
Major application	Rubber stiffener, pigment, paint, ink, lubricant and surface finishing (such as plating), plastic stabilizer, solder materials	
Typical substance name and CAS no.	Substance name	CAS no.
	Metallic lead (including alloy)	7439-92-1
	Lead (II) carbonate	598-63-0
	Lead (IV) oxide	1309-60-0
	Lead (III, IV) oxide	1314-41-6
	Lead (II) sulfide	1314-87-0
	Lead (II) oxide	1317-36-8
	Lead hydroxidcarbonat	1344-36-1
	Lead sulfate	7446-14-2
	Lead phosphate	7446-27-7
	Lead chromate	7758-97-6
	Lead titanate	12060-00-3
	Blank	

Substance (group) name	Hexavalent chromium compounds	
Major application	Anticorrosive pigment, paint, ink, plating Surface finishing for corrosion prevention (such as chromate)	
Typical substance name and CAS no.	Substance name	CAS no.
	Sodium dichromate	10588-01-9
	Potassium dichromate	7778-50-9
	Chromium (III) oxide	1333-82-0
	Blank	

[Appendix 2] Parts Examples



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