

General Specification on Chemical Substances Ver. 18.0

1. Objective

NTT Electronics Corp. (hereafter, NEL) has established the "General Specifications on Chemical Substances" to clearly specify the requirements and to ensure the control of chemical substances specifications contained in products or used in process concerning the products delivered to NEL.

2. Application

The general specification shall apply for NEL procurement of materials*1).

*1) "Materials" hereunder shall correctively mean parts/ raw materials/ half-finished products/ units/ apparatuses /cables/ display material (ink, label etc.) and packaging materials of NEL products (boxes, trays, tapes, cushions, etc.).

3. Requirements

3-1. Specified control of chemicals and materials

No.	Requirements	Contents
(1)	Not to use Banned substances in process	# "Banned substances" (used in process) means the substances prohibited for use in process, assembling, mounting, fabricating, processing or forming. (Defined in Separate Table 1 of Annex)
(2)	Not to contain Banned substances	# "Banned substances" (contained) means the substances which should not be contained in parts, materials and packaging materials. (Defined in Separate Table 2 of Annex) * If it is contained, purchase is not implemented. *If you note that delivered products contain banned substances, you should inform to us with documents as soon as possible.
		\$ In the case of the content less than the limit level, if you know its value, please disclose the content information. *If you note mistakes in the content information, you should inform to us with documents as soon as possible.
(3)	To properly manage the controlled substances	# The substance should be controlled, and the information about the amount of content should be known. (Defined in Separate Table 3 of Annex) *Please disclose the content information. *If you note mistakes in the content information, you should inform to us with documents as soon as possible.

#: Essential requirement/\$: Essential requirement if applicable

3-2. Change management

If there are important changes concerning the material, parts and process, please inform us with documents about the details of the changes concerning the above Section 3-1.

4. Submission of documents

We require suppliers to submit the below documents*2).

No.	Documents	Substances
(a)	“Non-containing Certification of Banned Substances” (Form 1-1)	“Banned substances”
(b)	“Chemical Substances Survey Sheet” (Form 2-1)	“Banned substances” “Controlled substances”
(c)	“SVHC Survey Sheet” (Form 2-2)	“Controlled substances” (“SVHC”)
(d)	List of Total Constructional Elements. (Form 3)	

*2) We may require other survey forms, such as customer survey forms, survey tools of JGPSSI (Japan Green Procurement Survey Standardization Initiative), and/or of JAMP (Joint Article Management Promotion-consortium) to comply with our customer request.

5. Operation of the General Specification

- In case of applying this General Specification, this information will be stated in Individual procurement specification (or purchase order).
- When this General Specification and Individual-procurement-specification conflict with each other, the latter prevails.
- In case of noticing mistakes such as contents about the submitted reports to us on 4 (a) - (d), you should correct the reports and re-submit them to us.

6. Special instructions

Even if we ask you in advance whether you can comply with our requirements about the “General Specification”, there is no commitment from us to place an order to you.

General Standard Chemical Substances Management Ver. 18.0 ANNEX

Table 1 Banned substances in the production process

The following substances are banned from being used in production process of the products. These correspond to the ozone depleting substances in IEC 62474 database*1).

No.	Material Code	Substances Group	Substances
0-1	C04	Ozone-depleting substances defined by Montreal Protocol	Chlorofluorocarbons (CFCs)
			1,1,1-Trichloroethane
			Carbon tetrachloride
			Halons
			HBFCs
			Methyl bromide
			Bromochloromethane
HCFCs			

*1) <http://std.iec.ch/iec62474>

Table 2 Banned substances

The following substances are banned from being contained in and/or being added to the products that delivered to NEL. If they are unintentionally contained beyond threshold levels, purchase is not implemented. This category includes some materials in IEC 62474 database and/or banned substances specified by NTT (Nippon Telegraph and Telephone Corporation).

