

# Keysight Technologies

## General Specification for the Environment

### 1. Purpose

- 1.1. This specification establishes Keysight Technologies Inc.'s (Keysight's) general requirements for purchased parts, components, materials and products that are incorporated into Keysight products.
- 1.2. The requirements described in this specification represent restrictions imposed on Keysight's end products, which need to be reflected in the materials that constitute those products. The restrictions related to Keysight products may be different than those imposed on the individual parts and components, and in some cases exceed regulatory requirements.

### 2. Scope

- 2.1. This specification provides Keysight's general requirements for restricting or prohibiting certain substances as constituents of parts, components, and materials in products and packaging purchased by Keysight worldwide.
- 2.2. If a supplier believes that components or assemblies they are supplying to Keysight do not conform to the General Specification for the Environment (GSE), they should send an e-mail to [gse\\_inquiry@keysight.com](mailto:gse_inquiry@keysight.com) and copy their Keysight Buyer. The e-mail should detail the specific non-conformity and the Keysight/manufacture part numbers affected.
- 2.3. With the exception of Ozone Depleting Substances (ODS), this specification does not apply to substances used in the process of manufacturing parts, component materials, or products sold for internal use to Keysight.
- 2.4. This specification also provides Keysight's general requirements for transport or recycling/disposal marking and labeling, and classification or registration requirements for Keysight purchased parts, components, materials and products.
- 2.5. This specification is not intended to be a listing of all product content limitations or restrictions that may be established as a matter of law. Seller's compliance with this specification does not relieve or diminish the Seller's obligation to comply with all applicable laws.
  - 2.5.1. Precedence: Should a conflict occur between this specification and a Keysight family or individual part specification, the Keysight family or individual part specification shall prevail. Full EU RoHS restrictions are set by individual part specification until fully incorporated in future versions of this document. In relation to the RoHS Directive, Keysight products are classed as Industrial monitoring and control instruments.
  - 2.5.2. Exception: Legal and/or regulatory requirements for the countries where these purchased parts, components, and products are to be used take precedence over this specification.
- 2.6. This specification is in addition to, and does not in any way limit or supersede, any other product specifications that may be established by Keysight.

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### 3. Environmental Requirements

3.1. In this specification, environmental requirements are defined for the following:

- Product content and ODS use restrictions
- Battery content restrictions
- Packaging content restrictions
- Phytosanitary measures for solid wood packaging materials
- Product labelling and marking requirements
- Product end of life labelling requirements
- Chemical registration requirements

### 4. Product and Packaging Content Restrictions

4.1. The following substances are *prohibited* or *restricted* for use in raw materials, parts, components, packaging or products above the thresholds defined below. A GSE threshold is the maximum concentration level at which the presence of a substance can be tolerated per homogeneous material unless indicated otherwise. The IEC 62474 standard has been referenced since it screens substances to assure they are relevant to electrical and electronic equipment

- Restrictions are divided into two categories: General Restrictions and Specific Applications. For the category of General Restrictions, the substances are prohibited or restricted in any application.
- Application specific thresholds prevail over the threshold from General Restriction thresholds only for the listed applications

These product and packaging content restrictions do not apply to chemical supplies like pure substances and mixtures.

Additional substance restrictions that apply only to packaging are listed in section 5

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#### 4.2. General Restrictions

The following substances must not be used in any application above the threshold. Unless indicated otherwise, the thresholds are defined per homogeneous material.

