

# Environmental Specification – Declarable and Restricted Materials

## Overview

Oracle requires that all suppliers who provide hardware components and packaging to Oracle meet all international materials restrictions, including Restriction of Hazardous Substances (RoHS), Registration, Evaluation, Authorization, and Restriction of Chemical substances (REACH), Montreal Protocol (ozone depleting substances), or any other international materials regulations.

This document ensures that suppliers and external manufacturers provide compliant materials to Oracle that meet the quality and legal requirements.



## Audience

All suppliers of packaging, components, assemblies, finished products, software on media, books, manuals, paper, and assembly services for Oracle, including service or repair providers

Oracle customers to demonstrate Oracle's efforts to comply to global materials restrictions without compromising Oracle product quality and reliability

Oracle product and engineering teams and Operations personnel to ensure that they are aware of new and revised environmental restrictions

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## INTRODUCTION

### PURPOSE

This document communicates Oracle substance compliance requirements to suppliers and external manufacturers. Oracle ships worldwide and requires that all suppliers who provide hardware components and packaging to Oracle meet all international materials restrictions. Suppliers and external manufacturers are required to comply with all requirements listed in this document as well as other substance legislation applicable to their products or components.

### SCOPE

This document summarizes the substance legislation from global organizations that are applicable to Oracle products, and includes other non-regulatory, quality requirements as specified by Oracle. These include examples of the current regulations with future amendments and substances & substances group for reference only and are not limited to the following:

- European Union Restriction of Hazardous Substances (RoHS) Directive 2011/65/EC, delegated Directive 2015/863/EC and any amendments.
  - Other RoHS type regulations worldwide, including but not limited to South Korea, Japan, Ukraine, Serbia, Turkey, Vietnam, Georgia, India, Jordan, Republic of Srpska, China, Taiwan, Kosovo, Malta, Norway, Switzerland, Saudi Arabia, UK, United Arab Emirates, EAEU and California.
- Registration, Evaluation, Authorization and Restriction of Chemical Substances (REACH) in accordance with EU Regulation (EC) No 1907/2006.
- EU 2019/1021 Regulation on Persistent Organic Pollutants (POPs) and the Stockholm Convention
- Directive (EU) 2018/851 amending Directive 2008/98/EC on Waste (Waste Framework Directive)
- US Environmental Protection Agency (EPA) Toxic Substance Control Act (TSCA)
- CA RoHS - California's Electronic Waste Recycling Act
- California Proposition 65 – the Safe Drinking Water and Toxic Enforcement Act as amended
- California AB 2247 PFAS-containing products
- Maine PFAS in Products reporting requirements specified in Public Law 2021, Chapter 477, Subsection 1614(2)(A)
- New Hampshire HB 1589-FN Act Prohibiting the Sale of Products Containing Intentionally-added PFAS
- Canada Prohibition of Certain Toxic Substances Regulations, 2012 and amendments
- Montreal Protocol, EU Regulation (EC) No 1005/2009 on substances that deplete the ozone layer
- Packaging materials regulations, such as the EU Directive 94/62/EC on packaging and packaging waste
- EU Battery Directive 2013/56/EU on batteries and accumulators containing certain dangerous substances.
- Asbestos Directive 83/477/CEE and amendment 2007/30/EC
- Radioactive Directive 96/29/Euratom
- Switzerland Ordinance on Risk Reduction related to the Use of certain particularly dangerous Substances, Preparations and Articles (Ordinance on Risk Reduction related to Chemical Products) of 18 May 2005 and amendments
- International Electrotechnical Commission (IEC) Standard IEC 62474, "Material Declaration for Products of and for the Electrotechnical Industry". More information about this IEC Standard and its associated database of controlled substances can be found at <https://webstore.iec.ch/publication/29857>
- The database can be accessed at <http://std.iec.ch/iec62474/iec62474.nsf/welcome?openpage>

# 1 REQUIREMENTS FOR COMPLIANCE TO INTERNATIONAL SUBSTANCE LEGISLATION AND REGULATIONS

## 1.1 Declarable and Restricted Substances

Table 1, *Summary of Declarable and Restricted Substances and Substance Groups*, contains a list of internationally declarable substances or substance groups, as of the date of this revision, applicable to Oracle products. In addition to being declarable many of these substances and substance groups may also be banned, restricted or controlled by one or more global legislation or regulation.

This Summary is based on the IEC 62474 Declarable Substances Database. The latest version of this Database is the authoritative document for Table 1. However, Oracle has added additional substances or substance groups that are related to packaging and other legislation and Oracle internal requirements that may not be included in IEC 62474.

All Oracle suppliers (including but not limited to: External Manufacturers, component, and OEM/3PP suppliers) are expected to track pertinent legislation and regulations and the future versions of the IEC Standard, and to protect Oracle from violating international law. Suppliers must notify Oracle when part modification are driven from regulation changes.

Table 1 often refers to families of substances [for example Phthalates, Selected Group 1 (BBP, DBP, DEHP, DIBP)]. Full details of specific substances within a category are listed in the IEC 62474 Standard or relevant legislation.

Suppliers must confirm conformance with the requirements for declarable/restricted substances by submitting a completed Material Declaration per IPC 1752A or equivalent (IEC 62474 listed above includes a material declaration schema that is equivalent to IPC).

For Oracle's detailed requirements on RoHS Materials Declaration, please refer to AQP spec 990-1237.

## 1.2 Requirements on EU REACH (Regulation (EC) No. 1907/2006) and revised Waste Framework Directive 2018/851

### 1.2.1 REACH Candidate List of Substances of Very High Concern (SVHC) for Authorization

Substances or substance groups listed on REACH Substances of Very High Concern (SVHCs) candidate list available at <https://echa.europa.eu/candidate-list-table>

Reporting and/or declaration is required on SVHC's contained in articles under REACH Article 7 and Article 33.

Effective January 5, 2021, SVHC information on products placed on the EU market must be reported in the European Chemical Agency's SCIP (**S**ubstances of **C**oncern **I**n articles as such or in complex objects (**P**roducts)) database.

Oracle requires its suppliers to declare the following information on products, sub-assemblies, or components supplied to Oracle containing SVHCs at a concentration level above 0.1% by weight of a simple article as defined by REACH. Note that this requirement applies immediately after a substance is included in the Candidate List.

- The SCIP Submission Number of products, sub-assemblies or components supplied to Oracle, or
- A detailed REACH materials declaration for the products, sub-assemblies or components supplied to Oracle including the following information:
  - Part identifier (e.g. part number)
  - Part description
  - Product/part category (EU TARIC code)
  - Safe use instructions
  - Production in EU (Yes/No/Not willing to disclose)
  - A list of simple articles which contain SVHC above 0.1% by weight.  
For each simple article, the following information is required:
    - Article name/description
    - Article identifier (e.g. part number)
    - Article category (EU TARIC code)
    - Safe use instructions
    - Production in EU (Yes/No/Not willing to disclose)
    - SVHC(s) contained in the article (substance name and CAS# if applicable)

- SVHC concentration range
- Material or mixture category

The declarations should be provided to Oracle upon request.

Oracle requires its suppliers to archive REACH/SCIP information for 11 years after last manufacture of each component, sub-assembly or product supplied to Oracle.

### 1.2.2 REACH Authorization List (Annex XIV)

Substances listed on REACH Authorization Annex XIV of the REACH Regulation <https://echa.europa.eu/Authorization-list>, cannot be placed on the market or used in the EU after the “sunset date” unless the company is granted an authorization.

### 1.2.3 REACH Restricted Substances List (Annex XVII)

Substances or substance groups listed in Annex XVII of the REACH regulation <https://echa.europa.eu/substances-restricted-under-reach> are restricted by REACH. Some of these are also restricted by other global substance legislation.

Annex XVII substances are not allowed to be used above the level of restriction in any products, sub-assemblies, or components supplied to Oracle.

## 1.3 Per- and Polyfluoroalkyl Substances (PFAS)

Due to growing concerns of health and environmental risks potentially caused by Per- and Polyfluoroalkyl Substances (PFAS) covered under existing and upcoming domestic and worldwide regulations, suppliers must report all forms of substances categorized under PFAS, intentionally added or not to the part, product, battery and packaging.