No.	Material Code	IEC/NTT *2)	Substances	Remarks (Threshold level)	
1-1	A05	IEC	Cadmium/Cadmium compounds	Substances banned by RoHS directive (Threshold levels and exempted applications are indicated in Tables 2a and 2b, respectively.)	
1-2	A07	IEC	Hexavalent chromium		
1-3	A09	IEC	Lead/Lead compounds		
1-4	A10	IEC, N	Mercury/Mercury compounds		
1-5	B02	IEC, N	Polybrominated biphenyls (PBBs)		
1-6	B03	IEC, N	Polybrominated diphenylethers (PBDEs)		
1-7	C12	IEC	Bis(2-ethylhexyl) phthalate (DEHP) (CAS No. 117-81-7)		
1-8	C14	IEC	Benzyl butyl phthalate (BBP) (CAS No. 85-68-7)		
1-9	C13	IEC	Dibutyl phthalate (DBP) (CAS No. 84-74-2)		
1-10	C15	IEC	Diisobutyl phthalate (DIBP) (CAS No. 84-69-5)		
1-11	A17	IEC, N	Bis(Tributyl tin) oxide (TBTO) (CAS No. 56-35-9)		
1-12	A28	IEC	Tri-substituted organostannic compounds (TBT and TPT, etc.)		
1-13	A23	IEC	Dibutyltin (DBT) compounds	Within ANNEX XVII of REACH regulation (1000 ppm)	
1-14	A24	IEC	Diocetyl tin (DOT) compounds		
1-15	B05	IEC, N	Polychlorinated biphenyls (PCBs) and specific substitutes (Ugilec141, Ugilec121, Ugilec21, DBBT)		
1-16	B15	IEC	Polychlorinated terphenyls (PCTs)		
1-17	B06	IEC, N	Polychlorination naphthalenes (PCNs) (1 or more [The number of chlorine])		
1-18	B09	IEC	Short-chain chlorinated paraffins (carbon chain length 10-13)		
1-19	C01	IEC, N	Asbestos (Amosite, Crocidolite, Chrysotile, Actinolite, Anthophyllite, and Tremolite)		
1-20	C02	IEC	Azo compounds that produces specific amines (Table 2c) by decomposition		Within ANNEX XVII of REACH regulation (30 ppm)
1-21	C04	IEC, N	Ozone-depleting substances (CFCs, 1,1,1-Trichloroethane, Carbon tetrachloride, Halons, HBFCs, Methyl bromide, Bromochloromethane, HCFCs)		
1-22	C06	IEC	Radioactive substances		
1-23	C08	IEC, N	2-(2H-1,2,3-benzotriazol-2-yl)-4,6-di-tert-butylphenol(CAS No. 3846-71-7)		

1-24	B13	IEC, N	Perfluorooctane sulfonate (PFOS/PFOSF) (C ₈ F ₁₇ SO ₂ X; X=OH, O-M ⁺ , halide, amide, and other derivatives including polymers)	
1-25	B14	IEC	Perfluorooctanoic acid (PFOA) and individual salts and esters of PFOA	
1-26	C11	IEC	Dimethyl fumarate (CAS No. 624-49-7)	(0.1 ppm)
1-27	N-A03	N	Hexachlorobenzene(HCB)	Banned substances specified by NTT
1-28	N-A04	N	Aldrin	
1-29	N-A05	N	Dieldrin	
1-30	N-A06	N	Endrin	
1-31	N-A07	N	DDT	
1-32	N-A08	N	Chlordanes (Heptachlor)	
1-33	N-A10	N	N,N-Ditolyl-p-phenylenediamine, N-Tolyl-N-xylyl -p-phenylenediamine, and N,N-Dixylyl -p-phenylenediamine	
1-34	N-A11	N	2,4,6-Tri Tertiary Butyl Phenol	
1-35	N-A12	N	Toxisaphen	
1-36	N-A13	N	Mylex	
1-37	N-A14	N	Yellow-phosphorus match	
1-38	N-A15	N	Benzidines	
1-39	N-A16	N	4-Aminodiphenyls	
1-40	N-A17	N	4-Nitrodiphenyls	
1-41	N-A18	N	Bis(chloromethyl)ether	
1-42	N-A19	N	Beta-naphthylamines	
1-43	N-A20	N	Rubber adhesive containing benzene beyond 5wt%	
1-44	N-A22	N	Cyanogen compounds	
1-45	N-A23	N	Organophosphorous compounds (Parathion, Methyl-parathion, Methyl-demeton, and EPN)	
1-46	N-A32	N	Polychlorinated dibenzofuran (PCDF)	
1-47	N-A33	N	Polychlorinated dibenzo-p-dioxin (PCDD)	
1-48	N-A34	N	Coplanar PCB (Co-PCB)	
1-49	N-A35	N	Kelthane or Dicofol	
1-50	N-A36	N	Hexachlorobuta-1,3-diene	
1-51	N-A40	N	Pentachlorobenzene	
1-52	N-A41	N	Alfa-hexachlorocyclohexane	
1-53	N-A42	N	Beta-hexachlorocyclohexane	
1-54	N-A43	N	Gamma-hexachlorocyclohexane/Lindane	
1-55	N-A44	N	Chlordecone	
1-56	N-A45		Endosulfan	
1-57	N-A46	IEC	Hexabromocyclododecane (HBCDD)	
1-58	N-A47		Pentachlorophenol, and individual salts and esters	