IEC62474 ID	Substances	CAS number	Example Uses	Threshold (Not to Exceed)	Basis
00001	Diarsenic pentoxide	1303-28-2	Additive in wood, metal, glass and plastics	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV
00002	Diarsenic trioxide	1327-53-3	Additive in wood, metal, glass and plastics	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV
00003	Asbestos, Asbestos Materials	See IEC62474 reference list	Insulating material, plastic parts, Vermiculite	Must not be present	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII; [USA] Toxic Substances Control Act (TSCA); [Switzerland] Act of Reduction of Risks in Treatment of Specified Hazardous Substances, Preparations, and Articles in Switzerland (ChemRRV) Swiss Ordinance 814.81
00004	Azocolorants and Azodyes which form certain aromatic amines	See IEC62474 reference list	Pigment, dyes, colorants	< 0.003% by article weight	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII

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IEC62474 ID	Substances	CAS number	Example Uses	Threshold (Not to Exceed)	Basis
00014	Dibutyltin (DBT) compounds	See IEC62474 reference list	Stabilizer for PVC, curing catalyst for silicone resin and urethane resin	0.1 mass% of tin in article	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
00016	Dimethylfumarate (DMF)	624-49-7	Biocide, mold prevention treatment	0.00001 mass% of the part	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
00017	Disodium tetraborate, anhydrous	See IEC62474 reference list	In wood veneers/ pressed wooden panels as starch additive, flame retardant and stabilizer in aminoplastic resin, wood preservative	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation
00018	Fluorinated Greenhouse Gases (PFC, SF6, HFC)	See IEC62474 reference list	Refrigerants, blowing agents, extinguishing agents, cleaning agents, insulating media, caustic gas	Must not be present	[EU] REGULATION (EU) No 517/2014 on fluorinated greenhouse gases
00020	Hexabromocyclododecane (HBCDD)	See IEC62474 reference list	Flame retardant; mainly used for expanded polystyrene and some types of fiber	Must not be present	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation; [Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.; [EU] Persistent Organic Pollutants (POPs) Regulation (EU) 2019/1021

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IEC62474 ID	Substances	CAS number	Example Uses	Threshold (Not to Exceed)	Basis
00032	Ozone Depleting Substances (CFC, Halon, HBFC, HCFC & others)	See IEC62474 reference list	Refrigerant, foaming agent, extinguishant, solvent cleaner	Must not be present and none used in the production process. See Note 1:	[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
00035	2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	3846-71-7	UV-stabilizer in adhesives, paints, printing inks, plastics, inked ribbons, putty, caulking or sealing fillers	Must not be present	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV; [Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.
00038	Bis (2-ethylhexyl)phthalate (DEHP)	117-81-7	Plasticizer, dye, pigment, paint, ink, adhesive, lubricant	< 0.1%	[EU] RoHS Directive 2011/65/EU and its amendments; [EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV

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IEC62474 ID	Substances	CAS number	Example Uses	Threshold (Not to Exceed)	Basis
00039	Dibutyl phthalate (DBP)	84-74-2	Plasticizer, dye, pigment, paint, ink, adhesive, lubricant	< 0.1%	[EU] RoHS Directive 2011/65/EU and its amendments; [EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV
00040	Benzyl butyl phthalate (BBP)	85-68-7	Plasticizer, dye, pigment, paint, ink, adhesive, lubricant	< 0.1%	[EU] RoHS Directive 2011/65/EU and its amendments; [EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV
00041	Diisobutyl phthalate (DIBP)	84-69-5	Plasticizer, dye, pigment, paint, ink, adhesive, lubricant	< 0.1%	[EU] RoHS Directive 2011/65/EU and its amendments; [EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV
00042	1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich	71888-89-6	Plasticizer, dye, pigment, paint, ink, adhesive, lubricant	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV
00043	1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters	68515-42-4	Plasticizer, dye, pigment, paint, ink, adhesive, lubricant	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV

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IEC62474 ID	Substances	CAS number	Example Uses	Threshold (Not to Exceed)	Basis
00044	Polybrominated biphenyls (PBB)	See IEC62474 reference list	Flame retardant.	< 0.1%	[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
00045	Polybrominated diphenyl ethers (PBDE)	See IEC62474 reference list	Flame retardant.	< 0.1%	[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.

