Panasonic Group

Chemical Substances Management Rank Guidelines

Version 15 (For Products)

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Contents

1. Objectives of These Guidelines

The objectives of the "Chemical Substances Management Rank Guidelines (For Products)" are to ensure compliance with legislation and to reduce the environmental impact by clarifying the chemical substances that are prohibited and require special management if contained as environmentally impacting substances in products shipped by the Panasonic Group, or components, devices, materials, etc. delivered to the Panasonic Group, by thoroughly advising the Group's internal operations and suppliers of products, components, devices, and materials.

2. Application

2.1. Application to Products (Products shipped by the Panasonic Group)

(1) Products designed, manufactured, and sold by the Panasonic Group

(2) Products sold by the Panasonic Group with its trademark (including products outsourced to a third party by the Panasonic Group for design and manufacturing)

(3) Products purchased by the Panasonic Group from another company and sold as system[1] products after assembly

(4) Products contracted to the Panasonic Group from a third party for design and manufacturing (provided, however, that components, devices, materials, etc. specified by the third party are exempted from application of these Guidelines)

(5) Products used for sales promotion (Products provided to parties outside Panasonic (not limited to general consumers): giveaways, etc.)

(6) Packaging materials and packaging materials for transportation (pallets, shrink packs, etc.).

2.2. Application to Components, Devices, Materials, etc. (Components, devices, materials, etc. delivered to the Panasonic Group)

This rule applies to the components, materials, and other items used for the products mentioned in Section 2.1 Application above.

(1) Components/materials (including electrical components, mechanism components, electro-mechanism components, semiconductors, printed circuit boards, exterior components, and packaging materials/components for shipping products by the Panasonic Group)

(2) Assembled components such as functional units/modules/board assemblies

(3) Accessories (for using equipment such as remote controllers, and AC adaptors.)

(4) Constituent materials such as auxiliary materials (e.g. tapes, solder materials, and adhesives.)

(5) Operating instructions, warranty certificates, and other printed matters enclosed in products

(6) Spare parts for repair (Requirements for the parts differ depending on the law or regulation.)

(7) Components and materials for sales promotion (e.g. labels)

(8) Packaging materials used for transport/protection by suppliers of components, devices, materials which directly contact the components, devices, materials, and the like, and in which the subject substance is highly likely to migrate and/or include in (Note that items do not directly contact the components, devices, materials, and the like are exempt).

3. Operations and Exemptions

(1) Although these Guidelines have been developed in accordance with relevant main laws and regulations, they do not always cover all relevant regulations. Hence, all products must fully comply with the treaties, laws, ordinances, industry guidelines, and other requirements effective, and also these Guidelines at the time of sales and in the region of sales.

(2) In the case that an Operating Company or Business Division of the Panasonic Group sets out own contents of these guidelines more stringent than the Regulations by the Panasonic Group in accordance with the Operating Company's or Business Division's circumstances (e.g. adding a

[1] Aggregate products that are comprised of multiple types of products that perform a unified function

certain prohibited substance to the guidelines by the Operating Company or Business Division), the Operating Company or Business Division must inform the contents to relevant parties (e.g. suppliers).

(3) With respect to these Guidelines, items where application of these Guidelines can be exempted/postponed, items that require management separately from these Guidelines, and items that can be deemed out of scope of these Guidelines are separately prescribed in "Detailed Rules for Internal Operation of the Panasonic Group Chemical Substances Management Rank Guidelines (For Products)" (internal document). In the event such items are present, communicate it to relevant parties (e.g. suppliers) as necessary.

4. Establishment, Revision, and Abolition

(1) All items related to these Guidelines must be examined and discussed by a Working Group consisting of representatives of experts from respective department of Operating Companies under the Product Chemical Substance Management Committee, and must be approved by an Operation Administrators meeting of Panasonic Product Chemical Substance Management Committee (hereinafter "Operation Administrators meeting") after consultation of directors of Procurement Division and of Quality & Environment Division.

(2) In the case that a revision or abolishment of these Guidelines becomes, it must be applied to the Operation Administrators meeting.

(3) These Guidelines must be discussed and reviewed periodically (once a year) by the Working Group. In the following cases, however, the secretariat will review and revise the contents after obtaining approval from the Operation Administrators meeting.

1) When the need arises for reflecting a change in social trends such as regulatory amendments
2) When the need arises for reflecting a progress in technological trends (alternative technologies, assessment technologies), chemical hazard data, exposure data, and risk assessment data, etc.

5. Definition of Terms

The terms used in these Guidelines are defined as follows.

5.1. Panasonic Group

Refers to the Panasonic Holdings Corporation and companies where Panasonic Holdings Corporation directly or indirectly owns more than its respective half of the voting rights.

5.2. Specified Managed Substances

Refers to the Prohibited Substances from Level 1 to 3 and Managed Substances that have been selected/approved based on the Selection Criteria of Prohibited Substances in the Chemical Substance Management Rank Guidelines.

5.3. Level 1 Prohibited Substances

The substances listed below and those that may be contained in products, components, devices, materials, and the like specified in the scope of application are in this rank. It must be guaranteed that such substances comply with the Regulations specified by the Panasonic Group, and use of some substances must be discontinued immediately depending on the substance.

(1) A substance contained in products that is prohibited by existing laws and regulations; or a substance where the upper limit of concentration is specified.

(2) A substance that will be prohibited in products by laws and regulations or where the upper limit of its concentration will be specified within one year of the enforcement of these Guidelines. Note that there is a case that a substance is set and restricted as a Level 1 Prohibited Substance more than 1 year ahead of the effective date of the law or regulation, because of the time lag between the effective date of the law or regulation, and that of these guidelines.

5.4. Level 2 Prohibited Substances

Any substance other than those specified as a Level 1 Prohibited Substance and shown below

falls into this rank.

(1) A substance that will be prohibited in products after a certain period by a treaty, law, or regulation.

(2) A substance that is prohibited in products by the Panasonic Group prior to the effective period specified by a treaty, law, or regulation.

(3) A substance whose use is voluntarily restricted by the Panasonic Group.

In case that content of such substances in products is identified, proceed to use an alternative substance in the period under the restricted condition specified by these Guidelines.

5.5. Level 3 Prohibited Substances

Any substance other than those specified as a Level 1 or Level 2 Prohibited Substance that is reviewed for prohibition by convention, legislation, etc., and the clarification of issues for its alternative substance as well as the timing for prohibition is reviewed by the Panasonic Group in light of future legislation trends. The timing of prohibition of content of such substance in products is not set by the Panasonic Group at present.

5.6. Managed Substances

Refers to the substances whose state of actual use needs to be grasped and whose harmful effects to human health, safety and hygiene, adequate treatment, etc., must be considered. The managed substances subject to these guidelines are for grasping whether they are used in our products or not, not restricting their intentional use. For the subject managed substances, when they are used "intentionally" or their "inclusion is known," information of such substances need to be grasped.

5.7. Inclusion is known

Refers to the "information that the raw material contains the managed substance has been provided from the raw material manufacture" or the "data indicating that content of the managed substances has been confirmed by some other means."

5.8. Contained in Products

Refers to all cases where the substances are contained in products, components, devices, materials, etc. For example, the following conditions are included.

- Condition in which the subject substance is intentionally used
- Condition in which the subject substance is contained as an impurity
- Condition in which the subject substance is used in the manufacturing process and remains in, or adheres/migrates to the finished product, or its components or materials. (It is necessary to pay due attention to the substance's remaining in or adhesion/migration to the product. e.g. a mold, jig and tool, or machine equipment that directly contacts the product, or a container or hose that contacts paint, etc., during the manufacturing process.)

5.9. Intentional Use

Refers to the intentionally using a certain substance during the process of manufacturing a product, component, device, material, etc. when continuing to contain the substance is desirable for obtaining certain characteristics, appearance, or quality. Cases where the substance is not contained in the finished product, component, device, or material due to removal, chemical reaction, volatilization, and the like, are excluded.

5.10. Impurity

A substance contained in natural materials which cannot be fully removed during the refining process, or a substance which cannot be technically removed as the substance is generated in a reaction process.

5.11. Regulations by the Panasonic Group

Refers to the contents that should be guaranteed by a Business Division in the Panasonic Group regarding the content of prohibited substances in products shipped from the Panasonic Group, and/or contents that should be guaranteed by the supplier of components, devices, materials, etc. delivered to the Panasonic Group.

5.12. Regulated Value

Concentration that should be guaranteed by a Business Division in the Panasonic Group regarding the content of prohibited substances in products shipped from the Panasonic Group, and/or concentration that should be guaranteed by the supplier of components, devices, materials, and the like delivered to the Panasonic Group regarding the content of prohibited substances. The concentration includes impurity concentration.

5.13. Controlled Value

Refers to the contained concentration for management by the Panasonic Group, which is deemed being not exceeding the limit when the non-use control of Level 1 Prohibited Substances/Substance Groups is properly managed. If the contained concentration of the Prohibited substance exceeds the controlled value, request the supplier for clarification of the reason of the content. If necessary, request the supplier to reduce the contained concentration to below the controlled value. Warranty for the controlled value is not to be requested to suppliers.

5.14. Contained Concentration

Contained concentration refers to the concentration of the substance calculated by using the mass of homogeneous material as a denominator. Homogeneous material refers to the material that cannot be mechanically disintegrated into different materials. Examples of homogeneous materials are as follows.

- Chemical compound, polymer alloy, metal alloy, and the like.
- For raw materials such as paint, adhesive, ink, paste, resin polymer, glass powder, ceramic powder, and the like, the final form made using each presumed application method (e.g. for paints and adhesives, the state after drying or curing; for resin polymers, the state after molding; and for glass and ceramic materials, the state after firing.)
- Single layer of paint, print, plating, and the like. In the case of multiple layers, each single layer must be homogeneous material.

As for packaging material, however, the contained concentration is the total concentration (by weight) of the four metals, i.e. lead, cadmium, mercury, and hexavalent chromium, must be the contained concentration, calculated by using the mass of the part/material comprising the packaging (the part that can be easily separated, e.g. "corrugated board" used for packing the product, "adhesive tape" used for assembly in a corrugated box package, and “label” used for indication are to be considered as separate materials) as the denominator.

5.15. Date of Delivery Prohibition

Refers to the date from which delivery of components, devices, materials, etc. from suppliers (including Panasonic Business Divisions) to the Panasonic Group is prohibited.

6. Specified Managed Substances

6.1. Level 1 Prohibited Substances

Level 1 Prohibited Substances have been regulated in accordance with the following Japanese and foreign legislation (Table 1 in Appendix 1). Products shipped from the Panasonic Group, and components, devices, materials, etc. delivered to the Panasonic Group must guarantee compliance with the “Regulations by the Panasonic Group” shown in the Table 1 in Appendix 1.

If the contained concentration exceeds the controlled value (the concentration deemed being not exceeding the limit when the non-use control of Level 1 Prohibited Substances/Substance Groups is properly managed) as specified in Appendix 4 "Controlled Values for Prohibited Substances", request the supplier for clarification of the reason of content.

If necessary, request the supplier to reduce the contained concentration to below the controlled value.

For recycled materials, compliance with the Regulations by the Panasonic Group for the content

of Level 1 Prohibited Substances also must be guaranteed, and the subject substance must be controlled to be less than the controlled value.

6.1.1 Legislation in Japan and items subject to the requirements

- Class I Specified Chemical Substances (Substances prohibited from manufacturing and importing) determined by the "Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. (Chemical Substances Control Law)" (hereinafter **"CSCL"**)
- Specified Substances determined by the "Act on the Protection of the Ozone Layer through the Control and Other Measures on Specified Substances and Other Substances "(hereinafter **"Ozone Layer Protection Act"**).
- Substances subject to the obligation to control contained substances and provide information as determined by the "Act on the Promotion of Effective Utilization of Resources" (hereinafter **"3R Law"**)

6.1.2 Legislation outside Japan, international treaties, and items subject to the requirements

- EU RoHS Directive (Directive 2011/65/EU): Directive 2011/65/EU of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment (hereinafter **"EU RoHS"**)
- EU REACH (Regulation (EC) No. 1907/2006): Annex XVII (Restricted substances) of the Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (hereinafter **"EU REACH Annex XVII"**)
- EU POPs Regulation (Regulation (EU) 2019/1021): Annex I of the Regulation (EU) 2019/1021 of the European Parliament and of the Council on persistent organic pollutants (hereinafter **"EU POPs Annex I"**)
- EU Packaging and Packaging Waste Regulation ((EU) 2025/40): Regulation (EU) 2025/40 of the European Parliament and of the Council on packaging and packaging waste (hereinafter "**EU PPWR**")
- EU Ozone Depletion Substance (ODS) Regulation (Regulation (EU) 2024/590): Regulation (EU) 2024/590 of the European Parliament and of the Council on substances that deplete the ozone layer (hereinafter **"EU ODS Regulation"**)
- Regulation (EU) 2024/573 of the European Parliament and of the Council on fluorinated greenhouse gases (hereinafter **"F-gas Regulation"**)
- "EU End-of-life Vehicles (ELV) Directive (Directive 2000/53/EC) "of the European Parliament and of the Council (hereinafter **"EU ELV"**)
- "Specified states in the US: Toxics in Packaging Regulation)" (hereinafter **"US Specified States TIP"**)
- "Environmental Taxes on Ozone-depleting chemicals (ODCs); 26 CFR 52.4682-1-3)" (hereinafter **"US CFC tax"**)
- "The Clean Air Act; Title VI - Stratospheric Ozone Protection" (hereinafter **"US CAA"**)
- "US Toxic Substances Control Act" (hereinafter **"TSCA"**)
- "Canadian Environmental Protection Act", 1999 (hereinafter **"CEPA 1999"**)
- "The Montreal Protocol on Substances that Deplete the Ozone Layer" (hereinafter **"Montreal Protocol"**)
- "Stockholm Convention on Persistent Organic Pollutants" (hereinafter **"POPs Convention"**)
- "Minamata Convention on Mercury" (hereinafter **"Minamata Convention"**)

6.2. Level 2 Prohibited Substances

Level 2 Prohibited Substances are classified into Level 2A and Level 2B, depending on the intention for promoting alternative substances.