*2) IEC: Specific substances in IEC 62474 database, N: Banned substances specified by NTT.

Table 2a Substances banned by RoHS directive and threshold levels*3)

Substance name	Threshold level	
Cadmium/Cadmium compounds	100ppm	The sum of the concentrations of 4 substances in packaging materials: 100ppm
Hexavalent chromium	1000ppm	
Lead/Lead compounds	1000ppm	
	300ppm (for vinyl chloride cables)	
Mercury/Mercury compounds	1000ppm	
Polybrominated biphenyls (PBBs)	1000ppm	
Polybrominated diphenylethers (PBDEs)	1000ppm	
Bis(2-ethylhexyl) phthalate (DEHP)	1000ppm	
Benzyl butyl phthalate (BBP)	1000ppm	
Dibutyl phthalate (DBP)	1000ppm	
Diisobutyl phthalate (DIBP)	1000ppm	

*3) Concentration should be calculated based on the mass of each part uniformly containing above substances.

Table 2b Exempted applications from RoHS directive

Substance name	Exemption code	Exempted application
Cadmium/ Cadmium compounds	Cd-8(b)	Cadmium and its compounds in electrical contacts.
	Cd-13(b)-(II)	Cadmium in striking optical filter glass types. (Expires on 21 July 2021)
	Cd-13(b)-(III)	Cadmium in glazes used for reflectance standards. (Expires on 21 July 2021)
	Cd-21	Cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses.
Hexavalent chromium	Cr-9	Hexavalent chromium as an anticorrosion agent of the carbon steel cooling system in absorption refrigerators up to 0.75 % by weight in the cooling solution.
Lead/Lead compounds	Pb-5(b)	Lead in glass of fluorescent tubes not exceeding 0.2 % by weight.
	Pb-6(a)-I	Lead as an alloying element in steel for machining purposes containing up to 0.35 % lead by weight and in batch hot dip galvanised steel components containing up to 0.2 % lead by weight. (Expires on 21 July 2021)
	Pb-6(b)-II	Lead as an alloying element in aluminum for machining purposes with a lead content up to 0.4 % by weight. (Expires on 21 July 2021)
	Pb-6(c)	Copper alloy containing up to 4 % lead by weight. (Expires on 21 July 2021)
	Pb-7(a)	Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead). (Expires on 21 July 2021)
	Pb-7(c)-I	Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound. (Expires on 21 July 2021)
	Pb-7(c)-II	Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher.
	Pb-7(c)-IV	Lead in PZT based dielectric ceramic materials for capacitors being part of integrated circuits or discrete semiconductors.
	Pb-13(a)	Lead in white glasses used for optical applications. (Expires on 21 July 2021)
	Pb-13(b)-(I)	Lead in ion coloured optical filter glass types. (Expires on 21 July 2021)
Pb-13(b)-(III)	Lead in glazes used for reflectance standards. (Expires on 21 July 2021)	

