General Specification on Chemical Substances Ver.9.0

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 packing 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 packing 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 (Banned Substances)-Contained in Products" (Form 1-1) or "Regulation Compliance Certification for RoHS Directive" (Form 1-2)	"Banned substances" "Substances banned by RoHS directive"
(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, 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.9.0 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 (Class I and Class II) in JIG*1).

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

*1) JIG: Joint Industrial Guide.

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 JIG and/or banned substances specified by NTT (Nippon Telegraph and Telephone Corporation).

No.	Material Code	JIG/NTT/R*1)	Substances	Remarks
1-1	A05	JR	Cadmium/Cadmium compounds	Substances banned by RoHS directive (Threshold levels and exempted applications are indicated in Tables 2a and 2b, respectively.)
1-2	A07	JR, R	Hexavalent chromium	
1-3	A09	JR	Lead/Lead compounds	
1-4	A10	JR	Mercury/Mercury compounds	
1-5	B02	JR	Polybrominated biphenyls (PBBs)	
1-6	B03	JR	Polybrominated diphenylethers (PBDEs)	
1-7	A17	JR, N, R	Bis(Tributyl tin) oxide (TBTO) (CAS No. 56-35-9)	
1-8	A18	JR	Tri-substituted organostannic compounds	
1-9		JR	Dibutyltin (DBT) compounds	
1-10		JR	Dioctyltin (DOT) compounds	
1-11	B05	JR, N	Polychlorinated biphenyls (PCBs) and specific substitutes	
1-12	B15	JR, N	Polychlorinated terphenyls (PCTs)	
1-13	B06	JR, N	Polychlorination naphthalenes (PCNs) (3 or more [The number of chlorine])	
1-14	B09	JR, R	Short-chain chlorinated paraffins (carbon chain length 10-13)	
1-15	C01	JR, N	Asbestos (Amosite, Crocidolite, Chrysotile, Actinolite, Anthophyllite, and Tremolite)	
1-16	C02	JR, R	Azo compounds that produces specific amines (Table 2c) by decomposition	
1-17	C04	JR, N	Class I Ozone-depleting substances (CFCs, 1,1,1-Trichloroethane, Carbon tetrachloride, Halons, HBFCs, Methyl bromide, Bromochloromethane	
		JR	Class II Ozone-depleting substances (HCFCs)	
1-18	C06	JR	Radioactive substances	
1-19	C08	JR, N	3-diene, and 2-(2H-1,2,3-benzotriazol-2-yl)-4,6-di-tert-butylphenol(CAS No. 3846-71-7)	
1-20	B13	JR	Perfluorooctane sulfonate (PFOS)	
1-21		JR	Dimethyl fumarate (CAS No. 624-49-7)	
1-22	N-A03	N	Hexachlorobenzene(HCB)	Banned substances specified by NTT
1-23	N-A04	N	Aldrin	
1-24	N-A05	N	Dieldrin	
1-25	N-A06	N	Endrin	
1-26	N-A07	N	DDT	
1-27	N-A08	N	Chlordanes	

1-28	N-A10	N	N,N-Ditolyl-p-phenylenediamine, N-Tolyl-N-xylyl -p-phenylenediamine, and N,N-Dixylyl -p-phenylenediamine	
1-29	N-A11	N	2,4,6-Tri Tertiary Butyl Phenol	
1-30	N-A12	N	Toxisaphen	
1-31	N-A13	N	Mylex	
1-32	N-A14	N	Yellow-phosphorus match	
1-33	N-A15	N	Benzidines	
1-34	N-A16	N	4-Aminodiphenyls	
1-35	N-A17	N	4-Nitrodiphenyls	
1-36	N-A18	N	Bis(chloromethyl)ether	
1-37	N-A19	N	Beta-naphthylamines	
1-38	N-A20	N	Rubber adhesive containing benzene beyond 5wt%	
1-39	N-A21	N	Cyanogen compounds	
1-40	N-A22	N	Organophosphorous compounds (Parathion, Methyl-parathion, Methyl-demeton, and EPN)	
1-41	N-A32	N	Polychlorinated dibenzofuran (PCDF)	
1-42	N-A33	N	Polychlorinated dibenzo-p-dioxin (PCDD)	
1-43	N-A34	N	Coplanar PCB (Co-PCB)	
1-44	N-A35	N	Kelthane or Dicofol	
1-45	N-A36	N	Hexachlorobuta-1,3-diene	

*2) JR: R (Regulated) substances in JIG, N: Banned substances specified by NTT, R: SVHC in REACH regulation.

