

TDK-Lambda Group
Green Procurement
Standard

30th edition

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TDK-Lambda Corporation

Quality Assurance Division

Product Environment G

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<<TDK-Lambda Environmental Philosophy>>

We protect the earth by taking care of nature and limited natural resources. This is the responsibility of all the people of the world.

TDK-Lambda declares that preserving the earth's environment is a top priority. We not only deal with issues of company-wide, but each of us also participates actively in the activity as a member of the community.

Introduction

TDK group promotes activity for protection of the global environment.

We have entered an age in which protection of the global environment is one of the most important issues for corporate activities in terms of achieving the sustainable development of humankind. Related efforts enhance corporate value, and their steady accumulation contributes to the international community. In order to fulfill our responsibility to the environment, at TDK we have stipulated an Environmental Policy and Environmental Vision. The goal of Environmental Vision 2035 is “to halve the CO2 emission basic-unit in a life-cycle perspective by 2035”. In our relations with suppliers in particular, with the aim of giving priority to the procurement of production parts and materials that contribute to reducing the environmental load, we established the TDK Green Procurement Standard (First Edition) in April 1999 and request the cooperation of our suppliers in the creation of environment-conscious products.

In order to take account of changes in Japanese and international environment-related laws and regulations, as well as changes in social requirements and technological progress, we have conducted a revision of this document. We request our suppliers to appreciate TDK’s environmental efforts and the contents of this document, and we look forward to their continued cooperation by supply chain unity.

For more information on TDK’s environmental responsibility, please visit the TDK website →
Sustainability → Environment → Environmental Policy and Environmental Vision.

English: https://www.tdk.com/corp/en/sustainability/environmental_responsibility/sus03100.htm

Japanese: https://www.jp.tdk.com/corp/ja/sustainability/environmental_responsibility/sus03100.htm

Chinese: https://www.jp.tdk.com/corp/zh/sustainability/environmental_responsibility/sus03100.htm

April 1, 2020
Procurement & Logistics Group
SCM & Management System HQ
TDK Corporation

1. About the TDK-Lambda Green Procurement Standard

1-1 Purpose

The purpose of this document is to give priority to the procurement of purchased items from suppliers that contribute to reducing the environmental load and fulfill social responsibility by clarifying chemical substances that are prohibited (“prohibited substances”) and chemical substances for which controlled content is required (“controlled substances”), thereby further promoting green procurement activities by the TDK-Lambda Group.

1-2 Scope of Application

This document applies to business partners from whom the TDK-Lambda Group procures products or to whom it consigns manufacture, etc. (hereafter referred to collectively as “suppliers”) and purchased items sold and delivered by suppliers to the TDK-Lambda Group. Please note, however, that if the TDK-Lambda Group requires a specific standard relating to chemical substance content in addition to this document, the specific requirement shall take precedence.

1-3 Definition of Terms

The terms in this document shall be defined as follows:

(1) TDK-Lambda Group

TDK-Lambda Corporation and its affiliates, including overseas subsidiaries.

(2) Purchased items

“Purchased items” are products sold and delivered by suppliers to the TDK-Lambda Group that conform to one of the following four categories:

(a) Chemical

A “chemical” is a substance or Preparation as explained in TITLE I Chapter 2 Article 3(1) and (2), respectively, of the European Council’s No. 1907/2006 REACH regulation (Registration, Evaluation, Authorization and Restriction of Chemicals).

Ex. Metallic material, metallic oxide, resin pellet, paste, solder, binder, adhesive, paint, ink

(b) Part

A “part” is an article as explained in TITLE I Chapter 2 Article 3(3) of the European Council’s No. 1907/2006 REACH regulation. Ex. Electronic parts, machinery parts, insulation tape and film

(c) Packaging

Among (b) parts, “packaging” refers to items used for sending, protecting, and identifying TDK-Lambda products.

Ex. Trays, bags, buffer materials, staplers, cardboard boxes, reels, tape, binding bonds, wraps, labels, manuals, index cards

Exceptions: Retrievable and reusable pallets, containers, and boxes that do not cause secondary contamination

(d) Other purchased items

Among items sold and delivered by suppliers to the TDK-Lambda Group, “other purchased items” refer to items that do not fall into any of the above three categories and for which either the TDK-Lambda Group designates applicability of this document or the supplier declares applicability of this document.

Ex. Jigs and tools, office items, metal molds, equipment, and other items designated by the TDK-Lambda Group

(3) Chemical substances

“Chemical substances” refer to elements (single substances) and compounds (including alloys).

(4) Environment-related substances

'Environment-related substances' are prohibited and controlled substances designated by national and international laws and regulations as having or having the potential to have an impact on human health, the environment or society, as designated by the TDK-Lambda Group.

(5) Prohibited substances

Among environment-related substances, 2-1 Prohibited substances - refers to substances prohibited by national and international laws and regulations as noted in the [Appendix] List of Specific Laws and Regulations.

(6) Content-controlled substances

Among environment-related substances, 'controlled substances' refers to environment-related substances whose use is not restricted, but whose actual use must be monitored to ascertain whether or not they are being used and the concentration of their content.

(7) Content

“Content” refers to the fact that chemical substances are included in purchased items as ingredients or constituents.

(8) Intentional addition

“Intentional addition” refers to the fact that a specified chemical substance is included in the purchased item for a reason.

(9) Impurities

Among substances contained in purchased items, “impurities” refer to substances that cannot be totally removed mechanically in the refining process or substances that occur in the synthetic reaction process and technically cannot be totally removed.

Note: Although dopant, which is used in the manufacture of semiconductor devices, etc., is sometimes added intentionally, the extremely small amount remaining in semiconductor devices is actually treated as an impurity.

(10) Non-applicability

“Non-applicability” refers to an exception being made to the application of prohibited substance and content-controlled substance regulations if the supplier uses the substance only for a specific end use, accurately enters the contained amount, and declares non-applicability.