For questions or comments about this requirement, please send an email to: [substances\\_core\\_us\\_grp@oracle.com](mailto:substances_core_us_grp@oracle.com)

### Definitions for commonly used terms used in this standard are the following:

- **Homogeneous material:** One material of uniform composition throughout or a material, consisting of a combination of materials, that cannot be mechanically disjointed into different materials, meaning that the materials cannot be separated by mechanical actions such as unscrewing, cutting, crushing, grinding, and abrasive processes.
- **Non-homogenous material:** A material that can be separated by mechanical actions, such as unscrewing, cutting, crushing, grinding, and abrasive processes. Examples of non-homogenous material are an electric cable that consists of metal wires surrounded by non-metallic insulation materials, or a semiconductor package that contains many homogeneous materials, such as plastic moulding material, tin-electroplating coatings on the lead frame, a lead frame alloy, and gold-bonding wires.
- **Substance:** A chemical element and its compounds in the natural state or obtained by any manufacturing process, including any additive necessary to preserve its stability and any impurity deriving from the process used, but excluding any solvent which can be separated without affecting the stability of the substance or changing its composition.
- **Substance Group:** A group of substances that have a common characteristic that links them together for similar legislative treatment. For example: Ozone Depleting Substances (CFC, Halon, HBFC, HCFC & others); lead/lead compounds have multiple substance groups based on a multitude of factors, usage, declarable levels, etc.
- **Article:** An object which during production is given a special shape, surface or design which determines its function to a greater degree than does its chemical composition.
- **Preparation:** A mixture or solution composed of two or more substances.
- **Alloy:** A metallic material, homogenous on a macroscopic scale, consisting of two or more elements so combined that they cannot be readily separated by mechanical means.

Table 1 Summary of Declarable and Restricted Substances and Substance Groups

Note: Regulations and substances listed in this table are indicative examples for reference only and are not limited to the following:

#	Substance/ Substance Group	CAS #	Reporting Threshold	Applications	Regulations
1	1,2-Benzenedicarboxylic acid, di-C6-10-alkyl esters or mixed decyl and hexyl and octyl diesters	68515-51-5; 68648-93-1	0.1 mass% of article	Plasticizers, lubricants, adhesives, coatings, cable compounding, polymer foils, PVC compound coatings, paints, thinners, paint removers, fillers, putties, plasters, ink and toners, greases, release products, polymer preparations and compounds, and semiconductors	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
2	1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich	71888-89-6	0.1 mass% of article	Plasticizer, dye, pigment, paint, ink, adhesive, lubricant	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
3	1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters	68515-42-4	0.1 mass% of article	Plasticizer, dye, pigment, paint, ink, adhesive, lubricant	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
4	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	68515-50-4	0.1 mass% of article	Used as a plasticizer for certain plastics and rubbers	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
5	1,2-Benzenedicarboxylic acid, dipentyl ester, branched and linear	84777-06-0	0.1 mass% of article	Plasticizer in plastic materials in specialist applications, for example where high solvating plasticizers and stain resistance are required	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
6	Bis (2-ethylhexyl)phthalate (DEHP)	117-81-7	0.1 mass% in homogenous material	Plasticizer, dye, pigment, paint, ink, adhesive, lubricant	[EU] RoHS Directive 2011/65/EU and its amendments
					[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
7	1,2-Bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	112-49-2	0.1 mass% of article	Solvent may be used in battery electrolytes for lithium batteries. May be in found in printing inks.	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
8	1-Bromopropane	106-94-5	0.1 mass% of article	Solvent for adhesives, cleaning of metal surfaces, and dry-cleaning; aerosol propellant	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization

			Not intentionally added		[USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
9	p-Dichlorobenzene	106-46-7	Not intentionally added	Insecticide, germicide, space and garbage deodorizer; chemical intermediate in organic chemicals, dyes, and pharmaceuticals air care products and polymers; indoor use as processing aid and indoor use in long-life materials with low release rate	[USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
10	1,1-Dichloroethane	75-34-3	Not intentionally added	Intermediate in chemical synthesis; solvent. Formerly used as a surgical anesthetic.	[USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
11	1,2-Dichloroethane	107-06-2	0.1 mass% of article	Insect fumigant for grains and orchards, solvent for resins and fats, gasoline additive to remove lead; chemical intermediate in organic synthesis (vinyl chloride); precursor to dry cleaning agent	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
			Not intentionally added		[USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
12	1,2-Dichloropropane	78-87-5	Not intentionally added	Chemical intermediate in production of carbon tetrachloride and perchloroethylene; industrial solvent for fats, oils, resins, waxes, and rubber	[USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
13	1,4-Dioxane	123-91-1	0.1 mass% of article	Solvent, dehydrating agent; stabilizer in chlorinated solvents	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
			Not intentionally added		[USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
14	1,1,2-Trichloroethane	79-00-5	Not intentionally added	Intermediate in chemical synthesis	[USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
15	Carbon Tetrachloride	56-23-5	Not intentionally added	Dry cleaning agent, fire extinguisher, solvent, degreaser, refrigerant, chlorofluorocarbon feedstock.	[USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
16	Methylene Chloride	75-09-2	Not intentionally added	Solvent; paint stripper, degreaser; extraction agent for flavorings and to decaffeinate coffee and tea; aerosol propellant and blowing agent for polyurethane foams; manufacture of pharmaceuticals, film coatings, and electronics	[USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
17	N-Methylpyrrolidone (NMP)	872-50-4	0.1 mass% of article	NMP is used as a solvent, in manufacturing petrochemicals, electronics, and plastic material	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization



			Not intentionally added	and resins, and for producing and removing paints, coatings and adhesives.	[USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
18	Tetrachloroethylene (also known as Perchloroethylene)	127-18-4	Not intentionally added	Solvent for organic materials used in dry-cleaning, textile processing, and vapor-degreasing; chemical intermediate.	[USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
19	Trichlorethylene (TCE)	79-01-6	0.1 mass% of article	Metal degreasing, extraction solvent, cleaning kerosene-fueled rocket engines; production of refrigerants; component of tobacco smoke.	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
			Not intentionally added		[USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
20	1,2-Diethoxyethane	629-14-1	0.1 mass% of article	Solvent used in electrolytes for lithium batteries.	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
21	Diisobutyl phthalate (DIBP)	84-69-5	0.1 mass% in homogenous material	Plasticizer, dye, pigment, paint, ink, adhesive, lubricant	[EU] RoHS Directive 2011/65/EU and its amendments
			0.1 mass% of article		[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
22	1,2-Dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4	0.1 mass% of article	Solvent used in battery electrolytes for lithium batteries. May be in found in printing inks and paint strippers	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
23	1,3-Butadiene	106-99-0		Polymer component in production of synthetic rubber, plastic, and fuel; chemical intermediate (nylon)	[USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
24	1,3-propanesultone	1120-71-4	0.1 mass% of article	Electrolyte fluid of rechargeable lithium ion batteries	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
25	1,6,7,8,9,14,15,16,17,17,18,18-Dodecachloropentacyclo[12.2.1.1.16,9.02,13.05,10]octadeca-7,15-diene ("Dechlorane Plus"™)		0.1 mass% of article	Flame retardant for electric wire and cable covering material	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
26	2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	36437-37-3	0.1 mass% of article	UV stabilizer	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
27	2-(2H-Benzotriazol-2-yl)-4,6-	25973-55-1	0.1 mass% of article	UV stabilizer	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization

	ditertpentylphenol (UV-328)				
28	2,2-Bis(4'-hydroxyphenyl)-4-methylpentane	6807-17-6	0.1 mass% of article	White crystalline powder, Raw material for epoxy resins, Raw materials for polycarbonate resin, Thermal paper, Chemicals, Surface coatings, Inks, Adhesives, Synthetic resin additives, Liquid crystal materials, Photosensitizers, Information recording agents, Engineering plastic materials, Electronic functional materials, Optical functional materials; may be used as substitute for BPA	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
29	2,4-Di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)	3864-99-1	0.1 mass% of article	UV stabilizer	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
30	2-Benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	3846-71-7	Not intentionally added or 0.1 mass% of article	UV-stabilizer in adhesives, paints, printing inks, plastics, inked ribbons, putty, caulking or sealing fillers	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
					[Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.
31	Ethylene dibromide	106-93-4	Not intentionally added		[USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
32	2-Ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE)	15571-58-1	0.1 mass% of article	PVC stabilizer	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
33	4-(1,1,3,3-Tetramethylbutyl)phenol	140-66-9	0.1 mass% of article	Unreacted process chemical	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
34	4,4'-(1-Methylpropylidene)bisphenol	77-40-7	0.1 mass% of article	Antioxidant for plasticizer and PVC, ink, paint and adhesive; used as monomer in epoxy resins and plastics	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
35	4,4'-(1-Methylethylidene)bis[2,6-dibromophenol] (TBBP A)	79-94-7	Not intentionally added	Tetrabromobisphenol A is widely used as a reactive flame retardant to produce a bromine-containing epoxy resin and polycarbonate, and as intermediates for the synthesis of other complex flame retardant, also as an additive flame retardant for ABS, HIPS, unsaturated polyester rigid polyurethane foams, adhesives and coatings	[USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)