Level 2A Prohibited Substances refer to the substances whose use will be phased out after a certain period by a treaty, law, or regulation, or the substances whose use in products is prohibited by the Panasonic Group prior to a period specified by a treaty, law, or regulation.

Level 2B Prohibited Substances refer to the substances restricted for use on a voluntary basis by the Panasonic Group.

Refer to the list in the Table 2A and 2B in Appendix 1.

6.3. Level 3 Prohibited Substances

Refer to the list in the Table 3 in Appendix 1.

6.4. Managed Substances

Refers to the substances whose actual state of use needs to be grasped and whose harmful effects to human health, safety and hygiene, adequate treatment, etc. must be considered.
The managed substances subject to these guidelines are for grasping whether they are used in our products or not, not restricting their intentional use. For the subject managed substances, when they are used "intentionally" or their "inclusion is known," information of such substances need to be grasped*1.

*1: Reporting of contents of the "managed substances" in the packaging used by component supplier for transportation/protection is not required if legal compliance etc. is unnecessary (e.g. when components subject to REACH are exported to the EU along with packaging materials, it is required to report the content of candidate substances for authorization to its authority under the EU REACH (Substances of Very High Concern; SVHC).).

The managed substances in these Guidelines are subject to the substances listed in the legal regulations, industry standards etc. shown in the Table 1. These substances are equivalent to the substances covered by the "chemSHERPA Declarable Substance List. (latest Version)" specified by the Joint Article Management Promotion-consortium (JAMP), excluding the prohibited substances specified by these guidelines.

Substances subject to management must fully be compliant if applicable regions or products are individually designated by a treaty, law, ordinance, industry guidelines, etc.

Table 1 Legal Regulations, Industry Standards etc. relating to the Managed Substances

Target regulations	Remarks
CSCL (Class 1 specified substances)	Excluding the prohibited substances specified in these Guidelines
TSCA Prohibition of use or restriction of substances (Section 6)	Excluding the prohibited substances specified in these Guidelines
EU REACH Annex XVII	Excluding the prohibited substances specified in these Guidelines
EU REACH Candidate substances for authorization (Substances of Very High Concern (SVHC)) and Annex XIV (substances for authorization)	Excluding the prohibited substances specified in these Guidelines
EU POPs Annex I	Excluding the prohibited substances specified in these Guidelines
Global Automotive Declarable Substance List (GADSL) (Automotive industry)	Excluding the prohibited substances specified in these Guidelines
IEC 62474 (Electrical and electronic) Material Declaration for Products of and for the Electrotechnical Industry	Excluding the prohibited substances specified in these Guidelines

6.5. Substances List Specified by These Guidelines

Refer to the following document and list for legal regulations for the "prohibited substances" and "managed substances" as specified in these guidelines and the subject substances covered per industry standards.

– "Explanation of chemSHERPA Declarable Substances"*

* Reference addresses of the materials and list which are available in the chemSHERPA data entry support tool package (latest version).

Japanese	https://chemsherpa.net/tool
English, Chinese	https://chemsherpa.net/english/tool

6.6. Reference

In order to check whether the substance is one of the "managed substances," the chemSHERPA data entry support tool available from the link shown in 6.5 can be used. However, the tool is just an auxiliary means of checking the applicability of the substance. Even if the data entry support tool does not indicate the substance as declarable, the substance still needs to be reported if it is known to be subject to a certain regulation, and the likes.

7. Main Change Points from Version 14 to Version 15

(1) Level 1 Prohibited Substances

-Updated the regulated contents for Polychlorinated terphenyls (PCTs)
-Updated the regulated contents for Short-chain chlorinated paraffin (SCCPs, C10–13)
-Updated the regulated contents for Polybrominated Biphenyl Ether (PBDE)
-Updated the regulated contents for Formaldehyde
-Updated the regulated contents for Perfluorooctane sulfonate (PFOS)
-Updated the regulated contents for Hexabromocyclododecane (HBCD)
-Updated the regulated contents for Perfluorocarboxylic acids containing 9 to 14 carbon atoms in the chain (C9-C14 PFCA)
-Classified Perfluorocarboxylic acids containing 15 to 21 carbon atoms in the chain (C15-C21 PFCA) into the Level 1, higher level
-Updated the regulated contents for Dechlorane Plus™
-Updated the regulated contents for UV-328
-Classified Medium chain chlorinated paraffin (MCCP, C14-17) into the Level 1, higher level
- Specified brominated flame retardants are listed separately for PBB and PBDE

(2) Level 2 Prohibited Substances

-Classified Per- and polyfluoroalkyl substance (PFAS) into the Level 2A, higher level from the Level 3
-Classified Perfluorohexanoic acid (PFHxA) into the Level 2A, higher level from the Level 3
-Added Organohalgen flame retardant (OFR) to the Level 2B
-Classified Decabromodiphenyl Ethane (DPDPE) into the Level 2B, higher level from the Level 3

(3) Other revisions

Amended part	Amended Contents
Whole rank guidelines	The substances lists that were removed from the conventional rank guidelines are in the Appendix 1.
Appendixes	The lists of Prohibited Substances/Substance Groups are in the Appendix 1. The Exempted Item List under the EU RoHS Directive is in the Appendix 2. The Exempted Item List under the EU ELV Directive is in the Appendix 3. The Controlled Values for Prohibited Substances is in the Appendix 4.

Appendix 1

Table 1 List of Level 1 Prohibited Substances/Substance Groups

It is required to guarantee compliance with the Regulations specified by the Panasonic Group below.
Note 1: For the analysis of the major substances, follow IEC 62321[*1].
Note 2: Even if it is a substance that is not included in this list, also completely comply with relevant regulations for the substance if requirements for the substance that are specified by a treaty, law, ordinance, industry guidelines, or the like that are respectively set out in region and for specific products and the like.
Note 3: It is necessary to respectively check applicable regulations for the prohibited substances, because the prohibited substances even in spare parts of products for repair are often subjective to regulations.[*2]

No.	Substance/Substance Group Name	Regulations by the Panasonic Group	Regulated items	Major Referenced Laws/Regulations	Applications and use examples (Reference example)
1	Polychlorinated biphenyls (PCBs)	Intentional use prohibited and less than 50ppm[*3]	All applications	CSCL[*4] EU POPs Annex I POPs Convention	Insulating oil, lubricant oil, electric insulation materials, solvents, electrolytes, plasticizers, non-combustible materials, flame retardants, coating agents for electric wires and cables, dielectric sealant, etc.
	Polychlorinated terphenyls (PCTs)	Intentional use prohibited and Less than 50ppm[*3]	All applications	EU REACH Annex XVII	Insulating oil, lubricant oil, electric insulation materials, solvents, electrolytes, plasticizers, non-combustible materials, flame retardants, coating agents for electric wires and cables, dielectric sealant, etc.
2	Asbestos	Intentional use prohibited. Content of this substance, including unintentional contamination/adhesion from concurrent production or from manufacturing equipment, is prohibited	All applications	EU REACH Annex XVII	Brake lining pads, gaskets (sealing materials), insulators, fillers, abrasives, pigment, paints, talc, insulation materials, etc.
3	Specific organic tin compounds (1) Bis (tributyltin) oxide (TBTO) Tri-substituted organostannic compounds	Less than 1000ppm (Tin concentration[*5]) [*3]	All applications	CSCL EU REACH Annex XVII	Bis (tributyltin) oxide: Paints, pigments, preservatives, etc. Tri-substituted organostannic compounds: Paints, pigments, stabilizers, etc.
4	Specific organic tin compounds (2) Dibutyltin (DBT) compounds	Less than 1000ppm (Tin concentration[*5]) [*3] [*6]	All applications	EU REACH Annex XVII	Resin stabilizers, hardening catalysts for polyurethane or silicone, glass coating agents, rubber modifier agents, etc.

Appendix 1

No.	Substance/Substance Group Name	Regulations by the Panasonic Group	Regulated items	Major Referenced Laws/Regulations	Applications and use examples (Reference example)
5	Specific organic tin compounds (3) Dioctyltin (DOT) compounds	Less than 1000ppm (Tin concentration[*5]) [*3]	The following applications: - Textile articles come into contact with human skin - Walls and floor coverings - Two-component room temperature vulcanisation moulding kits (RTV-2 moulding kits)	EU REACH Annex XVII	Resin stabilizers, Polyvinyl chloride (PVC) stabilizers , etc.
6	Short-chain chlorinated paraffin (SCCPs, C10–13)	Intentional use prohibited and less than 1500ppm[*3]	All applications	CSCL EU POPs Annex I POPs Convention	Polyvinyl chloride (PVC) plasticizers, flame retardants, etc.
7	Polybrominated Biphenyls (PBB)	Intentional use prohibited and less than 1000ppm[*7]	All applications	CSCL EU RoHS EU REACH Annex XVII EU POPs Annex I POPs Convention	Flame retardants, etc.
8	Polybrominated Diphenyl Ether (PBDE)	-Equipment covered under the EU RoHS Intentional use prohibited and less than 1000ppm[*7]	(1) Equipment covered under the EU RoHS	CSCL EU RoHS EU POPs Annex I TSCA POPs Convention	Flame retardants, etc.
		-Other than the above Intentional use prohibited and less than 10ppm[*7]	(2) Items other than the above: all applications (e.g., application[*9] as materials for batteries[*8], automotive components, packaging materials, and toys and nursery items)		
			<Exemptions> - PBDE at concentration of less than 350ppm in homogeneous material of toys and childcare products containing recovered material where PBDE is present (until October 20, 2026) - PBDE at concentration of less than 350ppm in homogeneous material of articles (other than toys and childcare products) containing recovered material where PBDE is present (until June 30, 2027) - PBDE at concentration of less than 200ppm in homogeneous material of articles (other than toys and childcare products) containing recovered material where PBDE is present (from July 1, 2027)		

Appendix 1

No.	Substance/Substance Group Name	Regulations by the Panasonic Group	Regulated items	Major Referenced Laws/Regulations	Applications and use examples (Reference example)
9	Azo dye and pigment forming specified amines	Less than 30mg/kg (30ppm) (as specified amine)[*3]	Textiles and leather products that may have direct contact with human skin and/or oral cavities for an extended period of time. For the specified amines that must not be generated by reductive decomposition of Azo dye and pigment, see Attached table 1. (EU REACH Annex XVII Appendix 8 Entry 43 - Azocolourants - List of aromatic amines)	EU REACH Annex XVII	Clothing, bedding, towels, hairpieces, wigs, caps, other hygiene items, sleeping bags, footwear, gloves, wristwatch bands, earphones, headphones, straps, shoulder belts, etc.
10	Polychlorinated naphthalene (with 1 or more chlorine atoms)	Intentional use prohibited[*3]	All applications	CSCL EU POPs Annex I POPs Convention	Lubricants, paints, stabilizers (electric property, flame-proof property, water-proof property), insulation materials, flame retardants, etc.
11	Cadmium and its compounds	Less than 100ppm	All applications (See “Four heavy metals[*10]” for packaging materials) <Exemptions> - Items listed in Appendices 2 and 3 "Exempted Items List" - Application[*9] as materials for batteries[*8] (under the EU Battery Regulation)	3R Law EU RoHS EU ELV EU REACH Annex XVII	Stabilizers/pigments/dyes/paints/inks used for plastics (including rubbers, films), phosphors, alloys, packaging materials, etc.
12	Lead and its compounds[*11]	Less than 1000ppm	All applications (See “Four heavy metals[*10]” for packaging materials) <Exemptions> - Items listed in Appendices 2 and 3 "Exempted Items List" - Application[*9] as materials for batteries[*8] (under the EU Battery Regulation)	3R Law, EU RoHS EU ELV EU REACH Annex XVII	Paints, pigments, dyes, inks, stabilizer in plastics (including rubber), Soldering treatment for components’ external electrodes, lead terminals, etc., Packaging materials, etc.
13	Hexavalent chromium compounds	-Leather products and leather components: less than 3ppm[*12] -Items other than the above: Less than 1000ppm	(1) Leather products and leather components that have contact with human skin (2) Other than the above: All applications (See “Four heavy metals[*10]” for packaging materials.) <Exemptions> - Items listed in Appendices 2 and 3 "Exempted Items List" - Application[*9] as materials for batteries[*8] (under the EU Battery Regulation)	3R Law EU RoHS EU ELV EU REACH Annex XVII	Rust-proof treatment, resin, paints, pigments, inks, packaging materials, leathers (e.g. exterior parts of products, leather parts of carry bags) etc.