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IEC62474 ID	Substances	CAS number	Example Uses	Threshold (Not to Exceed)	Basis
00046	Polychlorinated Biphenyls (PCBs) and specific substitutes	See IEC62474 reference list	Insulation oil, lubricant oil, electrical insulation medium, solvent, electrolytic solution, plasticizers, fire retardants, dielectric sealants	Must not be present	[EU] Persistent Organic Pollutants (POPs) Regulation (EU) 2019/1021; [USA] Toxic Substances Control Act (TSCA); [Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.
00047	Polychlorinated Terphenyls (PCTs)	See IEC62474 reference list	Insulation oil, lubricant oil, electrical insulation medium, solvent, electrolytic solution, plasticizers, fire retardants, coatings for electrical wire and cable, dielectric sealants	0.005 mass% in material	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
00048	Polychlorinated naphthalenes	See IEC62474 reference list	Lubricant, paint, stabilizer (electric characteristic, flame- resistant, water-resistant) insulator, flame retardant	Must not be present	[EU] Persistent Organic Pollutants (POPs) Regulation (EU) 2016/1021; [Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

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IEC62474 ID	Substances	CAS number	Example Uses	Threshold (Not to Exceed)	Basis
00050	Aluminosilicate Refractory Ceramic Fibres	—	Thermal insulation for high temperature test equipment	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation
00051	Zirconia Aluminosilicate Refractory Ceramic Fibres	—	Thermal insulation for high temperature test equipment	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation

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IEC62474 ID	Substances	CAS number	Example Uses	Threshold (Not to Exceed)	Basis
00052	Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	See IEC62474 reference list	Plasticizer for PVC, flame retardant	Must not be present	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation; [EU] Persistent Organic Pollutants (POPs) Regulation (EU) 2019/1021; [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
00053	Strontium chromate	7789-06-2	Pigment; corrosion resistant coating	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV

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IEC62474 ID	Substances	CAS number	Example Uses	Threshold (Not to Exceed)	Basis
00054	Bis(tributyltin) oxide (TBTO)	56-35-9	Antiseptic, antifungal agent, paint, pigment, antistaining, refrigerant, foaming agent, extinguishant, solvent cleaner	Must not be present	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation; [Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.
00056	Tris(2-chloroethyl) phosphate	115-96-8	Flame retardant	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV
00058	Bis(2-methoxyethyl) ether	111-96-6	Electrolyte in lithium batteries	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV
00059	Bis(2-methoxyethyl) phthalate	117-82-8	Plasticizer	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV
00060	Pentazinc chromate octahydroxide	49663-84-5	Colorant	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV
00061	Potassium hydroxyoctaoxodizincatedichromate	11103-86-9	Paint, anti-corrosion	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV

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IEC62474 ID	Substances	CAS number	Example Uses	Threshold (Not to Exceed)	Basis
00064	Bis(pentabromophenyl) ether (decabromodiphenyl ether) (DecaBDE)	1163-19-5	Flame retardant	Must not be present	[EU] Persistent Organic Pollutants (POPs) Regulation (EU) 2019/1021; [EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation; [USA] Toxic Substances Control Act (TSCA)
00076	Dibutyltin dichloride (DBTC)	683-18-1	Ingredient in some paint thinner and as heat stabilizer for PVC	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
00078	N,N-dimethylformamide; dimethyl formamide	68-12-2	Used as electrolyte in electrolytic capacitors rated for low temperature use to -55C	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation
00080	1,2-Benzenedicarboxylic acid, dipentyl ester, branched and linear	84777-06-0	Plasticizer in plastic materials in specialist applications, for example where high solvating plasticizers and stain resistance are required	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV
00081	Diisopentyl phthalate	605-50-5	Plasticizer in plastic materials in specialist applications, for example where high solvating plasticizers and stain resistance are required	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV

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IEC62474 ID	Substances	CAS number	Example Uses	Threshold (Not to Exceed)	Basis
00082	N-pentyl-isopentylphthalate	776297-69-9	Plasticizer in plastic materials in specialist applications, for example where high solvating plasticizers and stain resistance are required	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV
00091	Di-n-hexyl phthalate (DnHP)	84-75-3	Plasticizer, dye, pigment, paint, ink, adhesive, lubricant	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV
00095	Dipentyl phthalate (DPP)	131-18-0	Plasticizer in PVC and nitrocellulose resin and rubber; in gunpowder, toys, cosmetics, medical devices	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV
00096	Pentadecafluorooctanoic acid (PFOA)	335-67-1	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.	<0.000025 % by weight	[EU] Persistent Organic Pollutants (POPs) Regulation (EU) 2019/1021
00097	Ammonium pentadecafluorooctanoate (APFO)	3825-26-1	APFO is used as an emulsion stabilizer to manufacture polyvinylidene fluoride (PVDF) and other fluorinated polymers and elastomers	<0.000025 % by weight	[EU] Persistent Organic Pollutants (POPs) Regulation (EU) 2019/1021

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IEC62474 ID	Substances	CAS number	Example Uses	Threshold (Not to Exceed)	Basis
00100	Trixylyl phosphate	25155-23-1	Used as a plasticizer for vinyl resin, cellulose resin, natural and synthetic rubber. Also, used as a flame retardant.	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV
00106	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	68515-50-4	Used as a plasticizer for certain plastics and rubbers	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV
00108 00109 00110 00111 00112 00113 00114 00115 00116 00117 00118 00119 00120 00121 00122 00123	Benzo[a]pyrene (BaP) Benzo[e]pyrene (BeP) Benzo[a]anthracene (BaA) Chrysen (CHR) Benzo[b]fluoranthene (BbFA) Benzo[j]fluoranthene (BjFA) Benzo[k]fluoranthene (BkFA) Dibenzo[a,h]anthracene (DBAhA) Benzo[a]pyrene (BaP) Benzo[e]pyrene (BeP) Benzo[a]anthracene (BaA) Chrysen (CHR) Benzo[b]fluoranthene (BbFA) Benzo[j]fluoranthene (BjFA) Benzo[k]fluoranthene (BkFA) Dibenzo[a,h]anthracene (DBAhA)	50-32-8 192-97-2 56-55-3 218-01-9 205-99-2 205-82-3 207-08-9 53-70-3 50-32-8 192-97-2 56-55-3 218-01-9 205-99-2 205-82-3 207-08-9 53-70-3	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation

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IEC62474 ID	Substances	CAS number	Example Uses	Threshold (Not to Exceed)	Basis
00124 00125	Perfluorooctane sulfonates (PFOS)	See IEC62474 reference list	Antistatic agent for films and plastics	Must not be present	[EU] Persistent Organic Pollutants (POPs) Regulation (EU) 2019/1021; [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.
00126	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	Used in ink for printers	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation
00128	2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE)	15571-58-1	PVC stabilizer	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV
00129	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-ethylhexyl)oxy]-2-oxoethyl]thio]-4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (reaction mass of DOTE and MOTE)	EC Number: 915-270-3	PVC stabilizer	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV

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00130	2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	25973-55-1	UV stabilizer	Must not be present	UN Stockholm Convention [EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV. [Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.; [EU] Persistent Organic Pollutants (POPs) Regulation (EU) 2019/1021 (pending)
00131	1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters or mixed decyl and hexyl and octyl diesters	68515-51-5; 68648-93-1	Plasticisers, 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	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV
00134	2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl) phenol (UV-327)	3864-99-1	UV stabilizer	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV

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00135	2, (2H-benzotriazol-2,yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	36437-37-3	UV stabilizer	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XIV
00138	Benzo[def]chrysene (Benzo[a]pyrene)	50-32-8	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation
00139	Dicyclohexyl phthalate (DCHP)	84-61-7	Plasticizer, dye, pigment, paint, ink, manufacture of adhesive, lubricant	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation
00140	Perfluorononan-1-oic-acid and its sodium and ammonium salts	See IEC62474 reference list	Surfactant in the production of the fluoropolymer polyvinylidene fluoride (PVDF)	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation
00143	Perfluorohexane-1-sulphonic acid and its salts	See IEC62474 reference list	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.	<0.000025 % by weight, with <0.0001 % by weight for the sum of concentrations of all PFHxS-related compounds	[EU] Persistent Organic Pollutants (POPs) Regulation (EU) 2019/1021
00144	Chrysene	218-01-9	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation

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IEC62474 ID	Substances	CAS number	Example Uses	Threshold (Not to Exceed)	Basis
00145	Benz[a]anthracene	56-55-3	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation
00147	1,6,7,8,9,14,15,16,17,17,18,18-Dodecachloropentacyclo[12.2.1.16,9.02,13.05,10]octadeca-7,15-diene ("Dechlorane Plus" <sup>TM</sup> )	See IEC62474 reference list	Flame retardant for electric wire and cable covering material	Must not be present	UN Stockholm Convention; [EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation; [Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.; [EU] Persistent Organic Pollutants (POPs) Regulation (EU) 2019/1021 (pending)
00148	Benzo[ghi]perylene	191-24-2	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation
00149 00150 00151	Octamethylcyclotetrasiloxane Decamethylcyclopentasiloxane Dodecamethylcyclohexasiloxane	556-67-2 541-02-6 540-97-6	Siloxanes are monomers used to manufacture silicones. They may remain as unreacted in silicone polymers and copolymers,	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation

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IEC62474 ID	Substances	CAS number	Example Uses	Threshold (Not to Exceed)	Basis
00152	Disodium octaborate	12008-41-2	Wooden veneer sheets and pressed wooden panels (as a constituent within the starch adhesive), as a flame retardant, as stabilizer in amino plastic resins, and as a biocide in professional and industrial wood preservation.	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation
00153	Terphenyl, hydrogenated	61788-32-7	Plasticizers, sealants, epoxy adhesives, paints and heat sinks	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation
00156 00157 00158 00159	Benzo[k]fluoranthene Fluoranthene Phenanthrene Pyrene	207-08-9 206-44-0 85-01-8 129-00-0	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers	< 0.1% by article weight	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation
00160	Perfluorooctanoic acid and its salts	See IEC62474 reference list	Greases, textiles and other coated consumer products, and emulsifiers used for manufacturing the Fluoropolymers and fluoroelastomers	0.0000025 mass% of PFOA including its salts in article or mixture	[EU] Persistent Organic Pollutants (POPs) Regulation (EU) 2019/1021; [Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.; [Korea (the Republic of)] Persistent Organic Pollutants Control Act

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IEC62474 ID	Substances	CAS number	Example Uses	Threshold (Not to Exceed)	Basis
00161	PFOA-related compounds	See IEC62474 reference list	Greases, textiles and other coated consumer products, and emulsifiers used for manufacturing the Fluoropolymers and fluoroelastomers	0.0001 mass% of one or a combination of PFOA-related substances, in article or mixture	[EU] Persistent Organic Pollutants (POPs) Regulation (EU) 2019/1021; [Korea (the Republic of)] Persistent Organic Pollutants Control Act
00174	Phenol, Isopropylated Phosphate (3:1) (PIP (3:1))	68937-41-7	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.	Must not be present	[USA] Toxic Substances Control Act (TSCA)
00178	Medium-chain chlorinated paraffins (MCCP)	See IEC62474 reference list	Flame retardant and / or plasticizer in PVC and rubber, paints and coatings, adhesives and sealants, textiles and fabric	Must not be present	UN Stockholm convention; [EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation
00182	C9-C14 PFCAs and their salts	See IEC62474 reference list	Adhesives, sealants, lubricants, fuels, hydraulic fluids, metal working, antioxidant/stabilizer for rubber and plastics	0.0000025 mass% for the sum of C9-C14 PFCAs and their salts in Article or Mixture	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII

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IEC62474 ID	Substances	CAS number	Example Uses	Threshold (Not to Exceed)	Basis
00183	C9-C14 PFCA-related substances	See IEC62474 reference list	Greases, textiles and other coated products, and emulsifiers used for manufacturing the Fluoropolymers and fluoroelastomers	0.000026 mass% for the sum of C9-C14 PFCA-related substances in Article or Mixture	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
00201	Pentachlorophenol and its salts and esters	See IEC62474 reference list	Fungicide	5 mg/kg (0,0005 % by weight)	[EU] Persistent Organic Pollutants (POPs) Regulation (EU) 2019/1021
00205	PFHxS-related compounds	See IEC62474 reference list	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.	Must not be present	[EU] Persistent Organic Pollutants (POPs) Regulation (EU) 2019/1021
NA	Pentachlorothiophenol (PCTP)	133-49-3	Rubber products (articles)	< 1% by article weight	[USA] Toxic Substances Control Act (TSCA)

Note 1: The USA imposes an excise tax on inventories of ODCs and imported products manufactured with ODCs. If requested, Keysight requires suppliers to certify that ODCs are not used in manufacturing.

[USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): Suppliers will inform Keysight of any part, component or material that contains a proposition 65 listed material in quantities that would require end user notification. Suppliers can use the [gse\\_inquiry@keysight.com](mailto:gse_inquiry@keysight.com) to make this notification.

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### 4.3. Specific Applications

The following substances must not be used in the applications listed below above the threshold except in listed application exemptions. Unless indicated otherwise, the thresholds are defined per homogeneous material. In case of a conflict, application specific thresholds prevail over the threshold from general restrictions only for the listed applications.

IEC62474 ID	Substances	CAS number	Example Uses	Threshold (Not to Exceed)	Allowed exemption basis
00001	Diarsenic pentoxide	1303-28-2	Additive in wood; Wood based articles such as calibration boxes and product cases.	Must Not Be Present	None
00002	Diarsenic trioxide	1327-53-3	Additive in wood; Wood based articles such as calibration boxes and product cases.	Must Not Be Present	None
00010	Cadmium/Cadmium compounds	See IEC62474 reference list	All applications, e.g. dyes, pigments, paints/enamels (excepting safety warnings), plastic stabilizer (e.g. electric cables), anti-corrosion coating finish and all other uses	<0.01%	[EU] RoHS Directive 2011/65/EU and its amendments, cadmium exemptions in Annexes III & IV
00012	Chromium (VI) Compounds	See IEC62474 reference list	Custom mechanical parts fabricated to Keysight engineering drawings	Must not be present	none
00012	Chromium (VI) Compounds	See IEC62474 reference list	Metallic coating and all other uses (e.g. in commercial off-the-shelf parts)	<0.1%	[EU] RoHS Directive 2011/65/EU and its amendments, chromium (VI) exemptions in Annexes III & IV

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IEC62474 ID	Substances	CAS number	Example Uses	Threshold (Not to Exceed)	Allowed exemption basis
00019	Formaldehyde	50-00-0	Additive in wood; Wood based articles such as calibration boxes and product cases. <sup>1</sup>	0,062 mg/m <sup>3</sup> of formaldehyde released under REACH Regulation (EC) No.1907/2006 ANNEX XVII specified test conditions; and  <0.05 ppm (TSCA Title VI, 40 CFR Part 700 test methodology)	None
00021	Lead/Lead Compounds	See IEC62474 reference list	Rubber hardener, pigment, paint, lubricant, plastic stabilizer, materials for battery, free-machining alloy, free-cutting steels, optical materials, X-ray shielding, solders etc.	< 0.1%	[EU] RoHS Directive 2011/65/EU and its amendments, lead exemptions in Annexes III & IV
00024	Lead/Lead Compounds	See IEC62474 reference list	PVC stabilizer in cable jackets	< 0.03%	[USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) Case law

<sup>1</sup> All wooden articles shall be marked with a label or stamp which contains the “fabricator name”, “manufacturing date” and include text “TSCA Title VI compliant” in both English and French.