36	4,4'-Isopropylidenediphenol	80-05-7	Not intentionally added or 0.1 mass% of article	Antioxidant for plasticizer and PVC, ink, paint and adhesive; used as monomer in epoxy resins and plastics	[USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
					[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
37	4-Aminoazobenzene	60-09-3	0.1 mass% of article	Used as yellow pigment and in inks, including inks for inkjet printers. It is also used as a dye for lacquer, varnish, wax products, oil stains and styrene resins.	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
38	4-Nonylphenol, branched and linear		0.1 mass% of article	Paint, glues and polymers	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
39	4-Nonylphenol, branched and linear, ethoxylated		0.1 mass% of article	Nonylphenol ethoxylates are used in paints, lacquers and varnishes in concentrations up to 10% w/w of the mixture.	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
40	6,6'-Di-tert-butyl-2,2'-methylenedi-p-cresol	119-47-1	0.1 mass% of article	Adhesives, sealants, lubricants, fuels, hydraulic fluids, metal working, antioxidant/stabilizer for rubber and plastics	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
41	Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)		Not intentionally added or 0.1 mass% of article	Plasticizer for PVC, flame retardant	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
					[EU] Persistent Organic Pollutants (POPs) Regulation (EC) No.850/2004
					[Norway] Regulations relating to restrictions on the manufacture, import, export, sale and use of chemicals and other products hazardous to health and the environment (Consumer Product Regulations) FOR-2004-06-01-922
					[Switzerland] Act of Reduction of Risks in Treatment of Specified Hazardous Substances, Preparations, and Articles in Switzerland (ChemRRV) Swiss Ordinance 814.81
42	Aluminosilicate Refractory Ceramic Fibres		0.1 mass% of article	Thermal insulation for high temperature test equipment	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
43	Ammonium pentadecafluorooctanoate (APFO)	3825-26-1	0.1 mass% of article	APFO is used as an emulsion stabilizer to manufacture polyvinylidene fluoride (PVDF) and other fluorinated polymers and elastomers and can be found in concentrations up to 1% w/w in these plastics.	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization

44	Asbestos		Not intentionally added	Insulator, filler, pigment, paint, talc, including all other forms of man-made or natural ceramic refractory fibers	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
					[Switzerland] Act of Reduction of Risks in Treatment of Specified Hazardous Substances, Preparations, and Articles in Switzerland (ChemRRV) Swiss Ordinance 814.81
					[USA] Toxic Substances Control Act (TSCA)
45	Azocolourants and Azodyes which form certain aromatic amines		0.003% by weight of the finished textile/leather product	Pigment, dyes, colorants; Reportable Applications: Textiles and Leather	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
46	Benzenamine, N-phenyl-, reaction products with styrene and 2,4,4-trimethylpentene		Not intentionally added		[Canada] Prohibition of Certain Toxic Substances Regulations SOR/2012-285 and its amendment
47	Benz[a]anthracene	56-55-3	0.1 mass% of article	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
			0.00005 mass% of the plastic or rubber part	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers; Reportable Applications: Rubber or plastic parts of toys and childcare articles that come into direct, prolonged or repetitive skin or oral cavity contact	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
48	Benzo[a]pyrene (BaP)	50-32-8	0.00005 mass% of the plastic or rubber part	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers; Reportable Applications: Rubber or plastic parts of toys and childcare articles that come into direct, prolonged or repetitive skin or oral cavity contact	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
49	Benzo[b]fluoranthene (BbFA)	205-99-2	0.00005 mass% of the plastic or rubber part	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers; Reportable Applications: Rubber or plastic parts of toys and childcare articles that come into direct, prolonged or repetitive skin or oral cavity contact	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
50	Benzo[def]chrysene (Benzo[a]pyrene)	50-32-8	0.1 mass% of article	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization

51	Benzo[e]pyrene (BeP)	192-97-2	0.00005 mass% of the plastic or rubber part	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers; Reportable Applications: Rubber or plastic parts of toys and childcare articles that come into direct, prolonged or repetitive skin or oral cavity contact	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
52	Benzo[ghi]perylene	191-24-2	0.1 mass% of article	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
53	Benzo[j]fluoranthene (BjFA)	205-82-3	0.00005 mass% of the plastic or rubber part	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubber; Reportable Applications: Rubber or plastic parts of toys and childcare articles that come into direct, prolonged or repetitive skin or oral cavity contact	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
54	Benzo[k]fluoranthene	207-08-9	0.1 mass% of article	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
55	Benzo[k]fluoranthene (BkFA)	207-08-9	0.00005 mass% of the plastic or rubber part	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers; Reportable Applications: Rubber or plastic parts of toys and childcare articles that come into direct, prolonged or repetitive skin or oral cavity contact	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
56	Benzyl butyl phthalate (BBP)	85-68-7	0.1 mass% in homogenous material	Plasticizer, dye, pigment, paint, ink, adhesive, lubricant	[EU] RoHS Directive 2011/65/EU and its amendments
					[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
57	Beryllium Oxide (Optional Reporting)	1304-56-9	0.1 mass%	Ceramics	(Guidance) EICTA, CECED and EERA Joint Position : Guidance on implementing article 11 of Directive 2002/96(EC) concerning information for treatment facilities
58	Bis(2-(2-methoxyethoxy)ethyl) ether	143-24-8	0.1 mass% of article	Solvent in electrolyte in lithium-ion batteries, solvent in other manufacturing process (example: solder flux).	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization

59	Bis(2-methoxyethyl) ether	111-96-6	0.1 mass% of article	Electrolyte in lithium batteries	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
60	Bis(2-methoxyethyl) phthalate	117-82-8	0.1 mass% of article	Plasticizer	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
61	Bis(pentabromophenyl) ether (decabromodiphenyl ether) (DecaBDE)	1163-19-5	Not intentionally added or 0.1 mass% of article	Flame retardant	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
					[USA] Toxic Substances Control Act (TSCA)
62	Bis(tributyltin) oxide (TBTO)	56-35-9	Not intentionally added or 0.1 mass% of article	Antiseptic, antifungal agent, paint, pigment, antistaining, refrigerant, foaming agent, extinguishant, solvent cleaner	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
					[Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.
63	Boric acid	10043-35-3; 11113-50-1	0.1 mass% of article	In wood veneers/ pressed wooden panels as starch additive, flame retardant and stabilizer in aminoplastic resin, wood preservative, as flame retardant in wood, cotton and other plant derived material	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
64	Brominated flame retardants (other than PBBs, PBDEs, or HBCDD) (Optional Reporting)		0.09 mass% total bromine content in laminate	Flame retardant in printed wiring board laminate; Reportable Applications: Printed wiring board laminate	(Standard) IEC 61249-2-21; (Standard) IPC-4101
			0.1 mass% of bromine in plastic materials	Flame retardant for housing, connectors, package molding sealing; Reportable Applications: Plastic materials except printed wiring board laminates	(Standard) JEDEC JS709
			Not intentionally added	Packaging material	Packaging Directive
65	Cadmium	7440-43-9	0.1 mass% of article	Pigments, anti-corrosion surface treatments, optical glass, heat stabilizers, plating, fluorescent materials, electrodes, low melting solders, electric contacts, zinc plating, photoelectric applications, phosphor coatings, bearing alloys	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
66	Cadmium/Cadmium compounds		0.01 mass% of total Cd in homogenous material	Pigments, anti-corrosion surface treatments, optical glass, heat stabilizers, plating, fluorescent materials, electrodes, low melting solders,	[EU] RoHS Directive 2011/65/EU and its amendments
					[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII

				electric contacts, zinc plating, photoelectric applications, phosphor coatings, bearing alloys	[China] Law Measures for Restriction of the Use of Hazardous Substances in Electrical Appliances and Electronic Products
					[Japan] Law for the Promotion of Effective Utilization of Resources
				Pigments, anti-corrosion surface treatments, optical glass, heat stabilizers, plating, fluorescent materials, electrodes, low melting solders, electric contacts, zinc plating, photoelectric applications, phosphor coatings, bearing alloys ; Reportable Applications : Video display devices, with a screen size of greater than four inches	[USA California] Electronic Waste Recycling Act (California RoHS) SB 20, amended by SB 50 and AB 575
			0.001% by weight of battery	Relay contact; photodiode voltaic cell, Ni/Cd battery	[EU] Battery Directive 2006/66/EC
					[Korea (the Republic of)] Quality Management and Manufactured Product Safety Management Law (Battery Regulation)
			Sum total of Cadmium, Lead, Mercury & Hexavalent Chromium < 100 ppm	Packaging material	Packaging Directive
67	Cadmium hydroxide	21041-95-2	0.1 mass% of article	It is generated in the anodes of nickel-cadmium and silver-cadmium batteries during the discharge	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
68	Cadmium oxide	1306-19-0	0.1 mass% of article	Relay contact; photodiode voltaic cell, Ni/Cd battery	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
69	Cadmium sulphide	1306-23-6	0.1 mass% of article	Used in photo-resistors, solar cells and piezoelectric transducers	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
70	Chlorinated Flame Retardants (CFR) (Optional Reporting)		0.09 mass% total chlorine content in laminate	flame retardant; Reportable Applications: Printed Wiring Board (PWB) Laminates	(Standard) IEC 61249-2-21; (Standard) IPC-4101
			0.1 mass% chlorine in plastic materials	flame retardant for housing, connectors, package molding sealing; Reportable Applications: Plastic materials except printed wiring board laminates	(Standard) JEDEC JS709
71	Chromium (VI) Compounds		0.1 mass% of total Cr+6 in	Pigment, paint, ink, catalyst, plating, anticorrosion surface	[EU] RoHS Directive 2011/65/EU and its amendments

			homogenous material	treatment, dye, paint dryer, surface treatment	[China] Law Measures for Restriction of the Use of Hazardous Substances in Electrical Appliances and Electronic Products
					[Japan] Law for the Promotion of Effective Utilization of Resources;
				Pigment, paint, ink, catalyst, plating, anticorrosion surface treatment, dye, paint dryer, surface treatment ; Reportable Applications: Video display devices, with a screen size of greater than four inches	[USA California] Electronic Waste Recycling Act (California RoHS) SB 20, amended by SB 50 and AB 575
			Sum total of Cadmium, Lead, Mercury & Hexavalent Chromium < 100 ppm	Packaging material	Packaging Directive
72	Chrysen (CHR)	218-01-9	0.0001 mass% of the plastic or rubber part	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers; Reportable Applications: Rubber or plastic parts that come into direct, prolonged or repetitive skin or oral cavity contact except those for toys or childcare articles	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
			0.00005 mass% of the plastic or rubber part	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers flame retardant Printed Wiring Board (PWB) Laminates; Reportable Applications: Rubber or plastic parts of toys and childcare articles that come into direct, prolonged or repetitive skin or oral cavity contact	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
			0.1 mass% of article	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
73	Cobalt dichloride	7646-79-9	0.1 mass% of article	Pneumatic panels to indicate water contamination	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
74	Cobalt/Cobalt compounds		Not intentionally added	Batteries used in computer servers and online data storage products	[EU] Ecodesign requirements (EU) 2021/341 and (EU) 2019/424 pursuant to Directive 2009/125/EC
75	Conflict Minerals		Responsible Minerals sourcing from	Responsible Minerals Initiative (RMI) reporting on the Country of Origin Inquiry; and recommends sourcing of minerals from the Conflict Free	Section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act, 2010
	Tantalum	7440-25-7			
	Gold	7440-57-5			



	Tungsten	7440-33-7	the Conflict Free Smelter	Smelter list posted on the website <a href="http://www.responsiblemineralsinitiative.org/">http://www.responsiblemineralsinitiative.org/</a>	
	Tin	7440-31-5			
76	Cyclic Aliphatic Bromide Cluster (HBCD)	25637-99-4; 3194-55-6; 3194-57-8	0.1 mass% of article	HBCD is primarily used as an additive in building insulation, solder paste, recycled plastics, and automobile replacement parts.	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
77	Decamethylcyclotrisiloxane	541-02-6	0.1 mass% of article	Siloxanes are monomers used to manufacture silicones. Residuals may remain in silicone polymers and copolymers.	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
78	Diarsenic pentoxide	1303-28-2	0.1 mass% of article	Additive in wood, metal, glass and plastics	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
79	Diarsenic trioxide	1327-53-3	0.1 mass% of article	Additive in wood, metal, glass and plastics	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
80	Dibenzo[a,h]anthracene (DBA <sub>h</sub> A)	53-70-3	0.0001 mass% of the plastic or rubber part	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers; Reportable Applications: Rubber or plastic parts that come into direct, prolonged or repetitive skin or oral cavity contact except those for toys or childcare articles	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
			0.00005 mass% of the plastic or rubber part	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers; Reportable Applications: Rubber or plastic parts of toys and childcare articles that come into direct, prolonged or repetitive skin or oral cavity contact	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
81	Diboron trioxide	1303-86-2	0.1 mass% of article	Found in wood veneers, glass/fiber optics, and ceramics - for industrial applications	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
82	Dibutylbis(pentane-2,4-dionato-O,O')tin	22673-19-4	0.1 mass% of article	Used as biocides and as stabilisers in plastics. Used also as a catalyst and in the manufacturing of adhesives, sealants, coatings, dyes, polymer preparations, resins and rubber. Can be found in supplied articles.	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
83	Dibutyl phthalate (DBP)	84-74-2		Plasticizer, dye, pigment, paint, ink, adhesive, lubricant	[EU] RoHS Directive 2011/65/EU and its amendments

			0.1 mass% in homogenous material		[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
84	Dibutyltin (DBT) compounds		0.1 mass% of tin in the part	Stabilizer for PVC, curing catalyst for silicone resin and urethane resin	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
85	Dibutyltin dichloride (DBTC)	683-18-1	0.1 mass% of article	Ingredient in some paint thinner and as heat stabilizer for PVC	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
86	Dicyclohexyl phthalate	84-61-7	0.1 mass% of article	Plasticizer, dye, pigment, paint, ink, manufacture of adhesive, lubricant	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
87	Di-isodecyl phthalate (DIDP)	68515-49-1; 26761-40-0	Not intentionally added	Plasticizer, dye, pigment, paint, ink, adhesive, lubricant	[USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
88	Diisohexyl phthalate	71850-09-4	0.1 mass% of article	Used as a plasticizer for certain plastics and rubbers	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
89	Diisononyl phthalate (DINP)	28553-12-0; 68515-48-0	Not intentionally added	Used as a plasticizer for PVC	[USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
90	Diisopentyl phthalate	605-50-5	0.1 mass% of article	Plasticizer in plastic materials in specialist applications, for example where high solvating plasticizers and stain resistance are required	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
91	Dimethylfumarate (DMF)	624-49-7	0.00001 mass% of the part	Biocide, mold prevention treatment of electronic leather seats, including recliners, massage chairs, consumer products	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
			Not intentionally added	Dessicants or Silica gels	Packaging Directive
92	Di-n-hexyl phthalate (DnHP)	84-75-3	Not intentionally added or 0.1 mass% of article	Plasticizer, dye, pigment, paint, ink, adhesive, lubricant	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
					[USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
93	Diocetyl tin (DOT) compounds		0.1 mass% of tin in the part	Stabilizer for PVC, curing catalyst for silicone resin and urethane resin; Reportable Applications: (a) textile and leather articles intended to come into contact with the skin, (b) childcare articles, (c) two-component room temperature vulcanisation moulding kits (RTV-2 moulding kits)	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII

94	Dioctyltin dilaurate, stannane, dioctyl-, bis(coco acyloxy) derivs., and any other stannane, dioctyl-, bis(fatty acyloxy) derivs. wherein C12 is the predominant carbon number of the fatty acyloxy moiety		0.1 mass% of article	Stabilisers and catalysts in the production of e.g. plastics and rubber. Used for the manufacture of the follow article categories: plastic products, fabrics, textiles, apparel, and leather. Professional application of coatings and inks.	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
95	Dioxobis(stearato)tril ead	12578-12-0	0.1 mass% of article	Heat stabilizer for plastics, for example for wiring and cabling insulation.	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
96	Dipentyl phthalate (DPP)	131-18-0	0.1 mass% of article	Plasticizer in PVC and nitrocellulose resin and rubber; in gunpowder, toys, cosmetics, medical devices	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
97	Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate) (C.I. Direct Red 28)	573-58-0	0.1 mass% of article	Dye for textiles and paper	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
98	Disodium 4-amino-3-[[[4'-[(2,4-diaminophenyl)azo][1,1'-biphenyl]-4-yl]azo]-5-hydroxy-6-(phenylazo)naphthalene-2,7-disulphonate (C.I. Direct Black 38)	1937-37-7	0.1 mass% of article	Used in ink for printers	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
99	Disodium octaborate	12008-41-2	0.1 mass% of article	Wooden veneer sheets and pressed wooden panels (as a constituent within the starch adhesive), as a flame retardant, as stabilizer in aminoplastic resins, and as a biocide in professional and industrial wood preservation.	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
100	Disodium tetraborate, anhydrous		0.1 mass% of article	In wood veneers/ pressed wooden panels as starch additive, flame retardant and stabilizer in aminoplastic resin, wood preservative	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
101	Dodecamethylcyclhexasiloxane	540-97-6	0.1 mass% of article	Siloxanes are monomers used to manufacture silicones. They may remain as unreacted in silicone polymers and copolymers, used in many electrotechnical equipment product categories.	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
102	Fatty acids, C16-18, lead salts	91031-62-8	0.1 mass% of article	Heat stabilizer for plastics, for example for wiring and cabling insulation.	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization

103	Fluoranthene	206-44-0	0.1 mass% of article	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
104	Fluorinated Greenhouse Gases (PFC, SF6, HFC)		Not intentionally added	Refrigerants, blowing agents, extinguishing agents, cleaning agents, insulating media, caustic gas	[EU] REGULATION (EU) No 517/2014 on fluorinated greenhouse gases
105	Formaldehyde	50-00-0	Not intentionally added or 0.0075 (75 ppm) mass % of homogeneous material	Textiles material intended for skin contact	[Austria] BGB I 1990/194: Formaldehyde Restriction §2, 12/2/1990  [Lithuania] Hygiene Norm HN 96:2000 (Hygiene Norms and Regulations)
			0.08 ppm as gaseous emission or 0.1 mass% in article	Composite wood products	
106	Halogenated Flame Retardants		Not intentionally added	Flame retardant in electronic displays; Reportable Applications: enclosure and stand of electronic displays, including televisions, monitors and digital signage displays with a screen area greater than 100 square centimetres	[EU] Commission Regulation (EU) 2019/2021 laying down ecodesign requirements for electronic displays
107	Hexabromocyclododecane (HBCDD)		Not intentionally added or 0.01 mass% of article	Flame retardant; mainly used for expanded polystyrene and some types of fiber	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
					[EU] Persistent Organic Pollutants (POPs) Regulation (EC) No.850/2004
					[Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc
108	Hexahydromethylphthalic anhydride		0.1 mass% of article	Primary use is as a hardener for epoxy resins.	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
109	Hygroscopic materials		Not allowed	Electrical insulation	IEC/UL/CSA 60950-1, Current edition
				Hygroscopic Materials should not be used as electrical insulation in products or sub-assemblies	Oracle requirement
110	Imidazolidine-2-thione (2-imidazoline-2-thiol)	96-45-7	0.1 mass% of article	used as a catalyst in some acrylic adhesive glues which may be used in adhesive tapes (for example, double sided adhesive tapes which may be used to hold the back-light in place in mobile phones)	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization

111	Lead	7439-92-1	0.1 mass% of article	Steel, aluminum and copper alloys, lead acid batteries, solder and other applications	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
112	Lead/Lead Compounds		0.1 mass% of total Pb in homogenous material (RoHS unexpired exemptions are allowed)	Rubber hardener, pigment, paint, lubricant, plastic stabilizer, materials for battery, free-machining alloy, free-cutting steels, optical materials, X-ray shielding in CRT glass, electrical solder material, mechanical solder materials, curing agent, vulcanizing agent, ferroelectrics, resin stabilizer, plating, metal alloy, resin additives	[EU] RoHS Directive 2011/65/EU and its amendments
					[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
					[China] Law Measures for Restriction of the Use of Hazardous Substances in Electrical Appliances and Electronic Products
					[Japan] Law for the Promotion of Effective Utilization of Resources
				Rubber hardener, pigment, paint, lubricant, plastic stabilizer, materials for battery, free-machining alloy, free-cutting steels, optical materials, X-ray shielding in CRT glass, electrical solder material, mechanical solder materials, curing agent, vulcanizing agent, ferroelectrics, resin stabilizer, plating, metal alloy, resin additives; Reportable Applications: Video display devices, with a screen size of greater than four inches	[USA California] Electronic Waste Recycling Act (California RoHS) SB 20, amended by SB 50 and AB 575
			0.03 mass% of surface coating material	Cables/cords; Reportable Applications: Cables/cords with thermoset or thermoplastic coatings	[USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
			0.009 mass% of surface coating material	Pigment, paint, stabilizer, colorant; Reportable Applications: Paint and similar surface coatings of toys and other articles intended for use by children	[USA] Consumer Product Safety Improvement Act of 2008 PUBLIC LAW 110-314
			0.004 mass% of battery	Zinc carbon batteries, alkaline button cells	[EU] Battery Directive 2006/66/EC
					[China] Limitation of mercury, cadmium and lead contents for alkaline and non-alkaline zinc manganese dioxide batteries GB 24427-2009
			Sum total of Cadmium, Lead, Mercury & Hexavalent Chromium < 100 ppm	Packaging material	Packaging Directive
113	Lead chromate	7758-97-6	0.1 mass% of article	Colorant in plastics; Colorant in paint	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization

114	Lead chromate molybdate sulphate red (C.I. Pigment Red 104)	12656-85-8	0.1 mass% of article	Colorant in plastics; Colorant in red paint	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
115	Lead cyanamidate	20837-86-9	0.1 mass% of article	Used in anticorrosion coatings e.g. steel articles	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
116	Lead dinitrate	10099-74-8	0.1 mass% of article	Heat stabilizer in nylon and polyesters, also used as a coating on paper for photo thermography.	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
117	Lead oxide sulfate	12036-76-9	0.1 mass% of article	Heat stabilizer for PVC used for wiring and cabling insulation.	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
118	Lead sulfochromate yellow (C.I. Pigment Yellow 34)	1344-37-2	0.1 mass% of article	Colorant in plastics; Colorant in yellow paint	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
119	Lead titanium trioxide	12060-00-3	0.1 mass% of article	In piezoelectric components, ultrasound transducers, gas igniters, ultrasonic motors, ceramic capacitors and other electronic components that use piezoelectric materials	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
120	Lead titanium zirconium oxide	12626-81-2	0.1 mass% of article	In piezoelectric components, ultrasound transducers, gas igniters, ultrasonic motors, ceramic capacitors and other electronic components that use piezoelectric materials	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
121	Medium-chain chlorinated paraffins (MCCP)		0.1 mass% of article	Flame retardant and / or plasticizer in PVC and rubber, paints and coatings, adhesives and sealants, textiles and fabric	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
122	Mercury/Mercury Compounds		0.1 mass% of total Hg in homogenous material	Fluorescent bulb, contact point material, pigment, anti-corrosion, switches, antibacterial treatment	[EU] RoHS Directive 2011/65/EU and its amendments
					[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
					[Japan] Law for the Promotion of Effective Utilization of Resources
					[Canada] Products containing Mercury regulations SOR/2014-254
					[China] Law Measures for Restriction of the Use of Hazardous Substances in Electrical Appliances and Electronic Products
				Fluorescent bulb, contact point material, pigment, anti-corrosion, switches, antibacterial treatment; Reportable Applications: Video	[USA California] Electronic Waste Recycling Act (California RoHS) SB 20, amended by SB 50 and AB 575