Appendix 1

No.	Substance/Substance Group Name	Regulations by the Panasonic Group	Regulated items	Major Referenced Laws/Regulations	Applications and use examples (Reference example)
14	Mercury and its compounds	Less than 1000ppm	All applications (See “Four heavy metals[*10]” for packaging materials.) <Exemptions> - Items listed in Appendices 2 and 3 "Exempted Items List" - Application[*9] as materials for batteries[*8] excluding mercury batteries (under the EU Battery Regulation)	3R Law EU RoHS EU ELV Minamata Convention	Pigments, dyes, paints, inks, indicators such as for hour meters,Relays, switches, and sensors where mercury is used for electrical contact point, Mixed compounds for plastics, Packaging materials, etc.
-	Four heavy metals (Cadmium, Lead, Hexavalent chromium, Mercury)	Intentional use prohibited and less than 100ppm in total with the mass of the materials constituting the packaging as the denominator[*13]	All applications in packaging <Exemptions> - Case that reuse of the substance in a closed loop such as pallets is clear. [*14]	EU PPWR US Specified States TIP	Pigments, dyes, paints, inks, packing materials, adhesives , staples, labels, etc.
15	Ozone-depleting substances (excluding HCFC)	Intentional use prohibited[*15]	All applications	Ozone Layer Protection Act EU ODS US CFC tax Montreal Protocol	Refrigerants, foaming agents, cleaners for mounted circuit boards, etc.
16	Hydrochlorofluorocarbons (HCFC)	Intentional use prohibited[*3]	All applications[*16]	Ozone Layer Protection Act EU ODS EU F-gas Regulation US CAA Montreal Protocol	Refrigerants, foaming agents, cleaners for mounted circuit boards, etc.
17	Formaldehyde	-Wood-base articles Aerial concentration: Less than 0.062mg/m^3(0.05ppm)[*17] -Articles other than the above Aerial concentration: Less than 0.080mg/m^3(0.06ppm)[*17]	All applications (of articles) [*18 *19] Note: the regulated values for building materials, housing equipment, etc. must be specified by the applicable Operating Companies or Business Division.	EU REACH Annex XVII TSCA CEPA 1999	Synthetic resin raw materials for manufacture, preservatives, adhesives etc.
18	Perfluorooctane sulfonate (PFOS), its salts and PFOS-related substances[*20]	Intentional use prohibited and -In the case of PFOS (including its salts): less than 25ppb (0.025ppm)[*3] -In the case of one or combination of multiple PFOS-related substances: less than 1000ppb(1ppm) in total[*3]	All applications	CSCL EU POPs Annex I POPs Convention	Antireflection agents and resist for semiconductors, agents for metal plating treatment, etc.
19	Specific benzotriazole compounds (1) UV-320 (2- (2H-1,2,3-benzotriazole-2-yl) -4, 6-di-tert-butylphenol)	Intentional use prohibited[*3]	All applications	CSCL	UV absorption agents for plastic resin, plastic building materials, coating resin for photos with sublimation transfer printing, etc.

Appendix 1

No.	Substance/Substance Group Name	Regulations by the Panasonic Group	Regulated items	Major Referenced Laws/Regulations	Applications and use examples (Reference example)
20	Dimethylfumarate (DMF)	Less than 0.1ppm[*3]	All applications	EU REACH Annex XVII	Moisture-proof agents, mold-proof agents, etc.
21	Polycyclic aromatic hydrocarbons (PAH)	Less than 1ppm[*3]	Rubber or plastic components that come into direct as well as prolonged or short-term repetitive contact with human skin or oral cavity. Refer to Attached table 2 for the list of substances subject to the regulations.	EU REACH Annex XVII	Sport equipment such as bicycles, golf clubs, and racquets, household items, trolleys, walking frames, tools for domestic use, clothing, footwear, gloves and sportswear, watch-straps, wrist-bands, masks, hair ornaments, etc.
22	Hexabromocyclododecane (HBCD)	Intentional use prohibited and less than 75ppm[*3]	All applications	CSCL EU POPs Annex I POPs Convention	Flame retardants, etc.
23	Four phthalates -Bis(2-ethylhexyl) phthalate (DEHP[*21]) -Benzyl butyl phthalate (BBP) -Dibutyl phthalate (DBP) -Diisobutyl phthalate (DIBP)	-Equipment covered under the EU RoHS Less than 1000ppm per one phthalate	(1) Equipment covered under the EU RoHS	EU RoHS	Plasticizers for rubbers, elastomers, and resin (particularly polyvinyl chloride), paints, inks, and additives for adhesives, etc.
		-Other than the above Less than 1000ppm in total of the four phthalates	(2) Other than the above: Products covered under the EU REACH Annex XVII Restriction on phthalates (e.g. Application as materials for batteries[*8], packaging materials[*22], and toys and nursery items)	EU REACH Annex XVII	
24	Three chlorinated phosphate ester flame retardants -Tris(1,3-dichloro-2-propyl) phosphate (TDCPP) -Tris(2-chloroethyl) phosphate (TCEP) -Tris (1-chloro-2propyl) phosphate (TCPP)	Less than 1000ppm[*3]	All applications <Exemptions> - Motor vehicles and their replacement parts Commercial or residential building insulation materials or wirings - Desktop and laptop computers, audio and video equipment, calculators, wireless telephones, game consoles, portable terminals incorporating a screen that are used to access interactive software and their associated peripherals, and connecting devices including cables and adaptors - Storage media, such as compact discs, interactive software such as for computer games	US Law (including state law)	Flame retardants, etc.

Appendix 1

No.	Substance/Substance Group Name	Regulations by the Panasonic Group	Regulated items	Major Referenced Laws/Regulations	Applications and use examples (Reference example)
25	Hydrofluorocarbon (HFC)	Intentional use prohibited[*3]	Products including those contains HFC stated in Attached table 3 Each product is restricted for the limited period set by HFC global warming potential (GWP) per individual application.	EU F-gas Regulation CEPA 1999	Stand-alone cooling equipment, Centralized cooling equipment, Chillers, Mobile cooling equipment, Household refrigerator, Extruded polystyrene forms, Rigid polystyrene forms, and High/low pressure polystyrene spray forms, that were manufactured using HFC, Automobile air conditioners, Aerosols, etc.
26	Perfluorooctanoic acid (PFOA), its salts and PFOA-related substances	Intentional use prohibited, and -in the case of PFOA (including individual salts): less than 25ppb (0.025ppm)[*3.] -In the case of one or combination of multiple PFOA-related substances: less than 1000ppb (1ppm) in total concentration[*3]	All applications	CSCL EU POPs Annex I POPs Convention	Fluororesin/Fluor rubber, fluorine coating, antireflection agents in semiconductor exposure process, etc.
27	Perfluorocarboxylic acids containing 9 to 21 carbon atoms in the chain (C9-C21 PFCAs), their salts and C9-C21 PFCA-related substances	[C9-C14 PFCA] Intentional use prohibited, and -In the case of C9-C14 PFCAs (including individual salts): less than 25 ppb(0.025ppm) [*3] -In the case of one or combination of multiple C9-C14 PFCA-related substances: less than 260ppb(0.26ppm) in total concentration [*3]	All applications <Exemptions> - C9-C14 PFCAs as impurity at concentration of 1ppm or less in polytetrafluoroethylene (PTFE) micropowder by ionizing radiation or by thermal degradation	EU REACH Annex XVII	Fluororesin/Fluor rubber, fluorine coating, antireflection agents and heat medium in semiconductor exposure process, etc.
		[C15-C21 PFCA] Intentional use prohibited[*3]	All applications	POPs Convention	

Appendix 1

No.	Substance/Substance Group Name	Regulations by the Panasonic Group	Regulated items	Major Referenced Laws/Regulations	Applications and use examples (Reference example)
28	Perfluorohexane-1-sulphonic acid (PFHxS), its salts, and PFHxS-related substances	Intentional use prohibited, and -In the case of PFHxS (including its salts): less than 25ppb (0.025ppm)[*3] -In the case of one or combination of multiple PFHxS-related substances: less than 1000ppb(1ppm) in total concentration [*3]	All applications	EU POPs Annex I POPs Convention	Fluorine coating, metal plating, etc.
29	Tris phosphate (Phenol isopropylated phosphate) (3:1) (PIP (3:1))	Intentional use prohibited[*3]	All applications ＜Exemptions＞ - Lubricants and Grease - Automobiles (including trucks, motorcycles, vehicles for construction, agricultural, and industrial uses) and aerospace planes - Products or articles made from the recycled plastics containing PIP(3:1) (Note that PIP(3:1) must not be newly added in the recycling or production process)	TSCA	Flame retardants, plasticizers, etc.
30	Dechlorane Plus™ (1,6,7,8,9,14,15,16,17,17,18,18-dodecachloropentacyclo [12.2.1.1^{6,9}.0^{2,13}.0^{5,10}]octadecane-7,15-diene)	Intentional use prohibited and less than 1000ppm[*3] -from Apr. 16, 2027 less than 1ppm[*3]	All applications ＜Exemptions＞ (until Aug. 26, 2029) - Aerospace plane, Defense application - Devices/equipment for medical image diagnosis or radio therapy	CSCL EU POPs Annex I POPs Convention	Flame retardants, etc.
31	Specific benzotriazole compounds (2) UV-328 (2-(2H- benzotriazole-2-y)-4,6-di-tert-pentylphenol)	Intentional use prohibited and less than 100ppm[*3] -from Aug. 4, 2026 less than 10ppm[*3] -from Aug. 4, 2028 less than 1ppm[*3]	All applications ＜Exemptions＞ (until Feb. 4, 2030) - Automobiles (including trucks, motorcycles, vehicles for construction, agricultural, and industrial use) - Industrial coating for engineering machines, rail transportation vehicles, and heavy-duty coatings for large steel structures, etc. - Triacetyl cellulose (TAC) film in polarizing plates - Aircrafts	CSCL EU POPs Annex I POPs Convention	UV absorption agents for plastic resin, etc.

Appendix 1

No.	Substance/Substance Group Name	Regulations by the Panasonic Group	Regulated items	Major Referenced Laws/Regulations	Applications and use examples (Reference example)
32	Medium chain chlorinated paraffin (MCCP, C14-17) (limited to whose chlorinated content is 45wt% or more)	Intentional use prohibited[*3]	All applications ＜Exemptions＞ - Flexible PVC used for; ・Construction sector, including maintenance of buildings and other structures, for uses other than flooring in indoor spaces that are not used for commercial purposes ・Wires and cables in the construction sector ・Wires and cables in medical devices and in-vitro diagnostic devices ・Calendered films in the packaging field - Flexible elastomeric foam for thermal insulation (FEF) - Adhesives or sealants used for; ・Polysulfide sealant and one-component polyurethane foam used in sealing for doors and windows ・Waterproof coatings and anticorrosion coatings ・Aerospace and defence applications - Tape used for non-structural bonding in aerospace and defence products - Fatliquoring component in leather, except in children's products	POPs Convention	Flame retardants, plasticizers, metal working oil, etc.

Appendix 1

*1：The original text for IEC 62321 (Determination of certain substances in electrotechnical products) is available from, for example, the IEC Web Store (https://webstore.iec.ch/), and Japanese Standards Association (JSA) website (http://www.jsa.or.jp/).

*2：As for the spare parts of products for repair, applicable or not applicable laws and regulations are as follows; it is necessary to pay due attention to the law or regulation, as the requirements differ depending on the law or regulation.

Laws and regulations	The spare parts of products for repair whose products are placed on the market **before** the effective date of the regulation or the expiration date of the exemption	The spare parts of products for repair whose products are placed on the market **after** the effective date of the regulation or the expiration date of the exemption
EU REACH, EU POPs, and the like	Applicable (With some exceptions)	Applicable (With some exceptions)
EU RoHS Directive	Not applicable	Applicable

*3：If compliance with the Regulations by the Panasonic Group is verified by tracing back the supply chain, the analysis for checking non-use of the subject substance is not required.

*4：It is also necessary to consider how to handle Chemical Substances Containing By-Product Class I Specified Chemical Substances.

*5：Tin concentration = (The specific organic tin compound concentration in a homogeneous material) x (Tin conversion coefficient)

$$\text{Tin conversion coefficient} = \frac{118.7^{*A} \times N^{*B}}{[\text{Molecular weight of a specified organic tin compound}]}$$

*A: Tin atomic weight, *B: Number of tin atoms in tin compounds

*6：If a dibutyltin compound is intentionally used with a concentration of less than 1000ppm, we may request the supplier to submit evidence (e.g., analysis data) ensuring that the concentration is less than 1000ppm, regulated value.

*7：The regulated value indicates the concentration of each substance group.

*8：Batteries (primary batteries), accumulators (secondary batteries), and battery packs.

*9：For batteries, check individual laws and regulations, and take actions if necessary.

*10：In the table, regulated contents regarding packaging materials from No.11 to 14 are stated on the line below the line No. 14.

*11：For products destined for North America subject to the California Proposition 65 Settlement Agreement dated September 3, 2002, if lead is intentionally added to the surface material covering the cord, or its lead content exceeds 300ppm (0.03%), a warning label is required.

*12：The weight of hexavalent chromium must be less than 3ppm using the total dry weight of the leather product or leather component as the denominator. For chrome tanned (including trivalent chromium tanned) leather products and leather components, conduct analysis and confirm that the content rate of hexavalent chromium is less than 3ppm. On the other hand, for non-chrome tanned leather products and leather components, trace back the supply chain and confirm that the content rate of hexavalent chromium is less than 3ppm; if confirmed, analysis of this substance is unnecessary.