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 packing 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	

*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-R-1	Electric point and plating excluding uses banned by the amended EURO Directive 76/769/EEC “91/338/EEC”.
	Cd-R-2	Optical glass, filter glass.
	Cd-R-3	Cadmium in printing inks for the application of enamels on borosilicate glass.
	Cd-R-4	Cadmium alloys as electrical/mechanical solder joints to electrical conductors located directly on the voice coil in transducers used in high-powered loudspeakers with sound pressure levels of 100 dB (A) and more.
	Cd-R-6	Cadmium and cadmium oxide in thick film pastes used on aluminum bonded beryllium oxide.
Hexavalent chromium	Cr-R-1	For the prevention of corrosion of carbon steel cooling system in absorption refrigerators.
Lead	Pb-RE-1	Glass used in CRT, electronic parts, and fluorescent tubes.
	Pb-RE-2	Electronic ceramic parts.
	Pb-RE-3	Steel materials containing less than 0.35% lead by weight (including zinc plating, free-machining steel).
	Pb-RE-4	Copper alloy containing 4% or loss of lead by weight (e. g. brass, phosphor bronze).
	Pb-R-1	Aluminum materials containing 0.4t% or less of lead by weight.
	Pb-R-2	High-melting point solder (lead alloy containing above 85% of lead by weight).
	Pb-R-3	Soldering for servers, storage and storage array systems, and network infrastructure equipment for switching, signaling, transmission and network management for telecommunication.
	Pb-R-4	Compliant pins/connectors.
	Pb-R-5	Coating material for thermal conduction module C-rings.
	Pb-R-6	Optical glass, filter glass.
	Pb-R-7	Solder consisting of more than two types of elements for connecting microprocessor pins and packages containing less than 85wt% and more than 80wt% of lead.
	Pb-R-8	Solder for connecting semiconductor dies and carriers in flip chip IC packages.
	Pb-R-9	Lead-bronze bearing shells and bushes.
	Pb-R-10	Lead in linear incandescent lamps with silicate coated tubes.
	Pb-R-11	Lead halide as radiant agent in High Intensity Discharge (HID) lamps used for professional reprography applications.

	Pb-R-12	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 (BaSi2O5:Pb) as well as when used as speciality lamps for diazo-printing reprography, lithography, insect traps, photochemical and curing processes containing phosphors such as SMS ((Sr, Ba)2MgSi2O7:Pb).
	Pb-R-13	Lead with PbBiSn-Hg and PbInSn-Hg in specific compositions as main amalgam and with PbSn-Hg as auxiliary amalgam in very compact Energy Saving lamps (ESL).
	Pb-R-14	Lead oxide in glass used for bonding front and rear substrates of flat fluorescent lamps used for Liquid Crystal Display (LCD).
	Pb-R-15	Lead in printing inks for the application of enamels on borosilicate glass.
	Pb-R-17	Lead in finishes of fine pitch components other than connectors with a pitch of 0.65 mm or less with NiFe lead frames and lead in finishes of fine pitch components other than connectors with a pitch of 0.65 mm or less with copper lead-frames.
	Pb-R-18	Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors.
	Pb-R-19	Lead oxide in plasma display panels (PDP) and surface conduction electron emitter displays (SED) used in structural elements; notably in the front and rear glass dielectric layer, the bus electrode, the black stripe, the address electrode, the barrier ribs, the seal frit and frit ring as well as in print pastes.
	Pb-R-20	Lead oxide in the glass envelope of Black Light Blue (BLB) lamps.
	Pb-R-21	Lead alloys as solder for transducers used in high-powered (designated to operate for several hours at acoustic power levels of 125 dB SPL and above) loudspeakers.
	Pb-R-22	Lead bound in crystal glass as defined in Annex I (Categories 1, 2, 3, and 4) of Council Directive 69/493/EEC.
	Pb-R-23	Lead in soldering materials in mercury free flat fluorescent lamps (which e.g. are used for liquid crystal displays, design or industrial lighting).
	Pb-R-24	Lead oxide in seal frit used for making window assemblies for Argon and Krypton laser tubes.
	Pb-R-25	Lead in solders for the soldering of thin copper wires of 100 mm diameter and less in power transformers.
	Pb-R-26	Lead in cermet-based trimmer potentiometer elements.
	Pb-R-27	Lead in the plating layer of high voltage diodes on the basis of a zinc borate glass body.
Mercury	Hg-R-1	Mercury in compact fluorescent lamps not exceeding 5 mg per lamp.
	Hg-R-2	Mercury in straight fluorescent lamps for general purposes not exceeding: -halophosphate 10 mg -triphosphate with normal lifetime 5 mg -triphosphate with long lifetime 8 mg
	Hg-R-3	Straight fluorescent lamps for special purposes.
	Hg-R-4	Mercury in lamps other than compact or straight fluorescent lamps.