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IEC62474 ID	Substances	CAS number	Example Uses	Threshold (Not to Exceed)	Allowed exemption basis
00026	Lead chromate	7758-97-6	All articles produced from polymers or copolymers of vinyl chloride ('PVC')	< 0.1%	[EU] REACH Regulation (EC) No.1907/2006  Applications outside the scope of ANNEX XVII Restriction # 63
00027	Lead chromate molybdate sulphate red (C.I. Pigment Red 104)	12656-85-8			
00028	Lead sulfochromate yellow (C.I. Pigment Yellow 34)	1344-37-2			
00065	Sulfurous acid, lead salt, dibasic	62229-08-7			
00067	Trilead dioxide phosphonate	12141-20-7			
00070	Tetralead trioxide sulphate	12202-17-4			
00071	Orange lead (lead tetroxide)	1314-41-6			
00072	Pyrochlore, antimony lead yellow	8012-00-8			
00073	Pentalead tetraoxide sulphate	12065-90-6			
00079	Silicic acid (H <sub>2</sub> SiO <sub>5</sub> ), barium salt (1:1), lead-doped	68784-75-8			
00083	Lead titanium trioxide	12060-00-3			
00084	Lead titanium zirconium oxide	12626-81-2			
00085	Lead oxide sulfate	12036-76-9			
00086	[Phthalato(2-)]dioxotrilead	69011-06-9			
00087	Dioxobis(stearato)trilead	12578-12-0			
00088	Fatty acids, C16-18, lead salts	91031-62-8			
00089	Lead dinitrate	10099-74-8			
00154	Lead	7439-92-1			

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IEC62474 ID	Substances	CAS number	Example Uses	Threshold (Not to Exceed)	Allowed exemption basis
00029	Mercury/Mercury Compounds	See IEC62474 reference list	Fluorescent bulb, contact point material, pigment, anti-corrosion, switches, antibacterial treatment	<0.1%	[EU] RoHS Directive 2011/65/EU and its amendments, mercury exemptions in Annexes III & IV
00093 00094 00099 00146	Cadmium Cadmium oxide Cadmium sulphide Cadmium hydroxide	7440-43-9 1306-19-0 1306-23-6 21041-95-2	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	<0.01%	[EU] REACH Regulation (EC) No.1907/2006  Applications outside the scope of ANNEX XVII Restriction # 23
00098	4-Nonylphenol, branched and linear, ethoxylated	See IEC62474 reference list	Textile articles: any unfinished, semi-finished or finished product which is composed of at least 80 % textile fibres by weight, or any other product that contains a part which is composed of at least 80 % textile fibres by weight, including products such as clothing, accessories, interior textiles, fibres, yarn, fabrics and knitted panels.	<0.01% by weight	[EU] REACH Regulation (EC) No.1907/2006  Applications outside the scope of ANNEX XVII Restriction # 46a
00141	4,4'-isopropylidenediphenol	80-05-7	Thermal Paper	<0.02% by weight	[EU] REACH Regulation (EC) No.1907/2006 Applications outside the scope of ANNEX XVII Restriction # 66

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IEC62474 ID	Substances	CAS number	Example Uses	Threshold (Not to Exceed)	Allowed exemption basis
00171	Halogenated Flame Retardants	See IEC62474 reference list	The use of halogenated flame retardants is not allowed in the enclosure and stand of electronic displays.  Third Party computer monitors with a screen area > 100 square centimetres for inclusion into Keysight Solutions	Must not be present	All other applications outside the scope of Commission Regulation (EU) 2019/2021 laying down ecodesign requirements for electronic displays
NA	Aromatic hydrocarbons from mineral oil (MOAH) comprising 1 to 7 aromatic rings; Hydrocarbons saturated with mineral oil (MOSH) containing 16 to 35 carbon atoms	NA	"mineral oils" means oils produced from feedstocks derived from petroleum hydrocarbons used for the manufacture of inks.	0.1% or 1 ppm the mass concentration in the ink of compounds with 3 to 7 aromatic rings	Substances that are not ink.  Note: Restriction does apply to printed materials and/or packaging materials.