*13：Total content of four heavy metals (lead, cadmium, mercury, and hexavalent chromium) must be less than 100ppm by weight using the mass of materials that constitute the package as the denominator. Materials constitute the package are parts which can be easily separated (e.g. "corrugated boards" in corrugated board packaging and "adhesive tapes" used for assembly, and “label” for displaying are respectively considered as different materials.)

*14：When a packaging material with a total content of four heavy metals exceeding 100ppm is reused in a closed loop, check relevant regulations and handle each case individually since notification obligation etc. are imposed by the US Specified States Toxics in Packaging Regulation.

*15：In the latest Green Procurement Standards, use of subject substances, including use of ozone-depleting substances in production processes (although any of the substances is not contained in the product or component, including the intentional use of such substances during manufacturing the product or component (e.g., in the cleaning process)) is prohibited.

*16：For developing countries to which Article 5 of The Montreal Protocol “Special situation of developing countries” applies, respond to the regulation, considering technical and economic feasibility.

*17：Use the test methods specified by respective laws and regulations.

*18：For composite woods and finished products containing composite woods sold in the State of California, U.S., check the contents of the California Airborne Toxic Control Measure (ATCM) for Composite Wood to take actions for individual products if necessary.

*19：For formaldehyde content in fiber, the subject products destined for Europe must be checked with the regulation in Austria (Austria - BGB I 1990/194: Formalde hydverordnung, regulates the amount must be 75ppm), and necessary actions must be taken for individual product if necessary.

*20：Perfluorooctane sulfonic acid; PFOS, molecular formula $C_8F_{17}SO_2X$ (X = other related compounds including OH, metallic salts, halogen compounds, amides, and/or polymers).

*21：DEHP is often called as DOP, particularly by raw material manufacturers; therefore, particular attention must be paid to the indication of “DOP”.

*22：Note that the four phthalates in the packaging materials are restricted in total concentration as the packaging materials are subject to the EU REACH.

Appendix 1

◆Attached table 1：Specified amines that must not generate

No	CAS RN®	Substances
1	92-67-1	biphenyl-4-ylamine 4-aminodiphenyl xenylamine
2	92-87-5	Benzidine
3	95-69-2	4-chloro-o-toluidine
4	91-59-8	2-naphthylamine
5	97-56-3	o-aminoazotoluene 4-amino-2',3-dimethylazobenzene 4-o-tolylazo-o-toluidine
6	99-55-8	5-nitro-o-toluidine
7	106-47-8	4-chloroaniline
8	615-05-4	4-methoxy-m-phenylenediamine
9	101-77-9	4,4'-methylenedianiline 4,4'-diaminodiphenylmethane
10	91-94-1	3,3'-dichlorobenzidine 3,3'-dichlorobiphenyl-4,4'-ylenediamine
11	119-90-4	3,3'-dimethoxybenzidine o-dianisidine
12	119-93-7	3,3'-dimethylbenzidine 4,4'-bi-o-toluidine
13	838-88-0	4,4'-methylenedi-o-toluidine
14	120-71-8	6-methoxy-m-toluidine p-cresidine
15	101-14-4	4,4'-methylene-bis-(2-chloro-aniline) 2,2'-dichloro-4,4'-methylene-dianiline
16	101-80-4	4,4'-oxydianiline
17	139-65-1	4,4'-thiodianiline
18	95-53-4	o-toluidine 2-aminotoluene
19	95-80-7	4-methyl-m-phenylenediamine 2,4-toluenediamine
20	137-17-7	2,4,5-trimethylaniline
21	90-04-0	o-anisidine 2-methoxyaniline
22	60-09-3	4-amino azobenzene

Appendix 1

◆Attached table 2：Polycyclic aromatic hydrocarbons (PAH) Covered substances

No	CAS RN®	Substances
1	50-32-8	Benzo[a]pyrene(BaP)
2	192-97-2	Benzo[e]pyrene(BeP)
3	56-55-3	Benzo[a]anthracene(BaA)
4	218-01-9	Chrysen(CHR)
5	205-99-2	Benzo[b]fluoranthene(BbFA)
6	205-82-3	Benzo[j]fluoranthene(BjFA)
7	207-08-9	Benzo[k]fluoranthene(BkFA)
8	53-70-3	Dibenzo [a, h] anthracene(DBAhA)

◆Attached table 3：Hydrofluorocarbon (HFC)

No	CAS RN®	Substance Name	Another name
1	75-46-7	Trifluoromethane	HFC-23
2	75-10-5	Difluoromethane	HFC-32
3	593-53-3	Fluoromethane	HFC-41
4	354-33-6	1,1,1,2,2-Pentafluoroethane	HFC-125
5	359-35-3	1,1,2,2-Tetrafluoroethane	HFC-134
6	811-97-2	1,1,1,2-Tetrafluoroethane	HFC-134a
7	430-66-0	1,1,2-Trifluoroethane	HFC-143
8	420-46-2	1,1,1-Trifluoroethane	HFC-143a
9	624-72-6	1,2-Difluoroethane	HFC-152
10	75-37-6	1,1-Difluoroethane	HFC-152a
11	431-89-0	1,1,1,2,3,3,3-Heptafluoropropane	HFC-227ea
12	677-56-5	1,1,1,2,2,3-Hexafluoropropane	HFC-236cb
13	431-63-0	1,1,1,2,3,3-Hexafluoropropane	HFC-236ea
14	690-39-1	1,1,1,3,3,3-Hexafluoropropane	HFC-236fa
15	679-86-7	1,1,2,2,3-Pentafluoropropane	HFC-245ca
16	460-73-1	1,1,1,3,3-Pentafluoropropane	HFC-245fa
17	406-58-6	1,1,1,3,3-Pentafluorobutane	HFC-365mfc
18	138495-42-	1,1,1,2,3,4,4,5,5,5-Decafluoropentane	HFC-43-10mee
19	353-36-6	Fluoroethane	HFC-161

Appendix 1

Table 2A List of Level 2A Prohibited Substances/Substance Groups

No	Substance/Substance Group Name	Date of Delivery Prohibition *1	Regulated items	Major Referenced Laws/Regulations	Applications and use examples (Reference example)
1	Per- and polyfluoroalkyl substance (PFAS)	Jan. 1, 2031 The date may be changed depending on the regulatory trend in the future.	All applications	US Law	Flame retardants, electric insulation materials, agents for fluorine processing, water/oil repellents,anti-corrosion agents, heat resistant agents, antifouling treatment, lubricants, refrigerants, etc.
2	Perfluorohexanoic acid (PFHxA) and its salts, and PFHxA related substances	Oct. 10, 2026	In the use of textiles, leather, furs and hides; - In the case of PFHxA (including its salts): less than 25ppb (0.025ppm) - In the case of one or combination of multiple PFHxA-related substances: less than 1000ppb(1ppm) in total concentration	EU REACH	Textile and leather parts for earphones, headphones, straps, shoulder belts, carry bags, etc.

*1: When an Operating Company or Business Division of the Panasonic Group sets its own timing earlier than these Guidelines in accordance with its circumstances (e.g. requests by a customer), such information must be communicated to relevant parties (e.g. suppliers).

Appendix 1

Table 2B List of Level 2B Prohibited Substances/Substance Groups

No	Substance/Substance Group Name	Date of Delivery Prohibition *1	Regulated items	Major Referenced Laws/Regulations	Applications and use examples (Reference example)
1	Polyvinyl chloride (PVC) and its mixtures	–	Use in the following applications; (1) Internal wirings in equipment*2 of new electrical and electronic equipment (2) Packaging materials used for products, and for accessories, etc. to be included in the product package Note that the restricted individual components and materials must be handled upon request from a relevant Operating Company/Business Division of the Panasonic Group. However, the alternative PVC material must be halogen-free (excluding fluorine) in principle. When using red phosphorus as a flame retardant, ensure the product compliance with relevant product safety standards. ＜Exemptions＞ - Decision by relevant Operating Companies and Business Divisions: In cases where: quality such as safety cannot be maintained; procurement is difficult; materials are specified by law or regulation; materials are specified by the customer, etc.	Panasonic Group's voluntary restriction	Internal wirings, packaging materials, etc.
2	Bisphenol A (BPA, 2,2-Bis(4-hydroxyphenyl)propane) and bisphenols of similar concern	Details will be set in response to the regulatory trend hereafter.	All applications	EU REACH	Raw materials of epoxy resin or polycarbonate resin, etc.
3	Organohalogen flame retardant (OFR)	Details will be set in response to the regulatory trend hereafter.	Use in the following applications; (1) Plastic cases and stands for displays*3,:*4, *5 (2) Other than the above: plastic cases of EEE for indoor use*5 ＜Exemptions＞ - Cases of components that do not contact human skins - Codes, cables, switches, connectors	US Law	Flame retardants, etc.
4	Decabromodiphenyl Ethane (DBDPE)	Details will be set in response to the regulatory trend hereafter.	All applications	CEPA 1999	Flame retardants in print circuit board, etc.

*1: When an Operating Company or Business Division of the Panasonic Group sets its own timing earlier than these Guidelines in accordance with its circumstances (e.g., requests by a customer), such information must be communicated to relevant parties (e.g., suppliers).

*2: Cables considered as equipment under the EU RoHS Directive are excluded.

*3: For finished products to be sold in the state of New York in the U.S., contents of the Regulation of flame retardants in electronic display and upholstered furniture (enforcement date: Dec. 1, 2024) must be checked and actions per individual product must be taken, if necessary.

*4: For finished products to be sold in EU, contents of electronic display regulation under the EU Eco Design Directive (EU)2019/2021 (enforcement date: March 1, 2021) must be checked and actions per individual product must be taken, if necessary.

*5: For finished products to be sold in the state of Washington in the U.S., contents of the Regulation of Organohalogen flame retardants under Safer Products for Washington program. (enforcement date: for displays' plastic cases and stands: Jan. 1, 2025, for EEEs' plastic cases for indoor use: Jan. 1, 2027) must be checked, and actions per individual product must be taken, if necessary.

Appendix 1

Table 3 List of Level 3 Prohibited Substances/Substance Groups

Substance/Substance Group Name	Major Law referenced
Phthalates other than DEHP, BBP, DBP, DIBP*1	-EU REACH Annex XVII (subject to toys) -California Proposition 65 -TSCA SNUR -US Specified States TIP
Diarsenic trioxide, Diarsenic pentaoxide	EU REACH Annex XIV (Substances subject to the authorization)
Cobalt dichloride	EU REACH Annex XIV (Substances subject to the authorization) Draft recommendation
Ceramic Fibers	EU REACH (Substances subject to the authorization) Draft recommendation
Beryllium oxide	Substance subject to providing information to WEEE recyclers
Triphenyl phosphate (TPP)	TSCA
Additive Tetrabromobisphenol A (TBBPA)	EU REACH

*1: e.g. Diisononyl phthalate (DINP), Di-n-pentyl phthalate, Diisopentyl phthalate (DIPP), Di-n-octyl phthalate, Bis(2-methoxyethyl) phthalate, Di-isodecyl phthalate (DIDP), etc.

Appendix 2. Exempted Item List under the EU RoHS Directive

<< Panasonic Group Chemical Substances Management Rank Guidelines List of Exempted Items

Revised: July 2, 2025

A part of expired exempted substances are not included on this list.
For the latest information on exempted substances, make sure to check details with the following European Commission RoHS web site:
https://environment.ec.europa.eu/topics/waste-and-recycling/rohs-directive/implementation-rohs-directive_en
To those who have an ID for the Panasonic Chemical Substance Management (PCSM) system,
refer to the latest information on exempted substances on the notice of the PCSM system.
Note that on the table below, the following abbreviations are respectively used for the categories.
Cat. 8 vitro : vitro diagnostic medical devices in the category 8
Cat. 9 industrial : industrial monitoring and control instruments in the category 9
Cat. 8, 9 others : subcategory for product items other than the vitro diagnostic medical devices specified in the cat. 8 and the industrial monitoring and control instruments specified in the cat. 9
Categories of EEE are as follows:
1. Large household appliances.
2. Small household appliances.
3. IT and telecommunications equipment.
4. Consumer equipment.
5. Lighting equipment.
6. Electrical and electronic tools.
7. Toys, leisure and sports equipment.
8. Medical devices.
9. Monitoring and control instruments including industrial monitoring and control instruments.
10. Automatic dispensers.
11. Other EEE not covered by any of the categories above.