				display devices, with a screen size of greater than four inches	
			0.0005 mass% of total Hg in homogenous material	Silver-oxide button cells, alkaline batteries, zinc carbon batteries	[Canada] Products containing Mercury Regulations SOR/2014-254
			Not intentionally added or 0.0001 mass% of battery	Silver-oxide button cells, alkaline batteries, zinc carbon batteries	[China] Limitation of mercury, cadmium and lead contents for alkaline and non-alkaline zinc manganese dioxide batteries GB 24427-2009
					[EU] Battery Directive 2006/66/EC
					[Korea (the Republic of)] Quality Management and Manufactured Product Safety Management Law (Battery Regulation)
					[Taiwan (Province of China)] Restrictions on the Manufacture, Import, and Sale of Dry Cell Batteries
					[USA New York] Environmental Conservation Law, Battery management and disposal § 27-0719
			Mercuric oxide batteries not allowed	Mercuric oxide batteries must not be included in any Oracle product (including spares and sub-assemblies).	Oracle requirement
			Sum total of Cadmium, Lead, Mercury & Hexavalent Chromium < 100 ppm	Packaging material	Packaging Directive
123	N,N-dimethylformamide	68-12-2	0.1 mass% of article	Used as electrolyte in electrolytic capacitors rated for low temperature use to -55C.	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
124	Methyl Bromide	74-83-9	Not allowed	Methyl bromide as a fumigant in any packaging material	Oracle requirement
125	Neodymium/Neodymium compounds		Not intentionally added	HDDs (Hard Disk Drives); Reportable Applications: HDDs used in computer servers and online data storage products	[EU] Ecodesign requirements (EU) 2021/341 and (EU) 2019/424 pursuant to Directive 2009/125/EC
126	Nickel/Nickel Compounds		Not intentionally added	Stainless steel, plating; Example application for prolonged skin contact is an ear bud (headphone); mobile phone; Reportable Applications: All, where prolonged skin contact is expected	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII

127	Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts		0.1 mass% of article	Plasticizer, lubricant, corrosion inhibitor	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
128	N-pentyl-isopentylphthalate	776297-69-9	0.1 mass% of article	Plasticizer in plastic materials in specialist applications, for example where high solvating plasticizers and stain resistance are required	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
129	Octamethylcyclotetra siloxane	556-67-2	0.1 mass% of article	Siloxanes are monomers used to manufacture silicones. They may remain as unreacted in silicone polymers and copolymers, used in many electrotechnical equipment product categories.	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
130	Orange lead (lead tetroxide)	1314-41-6	0.1 mass% of article	Used in rust-proof primer paints	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
131	Orthoboric acid, sodium salt		0.1 mass% of article	As flame retardant/adhesive ingredients for wood, paper, cotton and other plant-derived materials; glass manufacturing	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
132	Ozone Depleting Substances (CFC, Halon, HBFC, HCFC & others)		Not intentionally added	Refrigerant, foaming agent, extinguishant, solvent cleaner, product or manufacturing operations	[EU] Regulation on substances that deplete the ozone layer (EC) No. 1005/2009; [Japan] Law concerning the Protection of the Ozone Layer through the Control of Specified Substances and Other Measures; [USA] Clean Air Act; (Treaty) Montreal Protocol on Substances that Deplete the Ozone Layer
133	Pentadecafluorooctanoic acid (PFOA)	335-67-1	0.1 mass% of article	PFOA is used as an emulsion stabilizer to manufacture polyvinylidene fluoride (PVDF) and other fluorinated polymers and elastomers and can be found in concentrations up to 1% w/w in these plastics.	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
134	Pentalead tetraoxide sulphate	12065-90-6	0.1 mass% of article	Heat stabilizer for plastics; for example, non-transparent PVC	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
135	Pentazinc chromate octahydroxide	49663-84-5	0.1 mass% of article	Colorant	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
136	Perchlorates		1 ppb of battery or product part	Lithium batteries; coin cell batteries	[USA California] Perchlorate Contamination Prevention Act of 2003 AB 826
137	[Phthalato(2-)]dioxotrilead	69011-06-9	0.1 mass% of article	Heat stabilizer for plastics, for example for wiring and cabling insulation.	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization

138	Phenanthrene	85-01-8	0.1 mass% of article	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
139	Phenol, Isopropylated Phosphate (3:1) (PIP (3:1))	68937-41-7	Not intentionally added	Flame retardant and/or plasticizer in polymers such as flexible polyurethane foam and PVC, lubricant, hydraulic fluid, adhesives and sealants. Examples: gasket, wire sleeve, tape.	[USA] Toxic Substances Control Act (TSCA)
140	Phthalates, Selected Group 1 (DEHP, DBP, BBP, DIBP)		0.1 mass% as the sum of the phthalate concentrations in plasticized material	Plasticizer, dye, pigment, paint, ink, adhesive, lubricant; Reportable Applications: Children's toy or child care article	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
					[USA] Consumer Product Safety Improvement Act of 2008 PUBLIC LAW 110-314
141	Phthalates, Selected Group 2 (DIDP, DINP, DNOP)		0.1 mass% as the sum of the phthalate concentrations in plasticized material	Plasticizer, dye, pigment, paint, ink, adhesive, lubricant; Reportable Applications: Children's toy or child care article that can be placed in a child's mouth	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
				Plasticizer, dye, pigment, paint, ink, adhesive, lubricant; Reportable Applications: Children's toy or child care article that can be placed in a child's mouth	[USA] Consumer Product Safety Improvement Act of 2008 PUBLIC LAW 110-314
142	Polybrominated biphenyls (PBB)		0.1 mass% in homogenous material	Flame retardant	[EU] RoHS Directive 2011/65/EU and its amendments
					[China] Law Measures for Restriction of the Use of Hazardous Substances in Electrical Appliances and Electronic Products
					[Japan] Law for the Promotion of Effective Utilization of Resources
143	Polybrominated diphenyl ethers (PBDE)		0.1 mass% in homogenous material	Flame retardant	[EU] RoHS Directive 2011/65/EU and its amendments
					[China] Law Measures for Restriction of the Use of Hazardous Substances in Electrical Appliances and Electronic Products
					[Japan] Law for the Promotion of Effective Utilization of Resources; [Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

144	Polychlorinated Biphenyls (PCBs) and specific substitutes		Not intentionally added	Insulation oil, lubricant oil, electrical insulation medium, solvent, electrolytic solution, plasticizers, fire retardants, dielectric sealants	[EU] Persistent Organic Pollutants (POPs) Regulation (EC) No.850/2004
					[Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.
					[USA] Toxic Substances Control Act (TSCA)
145	Polychlorinated naphthalenes (PCNs)		Not intentionally added	Lubricant, paint, stabilizer (electric characteristic, flame-resistant, water-resistant) insulator, flame retardant	[EU] Persistent Organic Pollutants (POPs) Regulation (EC) No.850/2004
					[Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.
146	Polychlorinated Terphenyls (PCTs)		0.005 mass% in material	Insulation oil, lubricant oil, electrical insulation medium, solvent, electrolytic solution, plasticizers, fire retardants, coatings for electrical wire and cable, dielectric sealants	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
147	Potassium hydroxyoctaoxodizin catedichromate	11103-86-9	0.1 mass% of article	Paint, anti-corrosion	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
148	Pyrene	129-00-0	0.1 mass% of article	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
149	Pyrochlore, antimony lead yellow	8012-00-8	0.1 mass% of article	Used as yellow pigment for coloring plastics and paint	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
150	Radioactive substances		Not intentionally added or 0.1% by weight in the article can be reported as an estimate of the quantity present to indicate that compliance testing to emission requirements dose rate exceeding 1μSv h-1 at a distance of 0,1m.	Optical properties (thorium), measuring devices, gauges, detectors	[EU] Directive 2013/59/Euratom
					[Japan] Law for the Regulation of Nuclear Source Material, Nuclear Fuel Material, and Reactors; [Japan] Law Concerning Prevention from Radiation Hazards due to Radio-Isotopes, etc.
					[USA] Nuclear Regulatory Commission Regulations Title 10 CFR Part 20
151	Reaction mass of 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate and 2-ethylhexyl 10-ethyl-4-[[2-[(2-		0.1 mass% of article	PVC stabilizer	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization

	ethylhexyl)oxy]-2-oxoethyl]thio]-4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (reaction mass of DOTE and MOTE)				
152	Red Phosphorous and Hydrolysable Compounds used as Flame Retardants		Must not release conductive species when exposed to humidity or moisture under normal operating conditions/environments or any other means	Resins or plastics intended to function as an electrical insulator, including power cord assemblies, power cables, plugs and connectors	Oracle requirement
153	Silicic acid (H <sub>2</sub> SiO <sub>5</sub> ), barium salt (1:1), lead-doped	68784-75-8	0.1 mass% of article	Used in UV emitting light bulbs and lamps	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
154	Strontium chromate	7789-06-2	0.1 mass% of article	Pigment; corrosion resistant coating	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
155	Sulfurous acid, lead salt, dibasic	62229-08-7	0.1 mass% of article	Heat stabilizer for PVC, for example for wiring and cabling insulation	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
156	Terphenyl, hydrogenated	61788-32-7	0.1 mass% of article	Plasticizers, sealants, epoxy adhesives, paints and heat sinks	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
157	Tetraboron disodium heptaoxide, hydrate	12267-73-1	0.1 mass% of article	In wood veneers/ pressed wooden panels as starch additive, flame retardant and stabilizer in aminoplastic resin, wood preservative	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
158	Tetralead trioxide sulphate	12202-17-4	0.1 mass% of article	Heat stabilizer for PVC, for example for wiring and cabling insulation	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
159	Trilead dioxide phosphonate	12141-20-7	0.1 mass% of article	Heat stabilizer for PVC, for example for wiring and cabling insulation	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
160	Tris(2-chloroethyl) phosphate	115-96-8	0.1 mass% of article	Flame retardant	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
161	Tris(4-nonylphenyl, branched and linear) phosphite (TNPP) with ≥ 0.1% w/w of 4-nonylphenol, branched and linear (4-NP)		0.1 mass% of article	stabilizer and antioxidant in the processing of various plastic materials such as PVC, Polyolefines or rubbers	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization

162	Tri-substituted organostannic compounds eg TriButyl Tin (TBT), TriPhenyl Tin (TPT)		Not intentionally added or 0.1 mass% of tin in the part	Stabilizer, antioxidant, antibacterial and antifungal agents, antifoulant, antiseptic, anti-fungal agent, paint, pigment, antistaining	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
					[Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.
					[Norway] Regulations relating to restrictions on the manufacture, import, export, sale and use of chemicals and other products hazardous to health and the environment (Consumer Product Regulations) FOR-2004-06-01-922
163	Trixylyl phosphate	25155-23-1	0.1 mass% of article	Used as a plasticizer for vinyl resin, cellulose resin, natural and synthetic rubber. Also, used as a flame retardant.	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
164	Zirconia Aluminosilicate Refractory Ceramic Fibers		0.1 mass% of article	Thermal insulation for high temperature test equipment	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
<b>Examples of Per- and Polyfluoroalkyl Substances (PFAS)</b>					
165	C9-C14 PFCAs and their salts		25 ppb PFCA & its salts and 260 ppb sum of PFCA and its precursor compounds in Article or Mixture	Greases, textiles and other coated products, and emulsifiers used for manufacturing the Fluoropolymers and fluoroelastomers, photolithography, etching, coating, pesticide etc	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
					[Switzerland] Act of Reduction of Risks in Treatment of Specified Hazardous Substances, Preparations, and Articles in Switzerland (ChemRRV) Swiss Ordinance 814.81
166	2,3,3,3-Tetrafluoro-2-(heptafluoropropoxy) propionic acid, its salts and its acyl halides (aka GenX)	-	0.1 mass% of article		[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
	2,3,3,3-Tetrafluoro-2-(heptafluoropropoxy) propionyl fluoride	2062-98-8			
	2,3,3,3-Tetrafluoro-2-(heptafluoropropoxy) propionic acid	13252-13-6			
	Potassium 2,3,3,3-tetrafluoro-2-(heptafluoropropoxy) propionate	67118-55-2			
	Ammonium 2,3,3,3-tetrafluoro-2-(heptafluoropropoxy) propanoate	62037-80-3			
	Propanoic acid, 2,3,3,3-tetrafluoro-2-(heptafluoropropoxy) -, (-)-	75579-40-7			



	Propanoic acid, 2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)-, (+)-	75579-39-4			
167	Ammonium pentadecafluorooctanoate (APFO)	3825-26-1	0.1 mass% of article	APFO is used as an emulsion stabilizer to manufacture polyvinylidene fluoride (PVDF) and other fluorinated polymers and elastomers and can be found in concentrations up to 1% w/w in these plastics.	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
168	Henicosfluoroundecanoic acid (PFUnDA)	2058-94-8	0.1 mass% of article		[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
169	Heptacosfluorotetradecanoic acid (PFTDA)	376-06-7	0.1 mass% of article		[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
170	Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts		0.1 mass% of article	Plasticizer, lubricant, corrosion inhibitor	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
	Nonadecafluorodecanoic acid	335-76-2			
	Sodium nonadecafluorodecanoate	3830-45-3			
	Ammonium nonadecafluorodecanoate	3108-42-7			
171	Pentacosfluorotridecanoic acid (PFTrDA)	72629-94-8	0.1 mass% of article		[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
172	Pentadecafluorooctanoic acid (PFOA)		0.1 mass% of article	PFOA is used as an emulsion stabilizer to manufacture polyvinylidene fluoride (PVDF) and other fluorinated polymers and elastomers and can be found in concentrations up to 1% w/w in these plastics.	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
173	Perfluorooctanoic acid (PFOA) and its salts	335-67-1	Not intentionally added or 0.0000025 mass% of PFOA including its salts in article or mixture	Greases, textiles and other coated consumer products, and emulsifiers used for manufacturing the fluoropolymers and fluoroelastomers	[EU] Persistent Organic Pollutants (POPs) Regulation (EU) 2019/1021
			Not intentionally added		[Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc [Korea (the Republic of)] Persistent Organic Pollutants Control Act [USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)

184	Perfluorobutane sulfonic acid (PFBS) and its salts		0.1 mass% of article	Impurity in production of PFOS and alternative for PFOS, a surfactant which can be found in protective coatings and adhesives which are resistant to water, dirt, oils etc. May be used as a flame retardant agent for polycarbonate and as an anti-static additive.	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
	Potassium 1,1,2,2,3,3,4,4,4-nonafluorobutane-1-sulphonate	29420-49-3			
	1,1,2,2,3,3,4,4,4-Nonafluorobutane-1-sulphonic acid	375-73-5			
	Bis(4-t-butylphenyl)iodonium perfluorobutanesulfonate	194999-85-4			
	Tetrabutylphosphonium nonafluoro-butane-1-sulfonate	220689-12-3			
	Dimethyl(phenyl)sulfonium perfluorobutanesulfonate	220133-51-7			
	Ammonium 1,1,2,2,3,3,4,4,4-nonafluorobutane-1-sulphonate	68259-10-9			
	Triphenylsulfanium perfluorobutane sulfonate	144317-44-2			
	N,N,N-Triethylethanaminium 1,1,2,2,3,3,4,4,4-nonafluorobutane-1-sulfonate	25628-08-4			
	Magnesium perfluorobutanesulfonate	507453-86-3			
	Lithium perfluorobutanesulfonate	131651-65-5			
	Morpholinium perfluorobutanesulfonate	503155-89-3			
	1-(4-butoxy-1-naphthalenyl)tetrahydrothiophenium 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanedisulfonate	-			

175	Perfluorohexane-1-sulphonic acid (PFHxS) and its salts		0.1 mass% of article	Impurity in production of PFOS and alternative for PFOS, a surfactant which can be found in protective coatings and adhesives which are resistant to water, dirt, oils etc, firefighting foam, dyes, leather	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
			25 ppb PFHxS and their salts; 1000 ppb Sum of PFHxS and its precursor compounds		[Switzerland] Act of Reduction of Risks in Treatment of Specified Hazardous Substances, Preparations, and Articles in Switzerland (ChemRRV) Swiss Ordinance 814.81
	perfluorohexane-1-sulphonic acid	355-46-4			
	ammonium perfluorohexane-1-sulphonate	68259-08-5			
	tridecafluorohexanes ulphonic acid, compound with 2,2'-iminodiethanol (1:1)	70225-16-0			
	potassium perfluorohexane-1-sulphonate	3871-99-6			
	Ethanaminium, N-[4-[[4-(diethylamino)phenyl][4-(ethylamino)-1-naphthalenyl]methyl ene]-2,5-cyclohexadien-1-ylidene]-N-ethyl-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)	1310480-24-0			
	Methanaminium, N-[4-[[4-(dimethylamino)phenyl][4-(ethylamino)-1-naphthalenyl]methyl ene]-2,5-cyclohexadien-1-ylidene]-N-methyl-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)	1310480-27-3			
	Methanaminium, N-[4-[[4-(dimethylamino)phenyl][4-(phenylamino)-1-naphthalenyl]methyl ene]-2,5-cyclohexadien-1-ylidene]-N-methyl-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)	1310480-28-4			