(11) End use

“End use” refers to purpose of use in the purchased item using the chemical substance. The existence or not of prohibition, threshold levels, non-applicability, and so on are stipulated by end use in the annex.

Note: The end use in the purchased item using the chemical substance refers not to end use by the TDK-Lambda Group but, for example, the addition of formaldehyde for making a purchased textile product. If the attached table entry were as follows, content would be prohibited.

Chemical substances	Requirement	Applications(use) of substance and scope of the Standards
Formaldehyde	Content prohibited	Textile product

(12) Threshold level

The “threshold level” stipulated in the annex is the permissible concentration of the chemical substance contained

in each subpart of a purchased item.

Note: Some laws define the threshold level as the ratio of concentration per total product weight rather than per subpart. In this document, however, the definition is concentration ratio per subpart.

(13) Subpart

A “subpart” is a homogeneous material part that cannot be separated anymore.

(14) Homogeneous material

A “homogeneous material” is a material that cannot be mechanically separated into other materials. “Homogenous” means “of uniform composition throughout,” and “cannot be mechanically separated” means that it cannot be separated by unscrewing, cutting, shredding, grinding, polishing, etc.

Ex. Plastic, ceramic, glass, metal, plating film, paper, resin, ink, coating material, paint

1-4 Guarantee

(a) The supplier is required to “guarantee” that the purchased item conforms to this document and that information in submitted documents is accurate and complete. Please note that even if the purchased item or materials in the purchased item have been manufactured by a company other than the supplier, the supplier is required to take responsibility and submit accurate and complete information on the purchased item and purchased item materials.

(b) In the case that conformity with this document applies to only part of purchased item specifications, nonconformity with this document, including a violation of the guarantee described above, will be considered to be a defect of the purchased item.

1-5 Confidentiality

In principle submitted information will only be used within the TDK-Lambda Group. If a public organization or customer of the TDK Group requests disclosure, we will disclose the information after taking appropriate measures so that the supplier cannot be identified, etc. We will abide by related laws, ordinances, and other norms in the handling of suppliers’ personal information.

1-6 Revisions

This document may be revised to take account of Japanese and international laws and regulations, changes in social requirements, etc.

1-7 Inquiries

Please make inquiries and submit materials requested in this document to the requesting section of the TDK-Lambda Group or the following contact:

Product Environment Group,

Quality Assurance Department,

Quality Assurance Division

TDK-Lambda Corporation

Tel.: +81-258-23-0260 Fax: +81-259-21-1115

2. Environment-Related Substance Standards

2-1 Prohibition of Prohibited Substances

In principle purchased items must not contain prohibited substances. However, this does not apply if a prohibited substance under the threshold level stipulated in Environment-Related Substances (Appendix 1) is contained as an impurity or if the supplier itself declares accurately in advance of delivery that the purchased item contains a prohibited substance.

2-2 Declaration of Content-Controlled Substances

If a purchased item contains a content-controlled substance, the supplier itself must declare accurately in advance of delivery that the purchased item contains a content-controlled substance. However, this does not apply if a content-controlled substance below the threshold level stipulated in the Environment-Related Substances (Appendix 1) is contained as an impurity.

2-3 Survey of Chemical Substance Content

If the TDK-Lambda Group requests a supplier to conduct a survey relating to this document, if the supplier itself declares substance content in accordance with the provisions of 2-1 and 2-2, or if the supplier declares non-applicability, please accurately compile documents as shown in List of Materials to Be Submitted (Appendix 2) depending on the type of purchased item and promptly submit them.

2-4 Amendment of Information on Chemical Substance Content in Purchased Items

If information on chemical substances contained in purchased items (composition, amount contained, etc.) is amended, or if a change occurs, please update the Survey of Chemical Substance Content information immediately and notify the TDK-Lambda Group of the correction in writing.

2-5 Additions and Changes to Standards of Specific Laws and Regulations

The prohibited substances and content-controlled substances stipulated in the attached Appendix are quotations of the lists of prohibited substances and content-controlled substances stipulated in the legal requirements of other countries (REACH, RoHS [Restriction of Hazardous Substances directive], etc.) or independently by external organizations, such as the Global Automotive Declarable Substance List (GADSL). Since it is essential to conform to these lists in order to meet legal requirements and customer and social requirements, the TDK-Lambda Group requests suppliers to regularly check these lists and deliver purchased items that meet the requirements of the latest applicable list. If, as a result of a list amendment, it is determined that a purchased item does not meet the requirements of the amended list, please update the Survey of Chemical Substance Content information within 30 days from the day of list amendment and notify the TDK-Lambda Group of the correction in writing. If there is no report, it will be assumed that the requirements of the amended list are guaranteed.

Please note that lists will be amended regardless of the wishes of the TDK-Lambda Group and without any specific forewarning to suppliers.

2-6 Response to Further Survey Requests

If the TDK Group considers it necessary because of legal revisions, changes in customer requirements, revisions of this document, or other reasons, the TDK-Lambda Group may request a further Survey of Chemical Substance Content for all or specific purchased items. In this case, we ask suppliers to submit the further survey promptly. However, the following complementary documents may be submitted in lieu of a further survey:

- (a) Non-use guarantee, non-use certificate, etc. relating to the amended part
- (b) Non-use guarantee, non-use certificate, etc. relating to the specific requirement

2-7 Response to Revision of This Document

If the TDK-Lambda Group revises this document, suppliers are requested to check the content immediately. If, as a result of the revision, a purchased item no longer satisfies this document, please update the Survey of Chemical Substance Content information within 30 days from the said revision and notify the TDK-Lambda Group of the correction in writing. If there is no notification, it will be assumed that the requirements of the amended list are guaranteed.

3. Related Documents and Materials

Appendix 1 Environment-Related Substance List

See Appendix 1 for specific substance lists and supplementary lists.