◆ Referenced legislation: EU RoHS Directive ANNEX III

No.	Exemption	Expiry Date of the Exemption	Date of Delivery Prohibition (Six months before the Expiry Date of the Exemption)
1 (a)	Mercury in single capped (compact) fluorescent lamps for general lighting purposes < 30 W:not exceeding (per burner) 2.5 mg	24 February 2023	Already prohibited
1 (b)	Mercury in single capped (compact) fluorescent lamps for general lighting purposes ≥ 30 W and < 50 W:not exceeding (per burner) 3.5 mg	24 February 2023	Already prohibited
1 (c)	Mercury in single capped (compact) fluorescent lamps for general lighting purposes ≥ 50 W and < 150 W:not exceeding (per burner) 5 mg	24 February 2023	Already prohibited
1 (d)	Mercury in single capped (compact) fluorescent lamps for general lighting purposes ≥ 150 W:not exceeding (per burner) 15 mg	24 February 2023	Already prohibited
1 (e)	Mercury in single capped (compact) fluorescent lamps for general lighting purposes with circular or square structural shape and tube diameter ≤ 17 mm:not exceeding (per burner) 5 mg	24 February 2023	Already prohibited
1 (f)-I	Mercury in single capped (compact) fluorescent lamps for lamps designed to emit mainly light in the ultraviolet spectrum: not exceeding (per burner) 5 mg	24 February 2027	24 August 2026
1 (f)-II	Mercury in single capped (compact) fluorescent lamps for special purposes: not exceeding (per burner) 5 mg	24 February 2025	Already prohibited
1 (g)	Mercury in single capped (compact) fluorescent lamps for general lighting purposes < 30 W with a lifetime equal or above 20 000 h:not exceeding (per burner) 3.5 mg	24 August 2023	Already prohibited
2 (a) (1)	Mercury in double-capped linear fluorescent lamps Tri-band phosphor with normal lifetime and a tube diameter < 9 mm (e.g. T2) for general lighting purposes not exceeding (per lamp): 4 mg	24 February 2023	Already prohibited
2 (a) (2)	Mercury in double-capped linear fluorescent lamps Tri-band phosphor with normal lifetime and a tube diameter ≥ 9 mm and ≤ 17 mm (e.g. T5) for general lighting purposes not exceeding (per lamp): 3 mg	24 August 2023	Already prohibited
2 (a) (3)	Mercury in double-capped linear fluorescent lamps Tri-band phosphor with normal lifetime and a tube diameter > 17 mm and ≤ 28 mm (e.g. T8) for general lighting purposes not exceeding (per lamp): 3.5 mg	24 August 2023	Already prohibited
2 (a) (4)	Mercury in double-capped linear fluorescent lamps Tri-band phosphor with normal lifetime and a tube diameter > 28 mm (e.g. T12) for general lighting purposes not exceeding (per lamp): 3.5 mg	24 February 2023	Already prohibited
2 (a) (5)	Mercury in double-capped linear fluorescent lamps Tri-band phosphor with long lifetime (≥ 25000h) for general lighting purposes not exceeding (per lamp): 5 mg	24 February 2023	Already prohibited
2 (b) (1)	Mercury in other fluorescent lamps Linear halophosphate lamps with tube > 28 mm (e.g. T10 and T12) not exceeding (per lamp):10 mg	13 April 2012	Already prohibited
2 (b) (2)	Mercury in other fluorescent lamps Non-linear halophosphate lamps (all diameters) not exceeding (per lamp):15 mg	13 April 2016	Already prohibited
2 (b) (3)	Mercury in other fluorescent lamps Non-linear tri-band phosphor lamps with tube diameter > 17 mm (e.g. T9) not exceeding (per lamp): 15 mg	24 February 2023	Already prohibited
	Mercury in other fluorescent lamps Non-linear tri-band phosphor lamps with tube diameter > 17 mm (e.g. T9) not exceeding (per lamp): 10 mg	24 February 2025	Already prohibited
2 (b) (4)-I	Mercury in lamps for other general lighting and special purposes (e.g. induction lamps)not exceeding (per lamp): 15 mg	Currently under review in EU	To be set based on EU review results
2 (b) (4)-II	Mercury in lamps emitting mainly light in the ultraviolet spectrum, not exceeding (per lamp): 15 mg	24 February 2027	24 August 2026
2 (b) (4)-III	Mercury in emergency lamps, not exceeding (per lamp): 15 mg	24 February 2027	24 August 2026

Appendix 2

No.	Exemption	Expiry Date of the Exemption	Date of Delivery Prohibition (Six months before the Expiry Date of the Exemption)
3 (a)	Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes Short length (≤ 500 mm) not exceeding (per lamp): 3.5 mg	24 February 2025	Already prohibited
3 (b)	Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes Medium length (> 500 mm and ≤ 1 500 mm) not exceeding (per lamp):5 mg	24 February 2025	Already prohibited
3 (c)	Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes Long length (> 1 500 mm) not exceeding (per lamp):13 mg	24 February 2025	Already prohibited
4 (a)	Mercury in other low pressure discharge lamps not exceeding (per lamp):15 mg	24 February 2023	Already prohibited
4 (a)-I	Mercury in low pressure non-phosphor coated discharge lamps, where the application requires the main range of the lampspectral output to be in the ultraviolet spectrum: up to 15 mg (per lamp)	24 February 2027	24 August 2026
4 (b)	Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner) in lamps with improved colour rendering index Ra > 80: P ≤ 105 W: 16 mg may be used per burner	22 February 2027	22 August 2026
4 (b)-I	Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner) in lamps with improved colour rendering index Ra > 60, P ≤ 155 W: 30 mg	22 February 2023	Already prohibited
4 (b)-II	Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes with improved colour rendering index Ra > 60, 155 W < P ≤ 405 W: 40 mg	22 February 2023	Already prohibited
4 (b)-III	Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes with improved colour rendering index Ra > 60, P > 405 W: 40 mg	22 February 2023	Already prohibited
4 (c)-I	Mercury in other High Pressure Sodium (vapour) lamps for general lighting purposes P ≤ 155 W not exceeding (per burner):20 mg	24 February 2027	24 August 2026
4 (c)-II	Mercury in other High Pressure Sodium (vapour) lamps for general lighting purposes 155 W < P ≤ 405 W not exceeding (per burner):25 mg	24 February 2027	24 August 2026
4 (c)-III	Mercury in other High Pressure Sodium (vapour) lamps for general lighting purposes P > 405 W not exceeding (per burner):25 mg	24 February 2027	24 August 2026
4 (d)	Mercury in High Pressure Mercury (vapour) lamps (HPMV). Expires on 13 April 2015	13 April 2015	Already prohibited
4 (e)	Mercury in metal halide lamps (MH)	22 February 2027	22 August 2026
4 (f)-I	Mercury in other discharge lamps for special purposes not specifically mentioned in this Annex	Currently under review in EU	To be set based on EU review results
4 (f)-II	Mercury in high pressure mercury vapour lamps used in projectors where an output ≥ 2000 lumen ANSI is required	24 February 2027	24 August 2026
4 (f)-III	Mercury in high pressure sodium vapour lamps used for horticulture lighting	24 February 2027	24 August 2026
4 (f)-IV	Mercury in lamps emitting light in the ultraviolet spectrum	24 February 2027	24 August 2026
4 (g)	Mercury in hand crafted luminous discharge tubes used for signs, decorative or architectural and specialist lighting and light-artwork, where the mercury content shall be limited as follows: (a) 20 mg per electrode pair + 0.3 mg per tube length in cm, but not more than 80 mg, for outdoor applications and indoor applications exposed to temperatures below 20 ℃; (b) 15 mg per electrode pair + 0.24 mg per tube length in cm, but not more than 80 mg, for all other indoor applications.	31 December 2018	Already prohibited
5 (a)	Lead in glass of cathode ray tubes	21 July 2016 (Cat.1–7, 10) 21 July 2021 (Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial and Cat.11)	Already prohibited
5(b)	Lead in glass of fluorescent tubes not exceeding 0.2% by weight	Currently under review in EU (Cat.1–7, 10) 21 July 2021 (Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial and Cat.11)	To be set based on EU review results (Cat.1–7, 10) Already prohibited (Cat. 8, 9, 11)
6(a)	Lead as an alloying element in steel for machining purposes and in galvanized steel containing up to 0,35 % lead by weight	Currently under review in EU (Cat.8, 9, 11)	To be set based on EU review results (Cat.8, 9, 11)
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	Currently under review in EU (1-7, 10)	To be set based on EU review results (1-7, 10)
6(b)	Lead as an alloying element in aluminium containing up to 0.4% lead by weight	Currently under review in EU (Cat.8, 9, 11)	To be set based on EU review results (Cat.8, 9, 11)
6(b)-I	Lead as an alloying element in aluminium containing up to 0,4 % lead by weight, provided it stems from lead-bearing aluminium scrap recycling	Currently under review in EU (1-7, 10)	To be set based on EU review results (1-7, 10)
6(b)-II	Lead as an alloying element in aluminium for machining purposes with a lead content up to 0,4 % by weight	Currently under review in EU (1-7, 10)	To be set based on EU review results (1-7, 10)
6(c)	Copper alloy containing up to 4% lead by weight	Currently under review in EU	To be set based on EU review results
7(a)	Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead) (except applications covered by point 24 of this Annex)	Currently under review in EU	To be set based on EU review results

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No.	Exemption	Expiry Date of the Exemption	Date of Delivery Prohibition (Six months before the Expiry Date of the Exemption)
7(b)	Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission, and network management for tele-communications	21 July 2016 (Cat.1–7, 10) 21 July 2021 (Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial and Cat.11)	Already prohibited
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	Currently under review in EU	To be set based on EU review results
7(c)-II	Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher (Does not apply to applications covered by point 7(c)-I and 7(c)-IV of this Annex)	Currently under review in EU	To be set based on EU review results
7(c)-III	Lead in dielectric ceramic in capacitors for a rated voltage of less than 125 V AC or 250 V DC	1 January 2013	Already prohibited
	Lead in dielectric ceramics in a capacitor with a rated voltage of AC 125 V or DC less than 250 V, which is a spare part of an electrical and electronic equipment placed on the market before January 1, 2013.	No deadline	No deadline
7(c)-IV	Lead in PZT based dielectric ceramic materials for capacitors being part of integrated circuits or discrete semiconductors	21 July 2021 (Cat.1–7, 10) 21 July 2021 (Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial and Cat.11)	Already prohibited
8(a)	Cadmium and its compounds in one shot pellet type thermal cut-offs	1 January 2012	Already prohibited
	Cadmium and its compounds in thermal cut-offs formed with batch loading kneading of compound pellets, that are spare parts of electrical and electronic equipment placed on the market before January 1, 2012.	No deadline	No deadline
8(b)	Cadmium and its compounds in electrical contacts	Currently under review in EU (Cat.8,9,11)	To be set based on EU review results (Cat.8,9,11)
8(b)-I	Cadmium and its compounds in electrical contacts used in: — circuit breakers, — thermal sensing controls, — thermal motor protectors (excluding hermetic thermal motor protectors), — AC switches rated at: — 6 A and more at 250 V AC and more, or — 12 A and more at 125 V AC and more, — DC switches rated at 20 A and more at 18 V DC and more, and — switches for use at voltage supply frequency ≥ 200 Hz	Currently under review in EU (1-7, 10)	To be set based on EU review results (1-7, 10)
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	21 July 2021 (Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial and Cat.11)	Already prohibited
9(a)-I	Up to 0,75 % hexavalent chromium by weight, used as an anticorrosion agent in the cooling solution of carbon steel cooling systems of absorption refrigerators (including minibars) designed to operate fully or partly with elec- trical heater, having an average utilised power input < 75 W at constant running conditions	5 March 2021 (Cat.1–7, 10)	Already prohibited (Cat.1–7, 10)
9(a)-II	Up to 0,75 % hexavalent chromium by weight, used as an anticorrosion agent in the cooling solution of carbon steel cooling systems of ab- sorption refrigerators: — designed to operate fully or partly with electrical heater, having an average utilised power input ≥ 75 W at constant running conditions, — designed to fully operate with non-electrical heater.	Currently under review in EU (1-7, 10)	To be set based on EU review results (1-7, 10)
9(a)-III	Up to 0,7 % hexavalent chromium by weight, used as an anticorrosion agent in the working fluid of the carbon steel sealed circuit of gas absorption heat pumps for space and water heating.	31 December 2026 (Cat. 1)	30 June 2026 (Cat. 1)
9(b)	Lead in bearing shells and bushes for refrigerantcontaining compressors for heating, ventilation, air conditioning and refrigeration (HVACR) applications	5 July 2018 (Cat.1–7, 10) 21 July 2021 (Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial and Cat.11)	Already prohibited
9(b)-(I)	Lead in bearing shells and bushes for refrigerantcontaining hermetic scroll compressors with a stated electrical power input equal or below 9 kW for heating, ventilation, air conditioning and refrigeration (HVACR) applications	21 July 2019 (Category 1-7, 10)	Prohibited (*Already determined by in-house discussion)
11(a)	Lead used in C-press compliant pin connector systems	24 September 2010	Already prohibited
	Lead used in C-press compliant pin connector system as a spare part of electrical and electronic equipment placed on the market before September 24, 2010.	No deadline	No deadline
11(b)	Lead used in other than C-press compliant pin connector systems	1 January 2013	Already prohibited
	Lead used in connector systems other than C-press compliant pin as a spare part of electrical and electronic equipment placed on the market before January 1, 2013.	No deadline	No deadline
12	Lead as a coating material for heat transer module-type C ring	24 September 2010	Already prohibited
	Lead as a coating material for heat transer module-type C ring used as a spare part of electrical and electronic equipment placed on the market before September 24, 2010.	No deadline	No deadline
13(a)	Lead in white glasses used for optical applications	Currently under review in EU	To be set based on EU review results