-tridecafluoro-1-hexanesulfonate (1:1)				
Beta-Cyclodextrin, compd. with 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonic acid ion(1-)(1:1)	1329995-45-0			
Gamma-Cyclodextrin, compd. with 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonic acid ion(1-)(1:1)	1329995-69-8			
Sulfonium, triphenyl-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)	144116-10-9			
Quinolinium, 1-(carboxymethyl)-4-[2-[4-[4-(2,2-diphenylethenyl)phenyl]-1,2,3,3a,4,8b-hexahydrocyclopent[b]indol-7-yl]ethenyl]-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)	1462414-59-0			
Iodonium, diphenyl-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)	153443-35-7			
Methanaminium, N,N,N-trimethyl-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonic acid (1:1)	189274-31-5			
1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, compd. with 2-methyl-2-propanamine (1:1)	202189-84-2			
Iodonium, bis[4-(1,1-dimethylethyl)phenyl]-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)	213740-81-9			
Sulfonium, bis(4-methylphenyl)phenyl	341548-85-4			

-, 1,1,2,2,3,3,4,4,5,5,6,6,6 -tridecafluoro-1- hexanesulfonate (1:1)				
1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6 -tridecafluoro-, scandium(3+) salt (3:1)	350836-93-0			
1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6 -tridecafluoro-, neodymium(3+) salt (3:1)	41184-65-0			
1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6 -tridecafluoro-, yttrium(3+) salt (3:1)	41242-12-0			
Sulfonium, (thiodi- 4,1- phenylene)bis[diphen yl]-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,6 -tridecafluoro-1- hexanesulfonic acid (1:2)	421555-73-9			
Iodonium, bis[4-(1,1- dimethylpropyl)phen yl]-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,6 -tridecafluoro-1- hexanesulfonic	421555-74-0			
Sulfonium, tris[4-(1,1- dimethylethyl)phenyl ]-, 1,1,2,2,3,3,4,4,5,5,6,6,6 -tridecafluoro-1- hexanesulfonate (1:1)	425670-70-8			
1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6 -tridecafluoro-, lithium salt (1:1)	55120-77-9			
1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6 -tridecafluoro-, zinc salt	70136-72-0			
1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6 -tridecafluoro-,	72033-41-1			

compd. with N,N-diethylethanamine (1:1)				
1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, sodium salt	82382-12-5			
Iodonium, bis[(1,1-dimethylethyl)phenyl]-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonic acid (1:1) (9CI)	866621-50-3			
Sulfonium, (4-methylphenyl)diphenyl-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)	910606-39-2			
Sulfonium, [4-[(2-methyl-1-oxo-2-propen-1-yl)oxy]phenyl]diphenyl-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)	911027-68-4			
Sulfonium, [4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]diphenyl-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonic acid (1:1), polymer with 2-ethyltricyclo[3.3.1.1 <sup>3,7</sup> ]dec-2-yl 2-methyl-2-propenoate, 3-hydroxytricyclo[3.3.1.1 <sup>3,7</sup> ]dec-1-yl 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate	911027-69-5			
1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, cesium salt (1:1)	92011-17-1			
Dibenzo[k,n][1,4,7,10,13]tetraoxathiacyclopentadecinium, 19-[4-(1,1-dimethylethyl)phenyl	928049-42-7			



	J-6,7,9,10,12,13-hexahydro-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)				
	1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, compd. With pyrrolidine (1:1)	1187817-57-7			
	N,N,N-triethylethanaminium tridecafluorohexane-1-sulfonate	108427-55-0			
	N,N,N-tributylbutan-1-aminium tridecafluorohexane-1-sulfonate	108427-54-9			
	Phosphonium, triphenyl(phenylmethyl)-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)	1000597-52-3			
	1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, gallium salt (9Cl)	341035-71-0			
176	Perfluorononan-1-oic-acid (PFNA) and its sodium and ammonium salts		0.1 mass% of article	Surfactant in the production of the fluoropolymer polyvinylidene fluoride (PVDF)	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization
	Perfluorononan-1-oic-acid	375-95-1			
	Sodium salts of perfluorononan-1-oic-acid	21049-39-8			
	Ammonium salts of perfluorononan-1-oic-acid	4149-60-4			
			Not intentionally added		[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII [USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
177	Perfluorooctane sulfonic acid (PFOS)	1763-23-1	Not intentionally	Antistatic agent for films and plastics; Reportable	[EU] Persistent Organic Pollutants (POPs) Regulation (EC) No.850/2004

	and its salts and transformation and degradation precursors		added or 1 microgram/m <sup>2</sup> of coated material	Applications: Textiles or other coated materials.	[Canada] Prohibition of Certain Toxic Substances Regulations SOR/2012-285 and its amendment
					[Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.
			Not intentionally added or 0.1 mass% of the part (as the sum of PFOS)	Antistatic agent for films and plastics; Reportable Applications: All except textiles or other coated materials.	[Canada] Prohibition of Certain Toxic Substances Regulations SOR/2012-285 and its amendment
					[EU] Persistent Organic Pollutants (POPs) Regulation (EC) No.850/2004
			Not intentionally added		[Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.
					[USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
178	Tricosafuorododecanoic acid (PFDoDA)	307-55-1	0.1 mass% of article		[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorization

## Document History and Approvals

Dash	Rev	Date	Description of Change	Originator
01	A	31 Mar 2011	Initial release.	N/A
Agile History				
Rev	Date	Description of Change	Originator	
02	26 Oct 2012	Scope – add to first bullet - “and the EU Directive 2011/65/EU (which replaces 2011/65/EU on 02 Jan 2013) including EC Decision 2010/571/EU and any other Decisions related to or impacting either 2011/65/EU or 2010/571/EU”, add to third bullet - “in accordance with EU Regulation 1907/2006”, and seventh bullet – updated link for JIG-101. Section 1.1 – removed JIG-101 link and updated third paragraph regarding IPC 1752. Updated Sections 1.9,1.49, and 1.50, Completely replaced Section 1.19, Conflict Materials. Section 1.31 – deleted “used” and added “deliberately or intentionally added or included”.	N/A	
03	05 Sep 2014	Replaced EU Directive 2002/95/EC with EU Directive 2011/65/EU. Replaced Joint Industry Guide, JIG 101 with JIG 201. Added International Electrotechnical Commission (IEC) Standard IEC 62474, "Material Declaration for Products of and for the Electrotechnical Industry." Added references to EU Regulation 1907/2006 and EC Directive 2000/2037/EC. Removed references to 914-1767 and 914-1748.	N/A	
04	22 Feb 2016	Added Delegated Directive 2015/863. Modified focus to be on restricted and declarable substances and substance groups. Updated Table 1.1 and supporting listings to be tied more strongly to the IEC 62474 Standard. Added details paragraphs for REACH categories. Removed appendix A.	N/A	
05	03/30/16	Added restrictions for Hygroscopic materials and Red Phosphorous/ Hydrolyzable compounds in Oracle products	N/A	
06	05/26/2017	Update title to reflect organization name. Reference to JIG-201 removed and replaced with reference to IEC 62474 (in Scope section of the Introduction).	N/A	
Fusion History				
07	10/22/2018	Update Purpose & Scope Sections. Updated Sections 1.1, 2.1, 2.2, 2.3, 2. Added sections 1.36, 1.37. Removed references to obsolete directives.	N/A	
08	08/20/2020	Updated REACH/SCIP reporting data requirements in section 2. Removed “Global Supplier Management: Supplier Engineering” from title.	N/A	
09	26-July 2021	Scope: Added US EPA TSCA regulation	N/A	
10	26-Jan 2022	Replaced (EC) 850/2004 (POPs regulation) with EU 2019/1021 Regulation on Persistent Organic Pollutants (POPs) on pages 4, 8, 9.	N/A	
11	04-Apr-2022	Convert to corporate Redwood Template	N/A	

12	18-Nov-2022	Revised Table of Contents, Updated Scope, updated and added new regulations, added paragraph 1.3 for PFAS, updated Table 1 with substances as per latest Standard IEC 62474 and also added PFAS substances, added columns for indexing of substances, CAS#, threshold limit, removed the substances related information provided in separate paragraph and added them in the table under application column	N/A
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