How to Read Appendix 1

Requirement	Threshold level	Meaning
Content prohibited	—	Prohibited to be intentionally added or to be contained as impurity
Content prohibited	< 1,000 ppm	Intentional addition prohibited; content as impurity must be less than 1,000 ppm.
Content controlled	—	If content is identified, the amount must be clarified and declared, regardless of whether it is intentional addition or impurity.
Content controlled	< 1,000 ppm	If content exceeds 1,000 ppm, the amount must be clarified and declared, regardless of whether it is intentional addition or impurity.
Non-applicability	—	In certain specific cases, if no special provisions are provided separately, the supplier may be exempted from application of the prohibited substance or content-controlled substance standards if the supplier accurately enters the contained amount and declares non-applicability.

Note: Even if specific legal requirements (RoHS directive, ELV director, etc.) stipulate “no more than” (\leq), in consideration of customer requirements, etc., this document stipulates “less than” ($<$).

Appendix 2 List of Documents to Be Submitted

Appendix 3 Analysis Methods

4. Record of Establishment and Revisions

April 1, 2004	1st edition
Dec 21, 2004	2nd edition
Jan 21, 2005	3rd edition
Apr 26, 2006	4th edition
Nov 29, 2006	5th edition
Feb 27, 2008	6th edition
Oct 8, 2008	7th edition
Nov 5, 2008	8th edition
Nov 27, 2009	9th edition
Mar 8, 2011	10th edition
Jan 17, 2012	11th edition
Jul 13, 2012	12th edition
Jan 31, 2013	13th edition
Aug 20, 2013	14th edition
Dec 27, 2013	15th edition
Sep 1, 2014	16th edition
Jan 7, 2015	17th edition
Sep 9, 2015	18th edition
Dec 28, 2015	19th edition
July 21, 2016	20th edition
Nov 15, 2016	21st edition
Feb 10, 2017	22nd edition
Sep 22, 2017	23rd edition
May 7, 2018	24th edition
Aug 7, 2018	25th edition
Jan 31, 2019	26th edition
Sep 2, 2019	27th edition
Apr 10, 2020	28th edition
May 29, 2024	29th edition
Jan 30, 2025	30th edition

5. Main Revisions

- Changed the issuing department from “Environmental Quality Division” to “Quality Assurance Division”.
- Moved the List of specific laws and regulations defining prohibited substances to Annex-1.
- Split prohibited substances into prohibited substances A-1 and A-2.
- Annex 1. Change CAS No. to CAS RN.
- Annex 1. Revision of the list of environment-related substances.

Substance	Revision	Details
Prohibited Substances A-1		
Substances classified as "P (Prohibited)" or "D / P (Declarable / Prohibited)" in "GADSL Reference List"	Re-add	
Perfluoro(octane-1-sulfonic acid) (PFOS)	Add new	
Perfluorooctanoic acid (PFOA), its salts and PFOA-related substances	Add new	
Perfluorohexane-1-sulphonic acid (PFHxS), its salts and related substances	Add new	
2-(2-hydroxy-3,5-di-tert-amyl-phenyl) 2H-benzotriazole (UV-328)	Change of target	
Content-Controlled Substances		
Substance on the Proposition 65 List	Add new	
Medium-chain chlorinated paraffins (MCCP) with carbon chain lengths within the range from C14 to C17	Change of CAS	
Substances classified as "D (Declarable)" in "GADSL Reference List"	Change of target	
Substances on the IEC 62474 list	Change of target	
Undecafluorohexanoic acid (PFHxA), its salts and related substances	Change of CAS	
Per- and poly-fluoroalkyl substances (PFAS) *substances that include any member of the class of fluorinated organic chemicals containing at least one fully fluorinated carbon atom	Change of CAS	
Mineral oil aromatic hydrocarbons (MOAH) consisting of 1-7 aromatic rings	Delete	
Mineral oil saturated hydrocarbons (MOSH) consisting of 16-35 carbon atoms	Delete	