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No.	Exemption	Expiry Date of the Exemption	Date of Delivery Prohibition (Six months before the Expiry Date of the Exemption)
13(b)	Cadmium and lead in filter glasses and glasses used for reflectance standards	Currently under review in EU (Cat.8,9,11)	To be set based on EU review results (Cat.8,9,11)
13(b)-(I)	Lead in ion coloured optical filter glass types	Currently under review in EU (1-7, 10)	To be set based on EU review results (1-7, 10)
13(b)-(II)	Cadmium in striking optical filter glass types; excluding applications falling under point 39 of the Annex III	Currently under review in EU (1-7, 10)	To be set based on EU review results (1-7, 10)
13(b)-(III)	Cadmium and lead in glazes used for reflectance standards	Currently under review in EU (1-7, 10)	To be set based on EU review results (1-7, 10)
14	Lead in solders consisting of more than two elements for the connection between the pins and the package of microprocessors with a lead content of more than 80% and less than 85% by weight	1 January 2011	Already prohibited
	Lead in solder comprised of 2 or more elements at a content of 80 wt% or more but less than 85 wt%, used to connect the microprocessor pin and the package as a spare part of electrical and electronic equipment placed on the market before January 1, 2011.	No deadline	No deadline
15	Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages	Currently under review in EU (Cat.8,9,11)	To be set based on EU review results (Cat.8,9,11)
15(a)	Lead in solders to complete a viable electrical connection between the semiconductor die and carrier within integrated circuit flip chip packages where at least one of the following criteria applies: — a semiconductor technology node of 90 nm or larger; —a single die of 300 mm2 or larger in any semiconductor technology node; —stacked die packages with die of 300 mm2 or larger, or silicon interposers of 300 mm2 or larger.	Currently under review in EU (1-7, 10)	To be set based on EU review results (1-7, 10)
16	Lead in linear incandescent lamps with silicate coated tubes	1 September 2013 (Cat.1–7, 10)	Already prohibited (Cat.1–7, 10)
17	Lead halide as radiant agent in high intensity discharge (HID) lamps used for professional reprography applications	21 July 2016 (Cat.1–7, 10) 21 July 2021 (Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial and Cat.11)	Already prohibited
18(a)	Lead as activator in the fluorescent powder (1% lead by weight or less) of discharge lamps when used as speciality lamps for diazoprinting reprography, lithography, insect traps, photochemical and curing processes containing phosphors such as SMS ($(Sr,Ba)_2MgSi_2O_7$:Pb)	1 January 2011 (Cat.1–7, 10)	Already prohibited (Cat.1–7, 10)
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 ($BaSi_2O_5$:Pb)	Currently under review in EU (Cat.1–7, 10) Currently under review in EU (Cat. 8, 9 others, 11) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial)	To be set based on EU review results (Cat.1–7, 10) To be set based on EU review results (Cat. 8, 9 others, 11) Already prohibited(Cat. 8 vitro, Cat. 9 industrial)
18(b)-I	Lead as activator in the fluorescent powder (1 % lead by weight or less) of discharge lamps containing phosphors such as BSP ($BaSi_2O_5$:Pb) when used in medical phototherapy equipment	Currently under review in EU (Cat. 5, 8)	To be set based on EU review results (Cat. 5, 8)
19	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)	1 June 2011 (Cat.1–7, 10)	Already prohibited (Cat.1–7, 10)
20	Lead oxide in glass used for bonding front and rear substrates of flat fluorescent lamps used for Liquid Crystal Displays (LCDs)	1 June 2011 (Cat.1–7, 10)	Already prohibited (Cat.1–7, 10)
21	Lead and cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses	29 February 2020 (Cat.1–7, 10 (excluding applications covered by entry 21 (a)21 (c) of this Annex)) 21 July 2021 (Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial	Already prohibited
21(a)	Cadmium when used in colour printed glass to provide filtering functions, used as a component in lighting applications installed in displays and control panels of EEE (except applications covered by entry 21(b) or entry 39)	21 July 2021 (Cat.1–7, 10)	Already prohibited (Cat.1–7, 10)
21(b)	Cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses (except applications covered by entry 21(a) or 39)	21 July 2021 (Cat.1–7, 10)	Already prohibited (Cat.1–7, 10)
21(c)	Lead in printing inks for the application of enamels on other than borosilicate glasses	21 July 2021 (Cat.1–7, 10)	Already prohibited (Cat.1–7, 10)
23	Lead in parts treated with fine component finish where the pitch used as a spare part is 0.65 mm or less, and the spare part is of electrical and electronic equipment placed on the market before September 24, 2010.	_	Immediately prohibited (This item is not allowed even in spare parts since it had been prohibited in the Rank Guidelines.)
24	Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors	Currently under review in EU	To be set based on EU review results

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No.	Exemption	Expiry Date of the Exemption	Date of Delivery Prohibition (Six months before the Expiry Date of the Exemption)
25	Lead oxide in surface conduction electron emitter displays (SED) used in structural elements, notably in the seal frit and frit ring	21 July 2016 (Cat.1–7, 10) 21 July 2021 (Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial and Cat.11)	Already prohibited
26	Lead oxide in the glass envelope of black light blue lamps	1 June 2011 (Cat.1–7, 10)	Already prohibited (Cat.1–7, 10)
29	Lead bound in crystal glass as defined in Annex I (Categories 1, 2, 3 and 4) of Council Directive 69/493/EEC	Currently under review in EU (Cat.1–7, 10, 11) 21 July 2021 (Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial)	To be set based on EU review results (Cat.1–7, 10, 11) Already prohibited (Cat. 8, 9)
30	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	21 July 2016 (Cat.1–7, 10) 21 July 2021 (Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial and Cat.11)	Already prohibited
31	Lead in soldering materials in mercury free flat fluorescent lamps (which, e.g. are used for liquid crystal displays, design or industrial lighting)	21 July 2016 (Cat.1–7, 10) 21 July 2021 (Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial and Cat.11)	Already prohibited
32	Lead oxide in seal frit used for making window assemblies for Argon and Krypton laser tubes	Currently under review in EU (Cat.1-7, 10, Cat. 8, 9 others, Cat. 9 industrial) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat.11)	To be set based on EU review results (Cat.1-7, 10, Cat. 8, 9 others, Cat. 9 industrial) Already prohibited(Cat. 8 vitro, Cat.11)
33	Lead in solders for the soldering of thin copper wires of 100 µm diameter and less in power transformers	21 July 2016 (Cat.1–7, 10) 21 July 2021 (Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial and Cat.11)	Already prohibited
34	Lead in cermet-based trimmer potentiometer elements	Currently under review in EU	To be set based on EU review results
37	Lead in the plating layer of high voltage diodes on the basis of a zinc borate glass body	21 July 2021 (Cat.1–7, 10) 21 July 2021 (Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial and Cat.11)	Already prohibited
38	Cadmium and cadmium oxide in thick film pastes used on aluminium bonded beryllium oxide	21 July 2016 (Cat.1–7, 10) 21 July 2021 (Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial and Cat.11)	Already prohibited
39	Cadmium in colour converting II-VI LEDs (< 10 µg Cd per mm^2 of light-emitting area) for use in solid state illumination or display systems	20 November 2018	Already prohibited
39(a)	Cadmium selenide in downshifting cadmium-based semiconductor nanocrystal quantum dots for use in display lighting applications (< 0,2 µg Cd per mm2 of display screen area	21 November 2025	Already prohibited
39(b)	Cadmium in downshifting semiconductor nanocrystal quantum dots directly deposited on LED semiconductor chips for use in display and projection applications (< 5 µg Cd per mm2 of LED chip surface) with a maximum amount per device of 1 mg	31 December 2027	30 June 2027
40	Cadmium in photoresistors for analogue optocouplers applied in professional audio equipment	31 December 2013	Already prohibited
41	Lead in solders and termination finishes of electrical and electronic components and finishes of printed circuit boards used in ignition modules and other electrical and electronic engine control systems, which for technical reasons must be mounted directly on or in the crankcase or cylinder of hand-held combustion engines (classes SH:1, SH:2, SH:3 of Directive 97/68/EC of the European Parliament and of the Council	31 March 2022 (Cat.1–7, 10, 11) 21 July 2021 (Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial)	Already prohibited
42	Lead in bearings and bushes of diesel or gaseous fuel powered internal combustion engines applied in non-road professional use equipment: — with engine total displacement ≥ 15 litres; or — with engine total displacement < 15 litres and the engine is designed to operate in applications where the time between signal to start and full load is required to be less than 10 seconds; or regular maintenance is typically performed in a harsh and dirty outdoor environment, such as mining, construction, and agriculture applications. (excluding applications covered by entry 6(c) of this Annex)	Currently under review in EU (Cat.11)	To be set based on EU review results (Cat.11)
43	Bis(2-ethylhexyl) phthalate in rubber components in engine systems, designed for use in equipment that is not intended solely for consumer use and provided that no plasticised material comes into contact with human mucous membranes or into prolonged contact with human skin and the concentration value of bis(2-ethylhexyl) phthalate does not exceed: (a) 30 % by weight of the rubber for (i) gasket coatings; (ii) solid-rubber gaskets; or (iii) rubber components included in assemblies of at least three components using electrical, mechanical or hydraulic energy to do work, and attached to the engine. (b) 10 % by weight of the rubber for rubber-containing components not referred to in point (a). For the purposes of this entry, “prolonged contact with human skin” means continuous contact of more than 10 minutes duration or intermittent contact over a period of 30 minutes,	21 July 2024 (Cat.11)	Already prohibited

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No.	Exemption	Expiry Date of the Exemption	Date of Delivery Prohibition (Six months before the Expiry Date of the Exemption)
44	Lead in solder of sensors, actuators, and engine control units of combustion engines within the scope of Regulation (EU) 2016/1628 of the European Parliament and of the Council, installed in equipment used at fixed positions while in operation which is designed for professionals, but also used by non-professional users	Currently under review in EU (Cat.11)	To be set based on EU review results (Cat.11)
45	Lead diazide, lead styphnate, lead dipicramate, orange lead (lead tetroxide), lead dioxide in electric and electronic initiators of explosives for civil (professional) use and barium chromate in long time pyrotechnic delay charges of electric initiators of explosives for civil (professional) use	Currently under review in EU (Cat.11)	To be set based on EU review results (Cat.11)
46	Cadmium and lead in plastic profiles containing mixtures produced from polyvinyl chloride waste, used for electrical and electronic windows and doors, where the concentration in the recovered rigid PVC material does not exceed 0,1 % cadmium by weight and 1,5 % lead by weight. (The following legal text is omitted)	28 May 2028 (Cat.11)	28 November 2027 (Cat.11)

Appendix 2

◆ Referenced legislation: EU RoHS Directive ANNEX IV

No.	Exemption	Expiry Date of the Exemption	Date of Delivery Prohibition (Six months before the Expiry Date of the Exemption)
1	Lead, cadmium and mercury in detectors for ionising radiation.	Currently under review in EU (Cat. 8, 9 others, Cat. 9 industrial) 21 July 2023 (Cat. 8 vitro)	To be set based on EU review results (Cat. 8, 9 others, Cat. 9 industrial) Already prohibited (Cat. 8 vitro)
2	Lead bearings in X-ray tubes.	Currently under review in EU (Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial)	To be set based on EU review results (Cat. 8, 9 others) Already prohibited (Cat. 8 vitro, Cat. 9 industrial)
3	Lead in electromagnetic radiation amplification devices: micro-channel plate and capillary plate.	Currently under review in EU (Cat.8,9)	To be set based on EU review results (Cat.8,9)
4	Lead in glass frit of X-ray tubes and image intensifiers and lead in glass frit binder for assembly of gas lasers and for vacuum tubes that convert electromagnetic radiation into electrons.	21 July 2021 (Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) Currently under review in EU (Cat. 9 industrial)	Already prohibited (Cat. 8, 9 others) Already prohibited (Cat. 8 vitro) To be set based on EU review results (Cat. 9 industrial)
5	Lead in shielding for ionising radiation.	Currently under review in EU (Cat. 8, 9 others, Cat. 9 industrial) 21 July 2023 (Cat. 8 vitro)	To be set based on EU review results (Cat. 8, 9 others, Cat. 9 industrial) Already prohibited (Cat. 8 vitro)
6	Lead in X-ray test objects.	21 July 2021 (Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial)	Already prohibited
7	Lead stearate X-ray diffraction crystals.	21 July 2021 (Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial)	Already prohibited
8	Radioactive cadmium isotope source for portable X-ray fluorescence spectrometers.	21 July 2021 (Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial)	Already prohibited
1a	Lead and cadmium in ion selective electrodes including glass of pH electrodes.	Currently under review in EU (Cat.8,9)	To be set based on EU review results (Cat.8,9)
1b	Lead anodes in electrochemical oxygen sensors.	Currently under review in EU (Cat. 8, 9 others, Cat. 9 industrial) 21 July 2023 (Cat. 8 vitro)	To be set based on EU review results (Cat. 8, 9 others, Cat. 9 industrial) Already prohibited (Cat. 8 vitro)
1c	Lead, cadmium and mercury in infra-red light detectors.	Currently under review in EU (Cat.8,9)	To be set based on EU review results (Cat.8,9)
1d	Mercury in reference electrodes: low chloride mercury chloride, mercury sulphate and mercury oxide.	21 July 2021 (Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial)	Already prohibited
9	Cadmium in helium-cadmium lasers.	21 July 2021 (Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) Currently under review in EU (Cat. 9 industrial)	Already prohibited (Cat. 8, 9 others) Already prohibited (Cat. 8 vitro) To be set based on EU review results(Cat. 9 industrial)
10	Lead and cadmium in atomic absorption spectroscopy lamps.	21 July 2021 (Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) Currently under review in EU (Cat. 9 industrial)	Already prohibited (Cat. 8, 9 others) Already prohibited (Cat. 8 vitro) To be set based on EU review results(Cat. 9 industrial)
11	Lead in alloys as a superconductor and thermal conductor in MRI.	Currently under review in EU(Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial)	To be set based on EU review results (Cat. 8, 9 others) Already prohibited (Cat. 8 vitro, Cat. 9 industrial)
12	Lead and cadmium in metallic bonds creating superconducting magnetic circuits in MRI, SQUID, NMR (Nuclear Magnetic Resonance) or FTMS (Fourier Transform Mass Spectrometer) detectors.	Currently under review in EU (Cat. 8, 9 others, Cat. 9 industrial) 30 June 2023 (Cat. 8 vitro)	To be set based on EU review results (Cat. 8, 9 others, Cat. 9 industrial) Already prohibited (Cat. 8 vitro)
13	Lead in counterweights.	Currently under review in EU(Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial)	To be set based on EU review results (Cat. 8, 9 others) Already prohibited (Cat. 8 vitro, Cat. 9 industrial)
14	Lead in single crystal piezoelectric materials for ultrasonic transducers.	Currently under review in EU(Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial)	To be set based on EU review results (Cat. 8, 9 others) Already prohibited (Cat. 8 vitro, Cat. 9 industrial)
15	Lead in solders for bonding to ultrasonic transducers.	Currently under review in EU(Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial)	To be set based on EU review results (Cat. 8, 9 others) Already prohibited (Cat. 8 vitro) 21 January 2024 (Cat. 9 industrial)
16	Mercury in very high accuracy capacitance and loss measurement bridges and in high frequency RF switches and relays in monitoring and control instruments not exceeding 20 mg of mercury per switch or relay.	21 July 2021 (Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial)	Already prohibited