	Pb-15	Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages.
	Pb-18(b)	Lead as activator in the fluorescent powder (1 % lead by weight or less) of discharge lamps when used as sun tanning lamps containing phosphors such as BSP ($\text{BaSi}_2\text{O}_5\text{:Pb}$).
	Pb-21	Lead in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses.
	Pb-24	Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors. (Expires on 21 July 2021)
	Pb-29	Lead bound in crystal glass as defined in Annex I (Categories 1, 2, 3 and 4) of Council Directive 69/493/EEC.
	Pb-32	Lead oxide in seal frit used for making window assemblies for Argon and Krypton laser tubes.
	Pb-34	Lead in cermet-based trimmer potentiometer elements. (Expires on 21 July 2021)
	Pb-37	Lead in the plating layer of high voltage diodes on the basis of a zinc borate glass body.
Mercury/ Mercury compounds	Hg-1	Mercury in single capped (compact) fluorescent lamps not exceeding (per burner): (a) For general lighting purposes < 30 W: 2.5 mg. (b) For general lighting purposes \geq 30 W and < 50 W: 3.5 mg. (c) For general lighting purposes \geq 50 W and < 150 W: 5 mg. (d) For general lighting purposes \geq 150 W: 15 mg. (e) For general lighting purposes with circular or square structural shape and tube diameter \leq 17 mm: 7 mg. (f) For special purposes: 5 mg.
	Hg-2(a)	Mercury in double-capped liner fluorescent lamps for general lighting purposes not exceeding (per lamp): (a) Tri-band phosphor with normal lifetime and a tube diameter < 9 mm (e.g. T2): 4 mg. (b) Tri-band phosphor with normal lifetime and a tube diameter \geq 9 mm and \leq 17 mm (e.g. T5): 3 mg. (c) Tri-band phosphor with normal lifetime and a tube diameter > 17 mm and \leq 28 mm (e.g. T8): 3.5 mg. (d) Tri-band phosphor with normal lifetime and a tube diameter > 28 mm (e.g. T12): 3.5 mg. (e) Tri-band phosphor with long lifetime (\geq 25000 h): 5 mg.
	Hg-2(b)	Mercury in other fluorescent lamps not exceeding (per lamp): (a) Non-linear tri-band phosphor lamps with tube diameter > 17 mm (e.g. T9): 15 mg. (b) Lamps for other general lighting and special purposes (e.g. induction lamps): 15 mg.
	Hg-3	Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes not exceeding (per lamps): (a) Short length (\leq 500 mm): 3.5 mg. (b) Medium length (> 500 mm and \leq 1500 mm): 5 mg. (c) Long length (> 1500 mm): 13 mg.
	Hg-4(a)	Mercury in other low pressure discharge lamps (per lamp): 15 mg.
	Hg-4(b)	Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner) in lamps with improved colour rendering index $R_a > 60$: (a) $P \leq 155$ W: 30 mg. (b) 155 W < $P \leq 405$ W: 40 mg.

		(c) $P > 405$ W: 40 mg.
	Hg-4(c)	Mercury in other High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner): (a) $P \leq 155$ W: 25 mg. (b) 155 W $< P \leq 405$ W: 30 mg. (c) $P > 405$ W: 40 mg.
	Hg-4(e)	Mercury in metal halide lamps (MH).
	Hg-4(f)	Mercury in other discharge lamps for special purposes not specifically mentioned in the Annex of 2011/65/EU.

Table 2c Specific amines

Substance Chemical	CAS No.	Chemical Formula
Biphenyl-4-ylamine	92-67-1	C ₁₂ H ₁₁ N
Benzidine	92-87-5	C ₁₂ H ₁₂ N ₂
4-chloro-o-toluidine	95-69-2	C ₇ H ₈ ClN
2-naphthylamine	91-59-8	C ₁₀ H ₉ N
o-aminoazotoluene	97-56-3	C ₁₄ H ₁₅ N ₃
5-nitro-o-toluidine	99-55-8	C ₇ H ₈ N ₂ O ₂
4-chloroaniline	106-47-8	C ₆ H ₆ ClN
4-methoxy-m-phenylenediamine	615-05-4	C ₇ H ₁₀ N ₂ O
4,4'-methylenedianiline	101-77-9	C ₁₃ H ₁₄ N ₂
3,3'-dichlorobenzidine	91-94-1	C ₁₂ H ₁₀ Cl ₂ N ₂
3,3'-dimethoxybenzidine	119-90-4	C ₁₄ H ₁₆ N ₂ O ₂
3,3'-dimethylbenzidine	119-93-7	C ₁₄ H ₁₆ N ₂
4,4'-methylenedi-o-toluidine	838-88-0	C ₁₅ H ₁₈ N ₂
6-methoxy-m-toluidine	120-71-8	C ₈ H ₁₁ NO
4,4'-methylene-bis(2-chloroaniline)	101-14-4	C ₁₃ H ₁₂ Cl ₂ N ₂
4,4'-oxydianiline	101-80-4	C ₁₂ H ₁₂ N ₂ O
4,4'-thiodianiline	139-65-1	C ₁₂ H ₁₂ N ₂ S
o-toluidine	95-53-4	C ₇ H ₉ N
4-methyl-m-phenylenediamine	95-80-7	C ₇ H ₁₀ N ₂
2,4,5-trimethylaniline	137-17-7	C ₉ H ₁₃ N
o-anisidine	90-04-0	C ₇ H ₉ NO
4-aminoazobenzene	60-09-3	C ₁₂ H ₁₁ N ₃