Prohibited Substances A-1

Chemical substances	CAS RN.	Requirement	Threshold level	Scope	Reference List
Cadmium/Cadmium compounds	See the latest versions of IEC 62474 or GADSL accordingly	Content prohibited	<100ppm	All applications except for packaging and batteries and the Non-applicability shown below. (See Prohibited Substances (Supplement) for packaging and batteries)	1, 2, 3, 12, 13, 15, 20, 26
		Non-applicability	—	Exempted applications of the latest version of EU RoHS 2011/65/EU Annex III, IV, and ELV 2000/53/EC Annex II	
Hexavalent chromium compounds; Chromium VI compounds	See the latest versions of IEC 62474 or GADSL accordingly	Content prohibited	<1,000ppm	All applications except for packaging and the Non-applicability shown below. (See Prohibited Substances(Supplement) for packaging)	1, 2, 3, 12, 13, 15, 20, 26
		Non-applicability	—	Exempted applications of the latest version of EU RoHS 2011/65/EU Annex III, IV, and ELV 2000/53/EC Annex II	
Lead/Lead compounds	See the latest versions of IEC 62474 or GADSL accordingly	Content prohibited	<1,000ppm	All applications except for packaging and batteries and the Non-applicability shown below. (See Prohibited Substances (Supplement) for packaging and batteries)	1, 2, 3, 12, 13, 15, 20, 23, 26, 27
		Non-applicability	—	Exempted applications of the latest version of EU RoHS 2011/65/EU Annex III, IV, and ELV 2000/53/EC Annex II	
Mercury/Mercury compounds	See the latest versions of IEC 62474 or GADSL accordingly	Content prohibited	<1,000ppm	All applications except for packaging and batteries and the Non-applicability shown below. (See Prohibited Substances (Supplement) for packaging and batteries)	1, 2, 3, 12, 13, 15, 20, 26, 31
		Non-applicability	—	Exempted applications of the latest version of EU RoHS 2011/65/EU Annex III, IV, and ELV 2000/53/EC Annex II	
Specific bromine flame retardant polybrominated biphenyls (PBB's)	See the latest versions of IEC 62474 or GADSL accordingly	Content prohibited	<1,000ppm	All applications	1,12, 13, 15, 20
Specific bromine flame retardant polybrominated diphenyl ethers (PBDE's)	See the latest versions of IEC 62474 or GADSL accordingly	Content prohibited	<1,000ppm	All applications	1,3,12, 13,15, 16, 20, 21
Bis (2-ethylhexyl) Phthalate (DEHP)	117-81-7	Content prohibited	<1,000ppm	All applications	1, 3
Butyl Benzyl Phthalate (BBP)	85-68-7	Content prohibited	<1,000ppm	All applications	1, 3
Dibutyl Phthalate (DBP)	84-74-2	Content prohibited	<1,000ppm	All applications	1, 3
Diisobutyl Phthalate (DIBP)	84-69-5	Content prohibited	<1,000ppm	All applications	1, 3
REACH (EC) No. 1907/2006 Annex XVII (Restricted substances)	See the latest information from the Homepage of ECHA (European Chemicals Agency) https://echa.europa.eu/substances-restricted-under-reach	Content prohibited	Depending on legal requirements	Depending on the limitation of each substances	3
EU POPs Regulation (EU) 2019/1021 Annexes I and II *1	Refer to the ECHA (European Chemicals Agency) website https://echa.europa.eu/list-of-substances-subject-to-pops-regulation	Content prohibited	Depending on legal requirements	Depending on the limitation of each substances	4
Red Phosphorus *2	7723-14-0	Content prohibited	-	Flame retardant in resin parts used between electrodes in electrical insulation sections. (Representative examples of components that may use the above application are as follows. It must be noticed that the examples are non-exhaustive. Connectors, AC power cords, AC adaptors, AC power inlets, AC power outlets, DC plugs, DC power jacks, power switches, terminal blocks, fan motors, bobbins for transformers, bobbins for inductors, bases (stands), core cases.)	-
		Non-applicability	-	1. Applications other than flame retardant in resin parts used between electrodes in electrical insulation sections. 2. Flame retardant in the prohibition scope, in resin parts (resin material) adopted prior to April 1, 2020, which the following requirements : - Items for which moisture-proof coating or an equivalent measure (stabilization treatment) has been applied to the red phosphorus particles.	-
Arsenic/Arsenic compounds	See IEC62474	Content prohibited	<1,000ppm	All applications except for the following exempted applications.	3
		Non-applicability	-	Compound semiconductors containing an arsenic component; copper foil bonding on printed circuit boards	-

Fluorinated greenhouse gases (HFC, PFC, SF6)	See IEC62474	Content prohibited	-	All applications (Examples: Refrigerants, blowing agents, extinguishing agents, cleaning agents, insulating media, caustic gas)	9
Halogenated flame retardants	—	Content prohibited	— *3	Flame retardants in electronic displays (Enclosures and stands of electronic displays, including televisions, monitors and digital signage displays with a screens area greater than 100 cm ²)	10
Pentachlorothiophenol (PCTP)	133-49-3	Content prohibited	< 1000ppm	All applications	22
Phenol, isopropylated phosphate (3:1) (PIP (3:1))	68937-41-7	Content prohibited	— *3	All applications	22
Substances classified as "P (Prohibited)" or "D / P (Declarable / Prohibited)" in "GADSL Reference List"	See the latest information of "GADSL Reference List" http://www.gadsl.org	Content prohibited	<1,000ppm (If not stated otherwise)	Depending on the limitation of each substances	-
Perfluoro(octane-1-sulfonic acid) (PFOS) *1	See the latest versions of IEC 62474 or GADSL accordingly	Content prohibited	Total of PFOS or any of its salts: <25ppb; sum of all PFOS-related compounds: <1ppm	All applications	4, 38
Perfluorooctanoic acid (PFOA), its salts and PFOA-related substances *1	See the latest versions of IEC 62474 or GADSL accordingly	Content prohibited	Total of PFOA or any of its salts: <25ppb; sum of all PFOA-related compounds: <1ppm	All applications	4, 38
Perfluorohexane-1-sulphonic acid (PFHxS), its salts and related substances *1	See the latest versions of IEC 62474 or GADSL accordingly	Content prohibited	Total of PFHxS and its salts: <25ppb; PFHxS related compounds or their related compounds or their combination: <1ppm	All applications	4, 38
1,6,7,8,9,14,15,16,17,17,18,18-dodecachloropentacyclo[12.2.1.16.9.02.13.05,10]octadeca-7,15-diene("Dechlorane plus" TM) individual anti- and syn-isomers or any combination thereof	13560-89-9; 135821-74-8; 135821-03-3	Content prohibited	< 1ppm	All applications	4, 16, 31, 38
2-(2-hydroxy-3;5-di-tert-amyl-phenyl) 2H-benzotriazole (UV-328)	25973-55-1	Content prohibited	< 1ppm	All applications	4,16, 38

*1 In case of discrepancies between the EU POPs Regulation and individual substance entries from the table above, the EU POPs Regulation requirements shall prevail.

*2 There is no registration of red phosphorus in the chemSHERPA substance list, so please enter it as chemSHERPA's "Except for Declarable substances".

*3 If the substance is intentionally included or the substance is known to be included as an impurity, it is treated as a prohibited substance regardless of the threshold value in any case.