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No.	Exemption	Expiry Date of the Exemption	Date of Delivery Prohibition (Six months before the Expiry Date of the Exemption)
17	Lead in solders in portable emergency defibrillators.	Currently under review in EU(Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial)	To be set based on EU review results (Cat. 8, 9 others) Already prohibited (Cat. 8 vitro, Cat. 9 industrial)
18	Lead in solders of high performance infrared imaging modules to detect in the range 8-14 µm.	Currently under review in EU(Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial)	To be set based on EU review results (Cat. 8, 9 others) Already prohibited (Cat. 8 vitro, Cat. 9 industrial)
19	Lead in Liquid crystal on silicon (LCoS) displays.	21 July 2021 (Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial)	Already prohibited
20	Cadmium in X-ray measurement filters.	Currently under review in EU(Cat. 8, 9 others) 21 July 2023 (Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial)	To be set based on EU review results (Cat. 8, 9 others) Already prohibited (Cat. 8 vitro, Cat. 9 industrial)
21	Cadmium in phosphor coatings in image intensifiers for X-ray images.	31 December 2019	Already prohibited
	Cadmium in phosphor coatings in spare parts for X-ray systems placed on the EU market before 1 January 2020.	No deadline	No deadline
22	Lead acetate marker for use in stereotactic head frames for use with CT and MRI and in positioning systems for gamma beam and particle therapy equipment.	30 June 2021	Already prohibited
23	Lead as an alloying element for bearings and wear surfaces in medical equipment exposed to ionising radiation.	30 June 2021	Already prohibited
24	Lead enabling vacuum tight connections between aluminium and steel in X-ray image intensifiers.	31 December 2019	Already prohibited
25	Lead in the surface coatings of pin connector systems requiring nonmagnetic connectors which are used durably at a temperature below – 20 °C under normal operating and storage conditions.	30 June 2021	Already prohibited
26	Lead in the following ap6plications that are used durably at a temperature below - 20 °C under normal operating and storage conditions: (a)solders on printed circuit boards; (b)termination coatings of electrical and electronic components and coatings of printed circuit boards; (c)solders for connecting wires and cables; (d)solders connecting transducers and sensors. Lead in solders of electrical connections to temperature measurement sensors in devices which are designed to be used periodically at temperatures below - 150 °C.	Currently under review in EU (Cat. 8, 9 others, Cat. 9 industrial) 30 June 2023 (Cat. 8 vitro)	
27	Lead in — solders, — termination coatings of electrical and electronic components and printed circuit boards, — connections of electrical wires, shields and enclosed connectors, which are used in		
	(a) magnetic fields within the sphere of 1 m radius around the isocentre of the magnet in medical magnetic resonance imaging equipment, including patient monitors designed to be used within this sphere, or (b) magnetic fields within 1 m distance from the external surfaces of cyclotron magnets, magnets for beam transport and beam direction control applied for particle therapy.	28 February 2023	Already prohibited
	(c) MRI non-integrated coils, for which the Declaration of Conformity of this model is issued for the first time before 23 September 2022, or (d) MRI devices including integrated coils, which are used in magnetic fields within the sphere of 1 m radius around the isocentre of the magnet in medical magnetic resonance imaging equipment, for which the Declaration of Conformity is issued for the first time before 30 June 2024.	30 June 2027	30 December 2026
28	Lead in solders for mounting cadmium telluride and cadmium zinc telluride digital array detectors to printed circuit boards.	2017/12/31	Already prohibited
29	Lead in alloys, as a superconductor or thermal conductor, used in cryo-cooler cold heads and/or in cryo-cooled cold probes and/or in cryo-cooled equipotential bonding systems, in medical devices (category 8) and/or in industrial monitoring and control instruments.	Currently under review in EU (Cat. 8, 9 others) 30 June 2021 (Cat. 8 vitro, Cat. 9 industrial)	To be set based on EU review results (Cat. 8, 9 others) Already prohibited (Cat. 8 vitro, Cat. 9 industrial)
30	Hexavalent chromium in alkali dispensers used to create photocathodes in X-ray image intensifiers.	31 December 2019	Already prohibited
	Hexavalent chromium in alkali dispensers used to create photocathodes in spare parts for X-ray systems placed on the EU market before 1 January 2020.	No deadline	No deadline
31a	Lead, cadmium, hexavalent chromium, and polybrominated diphenyl ethers (PBDE) in spare parts recovered from and used for the repair or refurbishment of medical devices, including in vitro diagnostic medical devices, or electron microscopes and their accessories, provided that the reuse takes place in auditable closed-loop business-to-business return systems and that each reuse of parts is notified to the customer.	Currently under review in EU (Cat. 8, 9 others, Cat. 8 vitro) 21 July 2024 (Cat. 9 industrial)	To be set based on EU review results (Cat. 8, 9 others, Cat. 8 vitro) Already prohibited (Cat. 9 industrial)
32	Lead in solders on printed circuit boards of detectors and data acquisition units for Positron Emission Tomographs which are integrated into Magnetic Resonance Imaging equipment.	31 December 2019	Already prohibited
33	Lead in solders on populated printed circuit boards used in Directive 93/42/EEC class IIa and IIb mobile medical devices other than portable emergency defibrillators.		
	— class IIa	30 June 2016	Already prohibited
	— class IIb	31 December 2020	Already prohibited

Appendix 2

No.	Exemption	Expiry Date of the Exemption	Date of Delivery Prohibition (Six months before the Expiry Date of the Exemption)
34	Lead as an activator in the fluorescent powder of discharge lamps when used for extracorporeal photopheresis lamps containing BSP ($BaSi_2O_5$:Pb) phosphors.	21 July 2021	Already prohibited
35	Mercury in cold cathode fluorescent lamps for back-lighting liquid crystal displays, not exceeding 5 mg per lamp, used in industrial monitoring and control instruments placed on the market before 22 July 2017	21 July 2024	Already prohibited
36	Lead used in other than C-press compliant pin connector systems for industrial monitoring and control instruments.	31 December 2020	Already prohibited
	Lead used in other than C-press compliant pin connector systems in spare parts for industrial monitoring and control instruments placed on the market before 1 January 2021.	No deadline	No deadline
37	Lead in platinized platinum electrodes used for conductivity measurements where at least one of the following conditions applies: (a) wide-range measurements with a conductivity range covering more than 1 order of magnitude (e.g. range between 0.1 mS/m and 5 mS/m) in laboratory applications for unknown concentrations; (b) measurements of solutions where an accuracy of +/– 1% of the sample range and where high corrosion resistance of the electrode are required for any of the following: (i) solutions with an acidity < pH 1; (ii) solutions with an alkalinity > pH 13; (iii) corrosive solutions containing halogen gas; (c) measurements of conductivities above 100 mS/m that must be performed with portable instruments.	31 December 2025	Already prohibited
38	Lead in solder in one interface of large area stacked die elements with more than 500 interconnects per interface which are used in X-ray detectors of CT (computed tomography) and X-ray systems.	31 December 2019	Already prohibited
	Lead in solder in one interface of large area stacked die elements with more than 500 interconnects per interface which are used in spare parts for CT and X-ray systems placed on the market before 1 January 2020.	No deadline	No deadline
39	Lead in micro-channel plates (MCPs) used in equipment where at least one of the following properties is present: (a) a compact size of the detector for electrons or ions, where the space for the detector is limited to a maximum of 3 mm/MCP (detector thickness + space for installation of the MCP), a maximum of 6 mm in total, and an alternative design yielding more space for the detector is scientifically and technically impracticable; (b) a two-dimensional spatial resolution for detecting electrons or ions, where at least one of the following applies: (i) a response time shorter than 25 ns; (ii) a sample detection area larger than 149 mm^2; (iii) a multiplication factor larger than $1,3 \times 10^3$. (c) a response time shorter than 5 ns for detecting electrons or ions; (d) a sample detection area larger than 314 mm^2 for detecting electrons or ions; (e) a multiplication factor larger than $4,0 \times 10^7$.	Currently under review in EU (Cat.8,9)	To be set based on EU review results (Cat.8,9)
40	Lead in dielectric ceramic in capacitors for a rated voltage of less than 125 V AC or 250 V DC for industrial monitoring and control instruments.	31 December 2020	Already prohibited
	Lead in dielectric ceramic in capacitors for a rated voltage of less than 125 V AC or 250 V DC in spare parts for industrial monitoring and control instruments placed on the market before 1 January 2021.	No deadline	No deadline
41	Lead as a thermal stabiliser in polyvinyl chloride (PVC) used as base material in amperometric, potentiometric and conductometric electrochemical sensors which are used in in-vitro diagnostic medical devices for the analysis of blood and other body fluids and body gases.	31 March 2022	Already prohibited
41a	Lead as a thermal stabilizer in polyvinyl chloride (PVC) used as base material in amperometric, potentiometric and conductometric electrochemical sensors which are used in in vitro diagnostic medical devices for the analysis of creatinine and blood urea nitrogen in whole blood.	31 December 2023	Already prohibited
42	Mercury in electric rotating connectors used in intravascular ultrasound imaging systems capable of high operating frequency (> 50 MHz) modes of operation.	Currently under review in EU (Cat. . 8, 9 others)	To be set based on EU review results (Cat. . 8, 9 others)
43	Cadmium anodes in Hersch cells for oxygen sensors used in industrial monitoring and control instruments, where sensitivity below 10 ppm is required.	15 July 2023	Already prohibited
44	Cadmium in radiation tolerant video camera tubes designed for cameras with a centre resolution greater than 450 TV lines which are used in environments with ionising radiation exposure exceeding 100 Gy/hour and a total dose in excess of 100kGy.	31 March 2027 (Cat. 8, 9 others, Cat. 9 industrial)	30 September 2026 (Cat. 8, 9 others, Cat. 9 industrial)
45	Bis(2-ethylhexyl) phthalate (DEHP) in ion-selective electrodes applied in point of care analysis of ionic substances present in human body fluids and/or in dialysate fluids.	21 July 2028 (Cat. 8 vitro)	21 January 2028 (Cat. 8 vitro)
# 46	Bis(2-ethylhexyl) phthalate (DEHP) in plastic components in MRI detector coils.	Currently under review in EU (Cat. 8 vitro)	To be set based on EU review results (Cat. 8 vitro)
47	Bis(2-ethylhexyl) phthalate (DEHP), butyl benzyl phthalate (BBP), dibutyl phthalate (DBP) and diisobutyl phthalate (DIBP) in spare parts recovered from and used for the repair or refurbishment of medical devices, including in vitro diagnostic medical devices, and their accessories, provided that the reuse takes place in auditable closed-loop business-to-business return systems and that each reuse of parts is notified to the customer.	21 July 2028 (Cat. 8 vitro)	21 January 2028 (Cat. 8 vitro)
48	Lead in bismuth strontium calcium copper oxide (BSCCO) superconductor cables and wires and lead in electrical connections to these wires.	30 June 2027	30 December 2026

Appendix 2

No.	Exemption	Expiry Date of the Exemption	Date of Delivery Prohibition (Six months before the Expiry Date of the Exemption)
49	Mercury in melt pressure transducers for capillary rheometers at temperatures over 300 °C and pressures over 1 000 bar	Currently under review in EU (Cat. 9)	To be set based on EU review results (Cat. 9)

Appendix 3. Exempted Items List under the EU ELV Directive

<< Panasonic Group Chemical Substances Management Rank Guidelines List of Exempted Items >> **Revised: March 30, 2023**