Table 3 Controlled substances

Substances with control mean that the content of the substances in the products should be confirmed and controlled appropriately. “Contained” means situations in which the substances are intentionally added to, blended with, or adheres to any parts of the supplies, or in which they are unintentionally contained beyond the threshold levels. This category corresponds to IEC 62474 database materials other than banned substances shown in Table 2 and substances of very high concern (SVHC) in REACH regulation. The concentration should be calculated based on the total mass of products or devices.

No.	Material Code	IEC/R*4)	Substances	Threshold levels (Remarks)
2-1	A19	IEC	Beryllium Oxide (BeO) (CAS No. 1304-56-9)	1000ppm
2-2	A11	IEC	Nickel (external application only)	Intentionally added
2-3	B19		Polyvinyl Chloride (PVC) and PVC copolymers	1000ppm
2-4	B08	IEC	Brominated flame retardants (except PBB, PBDE, and HBCDD)	1000ppm
2-5	B18	IEC	Chlorinated flame retardants	1000ppm
2-6	B12	IEC	Perchlorates	0.006ppm
2-7	B10	IEC	Fluorinated greenhouse gases (PFC, SF6, HFC)	Intentionally added
2-8	C07	IEC	Formaldehyde (CAS No. 50-00-0)	Intentionally added
2-9	C10	IEC	Selected Phthalates Group 2 DINP (CAS No. 28553-12-0, CAS No. 68515-48-0) DIDP (CAS No. 26761-40-0, CAS No. 68515-49-1) DNOP (CAS No. 117-84-0)	1000ppm
2-10	C48	IEC	Di-n-hexyl phthalate (DnHP) (CAS No. 84-75-3)	Intentionally added
2-11	C49	IEC	Polycyclic-aromatic hydrocarbons (PAH) Benzo[a]pyrene (CAS No. 50-32-8) Benzo[e]pyrene (CAS No. 192-97-2) Benzo[a]anthracene (CAS No. 56-55-3) Chrysen (CAS No. 218-01-9) Benzo[b]fluoranthene (CAS No. 205-99-2) Benzo[j]fluoranthene (CAS No. 205-82-3) Benzo[k]fluoranthene (CAS No. 207-08-9) Dibenzo[a,h]anthracene (CAS No. 53-70-3)	1ppm
2-12	C50	IEC	Benzenamine, N-phenyl-, reaction products with styrene and 2,4,4-trimethylpentene (BNST) (CAS No. 68921-45-9)	Intentionally added
2-13	A01		Antimony/Antimony compounds	1000ppm
2-14	A02		Arsenic/Arsenic compounds	1000ppm
2-15	A03		Other Beryllium/Beryllium compounds	1000ppm
2-16	A04		Bismuth/Bismuth compounds	1000ppm
2-17	A13		Selenium/Selenium compounds	1000ppm
2-18	D01		Copper/Copper compounds	1000ppm
2-19	D02		Gold/Gold compounds	1000ppm
2-20	D03		Palladium/Palladium compounds	1000ppm
2-21	D04		Silver/Silver compounds	1000ppm

2-22 To be cont.		R	SVHC in REACH regulation*5)	1000ppm
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*4) IEC: Specific substances in IEC 62474 database, R: SVHC in REACH regulation.

*5) When the European Chemical Agency (ECHA) has added some substances to the candidate list of Substances of Very High Concern (SVHC), the substances are included in the list of “Controlled substances”.