Prohibited Substances A-2

None

Prohibited Substances A (Supplement)**Matters Related to Prohibited Substances Used in Packaging Materials**

Chemical substances	CAS RN	Requirement	Threshold level	Scope	Reference List
Polyvinyl chloride (PVC) and PVC blends	9002-86-2	Content prohibited	None use	Applications as packaging except for the following exempted applications. (for distributing and protecting TDK products)	-
Mercury, cadmium, Hexavalent chromium, and lead	-	Content prohibited	Total (*1) <100 ppm		5
		Non-applicability	-	Reusable shipping boxes (containers)	-
PBB	-	Inclusion prohibited	<1000ppm	Application as packing materials (for distributing and protecting DL products) (Examples: Trays, bags, cushioning material, sheets, wraps, carton box, tapes, tie bands, labels, printing inks, paints, and the line. Reusable shuttling boxes are exempt.)	-
PBDE	-	Inclusion prohibited	<1000ppm		-
Cobalt dichloride	7646-79-9	Inclusion prohibited	None use	Prohibition of the use of silica-gel bag containing cobalt dichloride.	44
Phthalates Bis (2-ethylhexyl) phthalate (DEHP) Butyl benzyl phthalate (BBP) Dibutyl phthalate (DBP) Diisobutyl phthalate (DIBP)	117-81-7 85-68-7 84-74-2 84-69-5	Inclusion prohibited	Total *2) <1000ppm	Application as packing materials (for distributing and protecting products) (Examples: Trays, bags, cushioning material, sheets, wraps, carton box, tapes, tie bands, labels, printing inks, paints, and the line. Reusable shuttling boxes are exempt.)	3
Mineral oil aromatic hydrocarbons (MOAH) consisting of 1-7 aromatic rings	-				
Mineral oil saturated hydrocarbons (MOSH) consisting of 16-35 carbon atoms	-	Content prohibited	<0.0001wt% (1ppm) in ink for MOAH consisting of 3-7 aromatic rings	Ink subparts in: a) packaging b) printed matter intended for the public	32
EU POPs Regulation (EU) 2019/1021 (Include Dechlorane plus and UV-328)	See the latest information from the Homepage of ECHA (European Chemicals Agency) https://echa.europa.eu/list-of-substances-subject-to-pops-regulation	Content prohibited	Depending on the item*3		

*1) The concentration of cadmium, hexavalent chromium, lead and mercury contained in packaging or packaging components (including paints and inks) shall not exceed 100 ppm, both individually or as the total of the 4 heavy metals.

*2) Threshold level is defined to be total containing value of 4 substances in each component.

*3) In accordance with the legal requirements

Matters Related to Prohibited Substances in Batteries and Storage Batteries

Chemical substances	Requirement	Threshold level	Scope	Reference List
Mercury/ Mercury compounds *1)	Content prohibited	<5ppm	Batteries and accumulators. *2)	6
Cadmium/ Cadmium compounds *1)	Content prohibited	<20ppm	Portable batteries and accumulators except for the following exempted applications. *3)	6
	Non-applicability	-	Portable batteries or accumulators for emergency and alarm systems, including emergency lighting and medical equipment. *3)	6
Lead/ Lead compounds *1)	Content prohibited	<40ppm	Alkaline Zinc manganese dioxide batteries	14
	Content prohibited	<2,000ppm	Non-alkaline Zinc manganese dioxide batteries	14
	Non-applicability	-	Except for the batteries and accumulators above.	-
Perchlorates	Content prohibited	<0.006ppm	Coin cell batteries*8)	28

*1) Even if content is less than threshold level, labelling (marked with the symbol) is required in the EU Directive on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC (2006/66/EC).

*2) 'battery' or 'accumulator' means any source of electrical energy generated by direct conversion of chemical energy and consisting of one or more primary battery cells (nonrechargeable) or consisting of one or more secondary battery cells (rechargeable).

*3) 'portable battery or accumulator' means any battery, button cell, battery pack or accumulator that: *2), *4), *5)
 (a) is sealed; and
 (b) can be hand-carried; and
 (c) is neither an industrial battery or accumulator nor an automotive battery or accumulator. *6) *7)

*4) 'button cell' means any small round portable battery or accumulator whose diameter is greater than its height and which is used for special purposes such as hearing aids, watches, small portable equipment and back-up power.

*5) 'battery pack' means any set of batteries or accumulators that are connected together and/or encapsulated within an outer casing so as to form a complete unit that the enduser is not intended to split up or open.

*6) 'industrial battery or accumulator' means any battery or accumulator designed for exclusively industrial or professional uses or used in any type of electric vehicle.

*7) 'automotive battery or accumulator' means any battery or accumulator used for automotive starter, lighting or ignition power.

*8) 'Coin cell battery' means a small button battery which is the size and shape of a coin.
 The battery number will start with "CR" and it may be found in watches, appliances, keyless entry systems, and any device that is able to retain memory after the power supply is cut off.

* In addition to the "EU Directive (2006/66/EC) on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC", other requirements may be established in some of the EU member states.

Content-Controlled Substances

Chemical substances	CAS RN.	Requirement	Threshold level	Scope	Reference List
Halogen and Halogen compounds (Only Bromine from organic brominated compounds and Chlorine from organic chlorinated compounds)	-	Content controlled	Bromine and chlorine (individually) <900ppm and total combined halogens <1,500ppm	All applications	41, 42
REACH (EC) No. 1907/2006 SVHC (Candidate List of Substances of Very High Concern for Authorisation)	See the latest version of the Candidate list on the HP of ECHA (European Chemicals Agency) http://echa.europa.eu/web/guest/candidate-list-table	Content controlled	<1,000ppm	All applications	3
Substance on the Proposition 65 List *1	See Proposition 65 List from the OEHHA (California Environmental Protection Agency, Office of Toxic Substances Control) website https://oehha.ca.gov/proposition-65/proposition-65-list	Content controlled	- *2	All applications	27
Beryllium/Beryllium compounds	See the latest information of GADSL Reference List	Content controlled	<1,000ppm	All applications	43
Selenium/Selenium compounds	See the latest information of GADSL Reference List	Content controlled	<1,000ppm	All applications	19
Antimony/Antimony compounds	See the latest information of GADSL Reference List	Content controlled	<1,000ppm	All applications	-
Substances classified as "D (Declarable)" in "GADSL Reference List"	See the latest information of GADSL Reference List http://www.gadsl.org	Content controlled	<1,000ppm (If not stated otherwise)	If the substances are included in excess of the threshold value, it must be declared to TDK.	-
Substances on the IEC 62474 list	See the latest information of "IEC62474 Declarable Substance List" http://std.iec.ch/iec62474/iec62474.nsf/Index?open&q=080632	Content controlled	<1,000ppm (If not stated otherwise)	If substances on the "Declarable Substance List" are included above the threshold, it must be declared to TDK.	-
Tetrabromobisphenol A (TBBPA)	79-94-7	Content controlled *3	- *2	All applications	1
Medium-chain chlorinated paraffins (MCCP) with carbon chain lengths within the range from C14 to C17	Refer to IEC 62474 and GADSL	Content controlled *3	- *2	All applications	3, 38
Perfluorocarboxylic acids (PFCA), their salts and related substances with carbon chain lengths within the range from C15 to C21	141074-63-7; 67905-19-5; 57475-95-3; 16517-11-6; 133921-38-7; 68310-12-3	Content controlled *3	- *2	All applications	38