◆ Referenced legislation: EU ELV Directive ANNEX II

Materials and components		Scope and expiry date of the exemption
Lead as an alloying element		
1(a)	Steel for machining purposes and batch hot dip galvanised steel components containing up to 0.35 % lead by weight	
1(b)	Continuously galvanised steel sheet containing up to 0.35 % lead by weight	Vehicles type approved before 1 January 2016 and spare parts for these vehicles
2(a)	Aluminium for machining purposes with a lead content up to 2 % by weight	As spare parts for vehicles put on the market before 1 July 2005
2(b)	Aluminium with a lead content up to 1.5 % by weight	As spare parts for vehicles put on the market before 1 July 2008
2(c)(i)	Aluminium alloys for machining purposes with a lead content up to 0.4 % by weight	Vehicles type-approved before 1 January 2028 and spare parts for these vehicles
2(c)(ii)	Aluminium alloys not included in entry 2(c)(i) with a lead content up to 0.4 % by weight* *Applies to aluminium alloys where lead is not intentionally introduced, but is present due to the use of recycled aluminium.	
3	Copper alloys containing up to 4 % lead by weight	
4(a)	Bearing shells and bushes	As spare parts for vehicles put on the market before 1 July 2008
4(b)	Bearing shells and bushes in engines, transmissions and air conditioning compressors	As spare parts for vehicles put on the market before 1 July 2011
Lead and lead compounds in components		
5(a)	Lead in batteries in high-voltage systems that are used only for propulsion in M1 and N1 vehicles	Vehicles type-approved before 1 January 2019 and spare parts for these vehicles
5(b)(i)	Lead in batteries: (1) used in 12 V applications (2) used in 24 V applications in special purpose vehicles as defined in Article 3 of Regulation (EU) 2018/858 of the European Parliament and of the Council	
5(b)(ii)	Lead in batteries used in applications not in cluded in entry 5(a) or entry 5(b)(i)	Vehicles type approved before 1 January 2024 and spare parts for these vehicles
6	Vibration dampers	Vehicles type-approved before 1 January 2016 and spare parts for these vehicles
7(a)	Vulcanising agents and stabilisers for elastomers in brake hoses, fuel hoses, air ventilation hoses, elastomer/metal parts in the chassis applications, and engine mountings	As spare parts for vehicles put on the market before 1 July 2005
7(b)	Vulcanising agents and stabilisers for elastomers in brake hoses, fuel hoses, air ventilation hoses, elastomer/metal parts in the chassis applications, and engine mountings containing up to 0.5 % lead by weight	As spare parts for vehicles put on the market before 1 July 2006
7(c)	Bonding agents for elastomers in powertrain applications containing up to 0.5 % lead by weight	As spare parts for vehicles put on the market before 1 July 2009
8(a)	Lead in solders to attach electrical and electronic components to electronic circuit boards and lead in finishes on terminations of components other than electrolyte aluminium capacitors, on component pins and on electronic circuit boards	Vehicles type-approved before 1 January 2016 and spare parts for these vehicles
8(b)	Lead in solders in electrical applications other than soldering on electronic circuit boards or on glass	Vehicles type-approved before 1 January 2011 and spare parts for these vehicles
8(c)	Lead in finishes on terminals of electrolyte aluminium capacitors	Vehicles type-approved before 1 January 2013 and spare parts for these vehicles
8(d)	Lead used in soldering on glass in mass airflow sensors	Vehicles type-approved before 1 January 2015 and spare parts of such vehicles
8(e)	Lead in high melting temperature type solders (i.e. lead- based alloys containing 85 % by weight or more lead)	
8(f)(i)	Lead in compliant pin connector systems	Vehicles type approved before 1 January 2017 and spare parts for these vehicles
8(f)(ii)	Lead in compliant pin connector systems other than the mating area of vehicle harness connectors	Vehicles type approved before 1 January 2024 and spare parts for these vehicles

Materials and components		Scope and expiry date of the exemption
8(g)(i)	Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages	Vehicles type approved before 1 October 2022 and spare parts for these vehicles
8(g)(ii)	Lead in solders to complete a viable electrical connection between the semiconductor die and the carrier within integrated circuit flip chip packages where that electrical connection consists of any of the following: (1) a semiconductor technology node of 90 nm or larger; (2) a single die of 300 mm2 or larger in any semiconductor technology node; (3) stacked die packages with dies of 300 mm2 or larger, or silicon interposers of 300 mm2 or larger.	Valid for vehicles type-approved from 1 October 2022 and spare parts for these vehicles
8(h)	Lead in solder to attach heat spreaders to the heat sink in power semiconductor assemblies with a chip size of at least 1 cm 2 of projection area and a nominal current density of at least 1 A/mm 2 of silicon chip area	Vehicles type approved before 1 January 2016 and spare parts for these vehicles
8(i)	Lead in solders in electrical glazing applications on glass except for soldering in laminated glazing	Vehicles type-approved before 1 January 2016 and after that date as spare parts for these vehicles
8(j)	Lead in solders for soldering of laminated glazing	Vehicles type-approved before 1 January 2020 and after that date as spare parts for these vehicles
8(k)	Soldering of heating applications with 0.5 A or more of heat current per related solder joint to single panes of laminated glazings not exceeding wall thickness of 2.1 mm. This exemption does not cover soldering to contacts embedded in the intermediate polymer	Vehicles type approved before 1 January 2024 and spare parts for these ve-hicles
9	Valve seats	As spare parts for engine types developed before 1 July 2003
10(a)	Electrical and electronic components which contain lead in a glass or ceramic, in a glass or ceramic matrix compound, in a glass- ceramic material, or in a glass-ceramic matrix compound. This exemption does not cover the use of lead in: (i) glass in bulbs and glaze of spark plugs, (ii) dielectric ceramic materials of components listed under 10(b), 10(c) and 10(d).	
10(b)	Lead in PZT-based dielectric ceramic materials of capacitors being part of integrated circuits or discrete semiconductors	
10(c)	Lead in dielectric ceramic materials of capacitors with a rated voltage of less than 125 V AC or 250 V DC	Vehicles type-approved before 1 January 2016 and spare parts for these vehicles
10(d)	Lead in the dielectric ceramic materials of capacitors compensating the temperature- related deviations of sensors in ultrasonic sonar systems	Vehicles type-approved before 1 January 2017 and after that date as spare parts for these vehicles
11	Pyrotechnic initiators	Vehicles type-approved before 1 July 2006 and spare parts for these vehicles
12	Lead-containing thermoelectric materials in automotive electrical applications to reduce CO2 emissions by recuperation of exhaust heat	Vehicles type-approved before 1 January 2019 and spare parts for these vehicles
Hexavalent chromium		
13(a)	Corrosion preventive coatings	As spare parts for vehicles put on the market before 1 July 2007
13(b)	Corrosion preventive coatings related to bolt and nut assemblies for chassis applications	As spare parts for vehicles put on the market before 1 July 2008
14	Hexavalent chromium as an anti-corrosion agent of the carbon steel cooling system in absorption refrigerators up to 0.75 % by weight in the cooling solution: (a) designed to operate fully or partly with electrical heater. having an average utilised electrical power input < 75W at constant running conditions; (b) designed to operate fully or partly with electrical heater. having an average utilised electrical power input ≥ 75W at constant running conditions; (c)designed to fully operate with non-electrical heater.	For (a): Vehicles type approved before 1 January 2020 and spare parts for these vehicles For (b): Vehicles type approved before 1 January 2026 and spare parts for these vehicles
Mercury		
15(a)	Discharge lamps for headlight application	Vehicles type-approved before 1 July 2012 and spare parts for these vehicles
15(b)	Fluorescent tubes used in instrument panel displays	Vehicles type-approved before 1 July 2012 and spare parts for these vehicles
Cadmium		
16	Batteries for electrical vehicles	As spare parts for vehicles put on the market before 31 December 2008

1. List of controlled values for prohibited substances

The following controlled values are content concentrations which are deemed "being not exceeding" when the non-use of the covered substance groups is properly managed, and must be managed by the Panasonic Group. If the contained concentration of the Prohibited substance exceeds the controlled value, request the supplier for clarification of the reason of the content. If necessary, request the supplier to reduce the contained concentration to below the controlled value, as necessary. (Warranty for the controlled value is not to be requested to suppliers).

Content concentrations must be measured in accordance with IEC 62321.

Table A1- 1 List of controlled values for prohibited substances

<table>
<tr><th>Prohibited substance</th><th colspan="2">Applicable part/material</th><th>Controlled value
[Content concentration that is deemed being not exceeding when the non-use control of Level 1 Prohibited Substances/Substance Groups is properly managed]</th></tr>
<tr><td rowspan="4">Cadmium</td><td colspan="2">Resin (including rubber/films), paints, inks, pigments, dyes</td><td>Less than 20ppm*1
(in the state without volatile elements)</td></tr>
<tr><td rowspan="2">Lead-free solder</td><td>Bar solder,
Wire solder,
Flux cored solder,
Cream solder,
Solder ball</td><td rowspan="2">Less than 20ppm</td></tr>
<tr><td>Solder joints of purchased circuit boards,
Component solder</td></tr>
<tr><td colspan="2">Metal materials other than lead-free solder</td><td>Less than 75ppm*1</td></tr>
<tr><td rowspan="6">Lead</td><td colspan="2">Resin (including rubber/films)
Paints, inks, pigments, dyes</td><td>Less than 100ppm*1
(in the state without volatile elements)</td></tr>
<tr><td rowspan="2">Lead-free solder</td><td>Bar solder,
Wire solder,
Flux cored solder,
Cream solder,
Solder ball</td><td>Less than 500ppm</td></tr>
<tr><td>Solder joints of purchased circuit boards,
Component solder</td><td>Less than 800ppm</td></tr>
<tr><td colspan="2">Electroless nickel plating</td><td>Less than 800ppm</td></tr>
<tr><td colspan="2">Metal materials other than lead-free solder and electroless nickel plating</td><td>Less than 500ppm*1*2</td></tr>
<tr><td colspan="2">Glass (limited to the one used in lamps)</td><td>Less than 500ppm</td></tr>
</table>

Appendix 4

Hexavalent Chromium	Surface treated parts	Less than 0.1μg/cm^2 *1 (Method in accordance with IEC 62321-7-1)
Polybrominated Biphenyls (PBB)	Resin (including rubber/film)	Less than 100ppm
Polybrominated Biphenyl Ether (PBDE)	Resin (including rubber/film) for equipment covered under the EU RoHS	Less than 100ppm
Four heavy metals (Cadmium, Lead, Hexavalent chromium, and Mercury)	Packaging materials, Per each homogeneous material comprising the packaging (e.g. resin, inks, paints)	Less than 100ppm for the total of the four heavy metals
Four phthalates - Bis(2-ethylhexyl) phthalate (DEHP) - Benzyl butyl phthalate (BBP) - Dibutyl phthalate (DBP) - Diisobutyl phthalate (DIBP)	Plasticizer for resin (particularly polyvinyl chloride), paints, inks, elastomers (including rubber), and adhesives	Less than 300ppm
With respect to the "Covered part/material" or "Covered prohibited substance" that is not specifically listed in the table above, the lower limit concentration*3 quantitatively measured by the corresponding high-precision analysis method is used as the interim controlled value.		

*1: Does not apply to packaging materials.

*2: For the lead (e.g. lead 0.35wt% or less as iron alloy) that is exempted in the RoHS Directive its alloy composition is subject to the regulation, lead as an impurity is not applied to this.

*3: The value is determined by the sample quantity, analysis sensitivity of the analyzer (detection lower limit), etc. provided by generally implemented high-precision analysis, and it is the lower limit concentration of the subject substance that can be detected per unit sample quantity.

2. Controlled Value of Lead Concentration of Impurities in the Lead-free Solder Used in a Flow-Soldering Bath in Panasonic or Partner Company.

In a Panasonic or partner company production process, the lead concentration of lead-free solder used in a flow-solder bath should be kept below the controlled value indicated in the Table A1- 2.

Table A1- 2 Controlled value*1 of lead concentration in lead-free solder in a flow-soldering bath

Prohibited substance	Applicable part/material	Controlled value
Lead	Lead-free solder in a flow-soldering bath	Less than 800ppm (Simplified analysis method by Panasonic*2)

*1: This controlled value applies to in-house production processes and does not specify the controlled value in the production process at a supplier.

*2: The simplified analysis method by Panasonic refers to "Measurement Method for Lead Content in Solder in Flow Soldering Bath – Sampling method and simplified analysis method using fluorescent X-rays" (Panasonic internal document).

Revision History

Revised on	Amended part	Amended Contents
2014.7.1	Table A1- 1	- Added a control value of lead for “Electroless nickel plating”. - Changed the “Metal materials other than lead-free solder” to “Metal materials other than lead-free solder and electroless nickel plating.”
2014.12.1	Table A1- 1	- Added “excluding resins and surface treatment such as applying resin, tanning of animal hides, is applied"
2018.5.22	Appendix 4- 1	- Added “Content concentrations must be measured in accordance with IEC 62321 (excluding the older version IEC 62321:2008)”
2018.5.22	Table A2- 1 and Table A2- 2	- Changed the table No. of A2 to A1. - Deleted the descriptions of “High precision analytical method”. - Updated the covered parts and materials of hexavalent chrome, and respective controlled values. - Added a line for the four phthalates. Changed the “Simple analytical method” to “Simple analysis method by Panasonic”.
2018.5.22	Chapter 2	- Changed the “Simple analytical method” to “Simple analysis method by Panasonic”.
2019.6.4	Chapter 1, Opening	- Changed the description for the control value to be consistent with the definition of the terms stated in 5.13.
2020.9.23	Table A1- 1 Notes	- Deleted the following:*6: With the method stated in IEC 62321-7-1, this substance is extracted with boiling water, however, with the simple analysis method by Panasonic, this substance is extracted with warm water at 80℃. Therefore, the measurement value is set at a lower value, taking into account the lack of extraction rate of hexavalent chromium.
2021.12.15	Table A1-1	- Changed the applicable part/material for Hexavalent chromium and their controlled value. Deleted the footnotes from *3 to *5, and replace the footnote *6 with *3.
2025.9.30	Table A1-1	- Specified brominated flame retardants are listed separately for PBB and PBDE

Panasonic Group

Chemical Substances Management Rank Guidelines

Version 15 (For Products)

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