Table 2c Specific amines*4)

Substance Chemical	CAS No.	Chemical Formula
Biphenyl-4-ylamine	92-67-1	C12H11N
Benzidine	92-87-5	C12H12N2
4-chloro-o-toluidine	95-69-2	C7H8ClN
2-naphthylamine	91-59-8	C10H9N
o-aminoazotoluene	97-56-3	C14H15N3
5-nitro-o-toluidine	99-55-8	C7H8N2O2
4-chloroaniline	106-47-8	C6H6ClN
4-methoxy-m-phenylenediamine	615-05-4	C7H10N2O
4,4'-methylenedianiline	101-77-9	C13H14N2
3,3'-dichlorobenzidine	91-94-1	C12H10Cl2N2
3,3'-dimethoxybenzidine	119-90-4	C14H16N2O2
3,3'-dimethylbenzidine	119-93-7	C14H16N2
4,4'-methylenedi-o-toluidine	838-88-0	C15H18N2
6-methoxy-m-toluidine	120-71-8	C8H11NO
4,4'-methylene-bis(2-chloroaniline)	101-14-4	C13H12Cl2N2
4,4'-oxydianiline	101-80-4	C12H12N2O
4,4'-thiodianiline	139-65-1	C12H12N2S
o-toluidine	95-53-4	C7H9N
4-methyl-m-phenylenediamine	95-80-7	C7H10N2
2,4,5-trimethylaniline	137-17-7	C9H13N
o-anisidine	90-04-0	C7H9NO
4-aminoazobenzene	60-09-3	C12H11N3

*4) Specific amines are prohibited under EU Directive (76/769/EEC[+2002/61/EC･+2003/3/EC])

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 JIG 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	JIG/NTT/R*5)	Substances	Threshold level
2-1	A19	JI	Beryllium Oxide (BeO) (CAS No. 1304-56-9)	1000ppm
2-2	A11	JR	Nickel (external application only)	Intentionally added
2-3	B07	JI	Polyvinyl Chloride (PVC) and its mixture	1000ppm
2-4	B08	JI	Brominated flame retardants (except PBB, PBDE, and HBCDD)	1000ppm
2-5	C10	JA	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
2-6	B12	JR	Perchlorates	0.006ppm
2-7	B10	JR	Fluorinated greenhouse gases (PFC, SF6, HFC)	Intentionally added
2-8	C07	JR	Formaldehyde (CAS No. 50-00-0)	Intentionally added
2-9	A01	JB	Antimony/Antimony compounds	1000ppm
2-10	A02	JB	Arsenic/Arsenic compounds	1000ppm
2-11	A03	JB	Other Beryllium/Beryllium compounds	1000ppm
2-12	A04	JB	Bismuth/Bismuth compounds	1000ppm
2-13	A13	JB	Selenium/Selenium compounds	1000ppm
2-14	A16	JB	Magnesium	1000ppm
2-15	D01	JB	Copper/Copper compounds	1000ppm
2-16	D02	JB	Gold/Gold compounds	1000ppm
2-17	D03	JB	Palladium/Palladium compounds	1000ppm
2-18	D04	JB	Silver/Silver compounds	1000ppm
2-19 To be cont.		R	SVHC in REACH regulation*6)	1000ppm

*5) JR: R (Regulated) substances, JA: A (Assessment) substances, JI: I (Information) substances, JB: Level B substances in JIG, N: Banned substances specified by NTT, R: SVHC in REACH regulation.

*6) 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".