Undecafluorohexanoic acid (PFHxA), its salts and related substances	Refer to IEC 62474 and GADSL	Content controlled *3	- *2	All applications	3
Per- and poly-fluoroalkyl substances (PFAS) *substances that include any member of the class of fluorinated organic chemicals containing at least one fully fluorinated carbon atom	Refer to IEC 62474 and GADSL *4 , *5	Content controlled *3	- *2	All applications	3, 30
Decabromodiphenyl ethane (DBDPE)	84852-53-9	Content controlled *3	- *2	All applications	31

*1 Some of the chemical substances listed in Proposition 65 may not be registered in chemSHERPA's substance list, but if they are included, reporting is required as chemSHERPA's "Except for Declarable substances"

*2 If the substance is intentionally included or the substance is known to be included as an impurity, it is treated as a Content controlled substances regardless of the threshold value in any case.

*3 Based on the legal trend of related laws and regulations, TDK may issue separate instructions and treat them as "prohibited substances" one year prior to their enforcement date.

*4 OECD (The Organization for Economic Co-operation and Development) Comprehensive Global Database of PFAS:
<https://www.oecd.org/chemicalsafety/risk-management/global-database-of-per-and-polyfluoroalkyl-substances.xlsx>

*5 US EPA (Environmental Protection Agency) PFAS Master List of PFAS Substances:
<https://comptox.epa.gov/dashboard/chemical-lists/pfasmaster>

GADSL

Substances listed in the "Global Automotive Declarable Substance List (GADSL)" published by the Global Automotive Stakeholder Group (GASG)

(Always the latest version is applied.)

<http://www.gadsl.org>

IEC62474

Substances listed in the International IEC62474 Standard for electrical and electronic products published by the International Electrotechnical Commission(IEC).

(Always the latest version is applied.)

<http://std.iec.ch/iec62474>

Reference List of Standards

1	Directive 2011/65/EU ("RoHS Directive") ("Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment" (recast))
2	Directive 2000/53/EC ("ELV Directive") ("Directive on End-of-Life Vehicles")
3	Reg. (EC) No. 1907/2006 ("REACH Regulation") ("Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)")
4	Reg. (EU) 2019/1021 ("EU POPs Regulation") ("Regulation on Persistent Organic Pollutants (recast)", (EU POPs Regulation))
5	Directive 94/62/EC ("EU Packaging Directive") ("Directive on Packaging and Packaging Waste")
6	Directive 2006/66/EC ("EU Battery Directive") ("Directive on Batteries and Accumulators and Waste Batteries and Accumulators")
7	Reg. (EC) No. 1005/2009 ("Regulation on substances that deplete the ozone layer")
8	Directive 2013/59/EURATOM ("Directive on Radioactive Substances") ("2013/59/EURATOM laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation")
9	Reg. (EU) No.517/2014 ("Regulation (EU) No 517/2014 on Fluorinated Greenhouse Gases")
10	Directive 2009/125/EC ("ErP Directive") and related regulations ("Directive establishing a framework for the setting of ecodesign requirements for energy-related products (recast)"; "Ecodesign Directive")
11	CRM (Critical Raw Materials) List (COM(2020) 474 final; Critical Raw Materials Resilience: Charting a Path towards greater Security and Sustainability)
12	Decree 32 of the Chinese Ministry of Industry and Information Technology (MIIT) on the Administrative Measures for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products ("Revised China RoHS")
13	GB/T 30512 ("Requirements for prohibited substances on automobiles") ("China ELV")
14	Chinese National Standard (GB 24427-2021) "Content limitation of mercury, cadmium and lead for zinc anode primary battery"
15	"The Law for Promotion of Effective Utilization of Resources" ("J-MoSS": Abbreviation combining "Japan" and an acronym of the JIS C 0950 standard title "The marking for presence of the specific chemical substances for electrical and electronic equipment");
16	"Act on the Regulation of Manufacture and Evaluation of Chemical Substances" (Act No. 117 of October 16, 1973) "Chemical Substances Control Law" ("CSCL")
17	"Act on the Protection of the Ozone Layer through the Control of Specified Substances and other Measures" (Act No. 53 of May 20, 1988)
18	"Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors" (Act No. 166 of June 10, 1957)
19	Water Pollution Prevention Act (Act No. 38 of 1970)
20	"The Act for Resource Recycling of Electrical and Electronic Equipment and Vehicles" (Korea RoHS)
21	"Persistent Organic Pollutants Control Act" ("Korea POPs")
22	15 U.S.C. §2601 et seq. (1976) "The Toxic Substances Control Act" (US, The United States Environmental Protection Agency, "TSCA")
23	[Public Law 110–314] ("Consumer Product Safety Improvement Act of 2008", (CPSIA))
24	42 U.S.C. ch. 85 (§§ 7401-7671q) ("Clean Air Act" (CAA))
25	Nuclear Regulatory Commission (NRC) Regulations Title 10 CFR Part 20
26	"California Electronic Waste Recycling Act of 2003" SB20, Chapter 526, as amended by SB 50 and AB 575
27	Safe Drinking Water and Toxic Enforcement Act of 1986 ("Proposition 65") (HEALTH AND SAFETY CODE - HSC; Chapter 6.6
28	California Assembly Bill No. 826 (AB 826) "The Perchlorate Contamination Prevention Act" implemented July 1, 2006.
29	New York Environmental Conservation Law - Title 7 § 27-0719. Battery management and disposal
30	"Public Law c. 477, An Act To Stop Perfluoroalkyl and Polyfluoroalkyl Substances Pollution" (PFAS Regulation)
31	Prohibition of Certain Toxic Substances Regulations, 2012 (SOR/2012-285) and related regulations
32	"Decree No. 2020-105 on the 'Fight Against Waste and the Circular Economy' Article 112"; "l'article 112 de la loi du 10 février 2020 relative à la lutte contre le gaspillage et à l'économie circulaire"
33	SR814.81 "Chemical Risk Reduction Ordinance"(ORRChem; ChemRRV))
34	FOR-2004-06-01-0922 ("Product Regulations"); (Forskrift om begrensning i bruk av helse- og miljøfarlige kjemikalier og andre produkter (produktforskriften); Regulations restricting the use of chemicals and other products hazardous to health and the environment (product regulations)).
35	"Formaldehydverordnung" (Formaldehyde Ordinance) (Austria, BGB I 1990/194 §2, 12/2/1990)
36	"Hygiene Norm HN 96:2000 (Hygiene Norms and Regulations)"
37	"Restrictions on the Manufacture, Import, and Sale of Dry Cell Batteries", Article 21 of Waste Disposal Act
38	"Stockholm Convention on Persistent Organic Pollutants ("POPs Convention")
39	"The Montreal Protocol on Substances that Deplete the Ozone Layer"
40	Kyoto Protocol ("The Kyoto Protocol to the United Nations Framework Convention on Climate Change")
41	IPC-4101(Association Connecting Electronics Industries Standard, "Specification for Base Materials for Rigid and Multilayer Printed Boards")
42	IEC 61249-2-21(International Electrochemical Commission Standard: Materials for Printed Boards and other Interconnecting Structures)
43	EICTA/CECED*/AeA/EERA** Joint Position Guidance on implementing article 11 of Directive 2002/96 (EC) concerning information for treatment facilities"
44	Directive 2003/34/EC of the European Parliament and of the Council of 26 May 2003 amending for the 23rd time Council Directive 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations

Appendix 2. List of Documents to Be Submitted

1. List of Documents to Be Submitted

Documents to be submitted	Type of purchased item	Remarks
Survey of Chemical Substance Content; "chemSHERPA"	Chemicals	chemSHERPA(CI): Always use the latest editions
	Parts Packaging	chemSHERPA(AI): Always use the latest editions
Precision analysis data	Chemicals Parts Packaging	It is not mandatory, but but when our company requests it to your company on a case-by-case basis, please submit it. Four substances: lead, cadmium, mercury, hexavalent chromium (compulsory) If there are multiple analysis data, submit a correspondence list of subpart and analysis data.
SDS(Safety Data Sheet)	Chemicals	Chemicals containing legally restricted substances are compulsory.
Supply of data on specific requirements	Purchased items designated by the TDK Group	The TDK Group will make specific requests.
Non-Containing Guarantee of Chemical Substances	Chemicals Parts	Fill in Form EMS-010-1B(Ver.9) and submit it.
Non-Containing Guarantee of Chemical Substances for Packaging Materials	Packaging	Fill in Form EMS-010-2A (Ver.9) and submit it.

2. Entry Methods for Submitted Documents and Points to Note

(1) Survey of Chemical Substance Content

- Please follow the designated chemSHERPA formats.(AI or CI)
- The format of chemSHERPA is updated on a regular schedule, please submit it in the latest version of chemSHERPA website.
chemSHERPA website: <https://chemsherpa.net/chemSHERPA/english/>
- Please report composition for chemical substances contained in purchased items based on the Criteria of chemSHERPA.
The Business Departments may individually request full declaration on non declarable substances by optional reporting.
- If you respond to full declaration except for chemSHERPA formats, please contact us.
- Even in the case of non-applicability due to purpose, if an environment-related substance is added intentionally, or if such a substance is contained as an impurity in excess of the threshold level, it is necessary to enter the environment-related substance composition.

(2) Precision analysis data

- The analysis target is all purchased items.
Non-applicability: The latest version of EU RoHS 2011/65/EU Annex III, IV, and ELV 2000/53/EC Annex II, and Reusable packaging material (for repeated use).
- Please submit data analyzed by the designated analytical method.
- If there are multiple analysis data, submit a correspondence list of subpart and analysis data.
- The expiration date of analysis data is not specified in particular, but if there was change that affect the quality in purchased items, please resubmit the analysis data.
- Please note, however, that if the TDK Group requires a specific standard relating to analysis data, the specific requirement shall take precedence.
Ex. Precision analysis data of halogen or phthalates. Update of analysis data, etc.

(3) SDS(Safety Data Sheet)

In order to conduct the appropriate management of chemical substances with the aim of avoiding health damage to workers, protecting the environment, protecting the ecosystem, etc., submission is compulsory if a legally designated chemical substance is contained.

(4) Supply of data on specific requirements

The TDK Group may request the supply of data on specific requirements in order to respond to customer requests, etc.
Ex. Report on precision analysis test of a designated chemical substance, CMRT(Conflict Minerals Reporting Template), etc

(5) Non-Containing Guarantee of Chemical Substances

To ensure Non-containing of chemical substances and RoHS exemption, submission is compulsory.

Appendix 3. Analysis method

- (1) Analysis method conform to IEC62321.
- (2) A quantitative analysis must be conducted on each subpart of the item. The result must be within the threshold level.
- (3) If the test data are to be used as an analysis certificate, describe the test method used.
- (4) No analysis of PBB and PBDE is required by this Standards document, however, this method is recommended for analysis if it is to be conducted to meet Customer's requirements.
- (5) No analysis of DEHP, BBP, DBP and DIBP is required by this Standards document, however, this method is recommended for analysis if it is to be conducted to meet Customer's requirements.

Substance name	Preliminary processing:	Analytical instruments:
Cadmium/Cadmium compounds, Lead/Lead compounds, Chromium/Chromium compounds	Prepare a solution by wet decomposition method (including pressure decomposition) in the presence of, for example, sulfuric acid, nitric acid, hydrochloric acid, hydrofluoric acid, or hydrogen peroxide; by incineration in the presence of sulfuric acid; or by pressurized acid decomposition (microwave decomposition). If precipitation occurs in the solution, dissolve it completely into a solution by, for example, hydrofluoric acid decomposition or by alkali fusion decomposition.	Examples - Inductively Coupled Plasma Atomic Emission Spectrometer (ICP-AES [ICP-OES]), inductively coupled plasma mass spectrometer (ICP-MS), atomic absorption spectrometer (AAS, FLAAS).
Mercury/Mercury compounds	Dissolve into a solution using, for example, sulfuric acid, nitric acid, or potassium permanganate; and in a pressure decomposition flask, or a decomposing flask equipped with a reflux condenser to prevent mercury emission. A microwave decomposition method may also be used.	Examples—Reduction vaporization ICP emitted light spectrometer (ICP-AES [ICP-OES]), atomic absorption spectrometer (reduction vaporization, heated vaporization), inductively coupled plasma mass spectrometer (ICP-MS).
Hexavalent chromium compounds	Elute Hexavalent chromium into water solution by, for example, by hot water extraction, or decomposition in alkali solution, etc.	Example—absorptiometer and ion chromatograph, etc.
PBB and PBDE (for reference only)	Dissolve in an organic solvent or extract with a Soxhlet extractor. Use the silica gel column process to obtain a solution.	Gas chromatograph mass spectrometer (GC-MS)
DEHP, BBP, DBP and DIBP (for reference only)	Analysis method conform to IEC62321-8. Determination of certain substances in electrotechnical products - Part 8	Gas chromatograph mass spectrometer (GC-MS)

Non-Containing Guarantee of Chemical Substances for Packaging Materials

manufacturer:

We, manufacturer, (and our subsidiaries and affiliates) hereby guarantee that the following listed on packing materials that we supply to TDK-LAMBDA K.K (and their subsidiaries and affiliates) do not contain the following chemical substances exceeding threshold level specified by TDK-Lambda K.K. in accordance with "TDK-LAMBDA Group Green Procurement Standard".

Manufacturer: _____
Company Name _____

Division Name _____

Name of responsible person _____

Signature: _____

TEL(Phone) _____

E-mail _____

Distributor:

We Distributor, hereby guarantee that the following listed products and components/materials that we supply to TDK-LAMBDA K.K (and their subsidiaries and affiliates) are the products and components/materials which Manufacture guaranteed as above.

Distributor: _____
Company Name _____

Signature: _____

1. The object chemical substance and its threshold level

NO	Substances name	Applications of substance and scope of the standards	Threshold Level (Impurities density)
1	PVC Polyvinyl chloride(PVC) and PVC blends	Application as packing materials (for distributing and protecting DL products) (Examples: Trays, bags, cushioning material, sheets, wraps, carton box, tapes, tie bands, labels, printing inks, paints, and the line. Reusable shuttling boxes are exempt.)	Intentional non-use
2	Cadmium, Lead, Mercury, Hexavalent chromium		Total * < 100ppm
3	PBB	All applications	< 1000ppm
4	PBDE (Polybrominated Biphenyl Ethers) & Deca-BDE	All applications	< 1000ppm
5	Cobalt dichloride	Prohibition of the use of Sillica-gel bag containing Cobalt dichloride.	Intentional non-use
6	Phthalates Bis (2-ethylhexyl) phthalate (DEHP) CAS NO. 117-81-7 Butyl benzyl phthalate (BBP) CAS NO. 85-68-7 Dibutyl phthalate (DBP) CAS NO. 84-74-2 Diisobutyl phthalate (DIBP) CAS NO. 84-69-5	Application as packing materials (for distributing and protecting products) (Examples: Trays, bags, cushioning material, sheets, wraps, carton box, tapes, tie bands, labels, printing inks, paints, and the line. Reusable shuttling boxes are exempt.)	Total * < 1000ppm
7	Mineral oil aromatic hydrocarbons (MOAH) consisting of 1-7 aromatic rings		Ink subparts in packaging and printed matter intended for the public
8	Mineral oil saturated hydrocarbons (MOSH) consisting of 16-35 carbon atoms	Ink subparts in packaging and printed matter intended for the public	< 0.1wt% in ink (1,000ppm)
9	EU POPs Regulation (EU) 2019/1021 (Include Dechlorane plus and UV-328)	Depending on the item(In accordance with the legal requirements)	Depending on the item(In accordance with the legal requirements)

* Threshold level is defined to be total containing value of 4 substances in each component.

They are defined for every component to constitute. Refer to "TDK-LAMBDA Green Procurement Standard "DL-EMS-010" for further details.

2. Target Product / Component / Material

No	Item Code	Product Name	Catalog Number
e.g.	00011111	PC pack	PC-122
1			
2			
3			
4			
5			

* Items, in case more than 5, can be listed and attached to this document.

3. Others

If there is any change of material/production location/production process etc. for the above items, we will confirm the content of chemical substances is less than the threshold level which described in section1. And will submit this "Non-Containing Guarantee of Chemical Substances" to TDK-LAMBDA K.K. before its delivery.

In case that the items which contain the above listed substances exceeding the threshold levels delivered to TDK-LAMBDA K.K, we will take appropriate action to recover the status, in good faith, on our own responsibility and expense.