#### 4.4. Battery Content Restrictions

4.4.1. The following substances are prohibited or restricted for use in batteries. In case of a conflict, battery-specific thresholds from this section prevail over the thresholds from general restrictions in Section 4 or specific applications for the listed applicable battery types.

IEC62474 ID	Substances	CAS number	Example Uses	Threshold (Not to Exceed)	Basis
00011	Cadmium/Cadmium compounds	See IEC62474 reference list	photodiode voltaic cell, Ni/Cd battery	0.001% by weight of battery	[EU] Regulation (EU) 2023/1542 on batteries and waste batteries; [Korea] Quality Management and Manufactured Product Safety Management Law (Battery Regulation)

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IEC62474 ID	Substances	CAS number	Example Uses	Threshold (Not to Exceed)	Basis
00025	Lead/Lead Compounds	See IEC62474 reference list	Zinc carbon batteries, alkaline button cells	0.004 mass% of battery	[EU] Regulation (EU) 2023/1542 on batteries and waste batteries; [China] Limitation of mercury, cadmium and lead contents for alkaline and non-alkaline zinc manganese dioxide batteries GB 24427-2009
00030	Mercury/Mercury Compounds	See IEC62474 reference list	Silver-oxide button cells, alkaline batteries, zinc carbon batteries	Intentionally added or 0.0001 mass% of battery	[EU] Regulation (EU) 2023/1542 on batteries and waste batteries; [China] Limitation of mercury, cadmium and lead contents for alkaline and non-alkaline zinc manganese dioxide batteries GB 24427-2009; [Taiwan] Restrictions on the Manufacture, Import, and Sale of Dry Cell Batteries; [Korea] Quality Management and Manufactured Product Safety Management Law (Battery Regulation)
00033	Perchlorates	See IEC62474 reference list	Lithium batteries; coin cell batteries	0.6 ppm by battery weight	[USA California] Perchlorate Contamination Prevention Act of 2003 AB 826

- 4.4.2. All lithium metal and lithium ion cells or batteries must meet the requirements of each test in the current UN Manual of Tests and Criteria, Part III, subsection 38.3, in addition to any additional requirements specified in the European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR), the International Air Transport Association (IATA), the International Maritime Dangerous Good Code (IMDG), and the Hazardous Materials Regulations of the United States Department of Transportation (49CFR). Upon request vendor will provide a copy of the specific tests results should Keysight be required to supply it to local authorities.

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## 5. Content Restrictions Specific to Packaging

**5.1.** In addition to the restricted substances listed in section 4.2 the following substances are prohibited or restricted for use in packaging materials purchased by Keysight and used to package the products Keysight sells. In case of a conflict, packaging materials specific thresholds from this section prevail over the thresholds from general restrictions, specific applications or battery restrictions but only for the listed packaging applications.

IEC62474 ID	Substances	CAS number	Example Uses	Threshold (Not to Exceed)	Basis
NA	Arsenic compounds	See ECHA Restriction #19 listing of substances	In wooden packaging and packaging materials	Must not be present	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
00010	Cadmium/Cadmium compounds	See IEC62474 reference list	All packaging materials	Must not be present	[EU] Packaging Regulation (EU) 2025/40
00012	Chromium (VI) Compounds	See IEC62474 reference list	All packaging materials	Must not be present	[EU] Packaging Regulation (EU) 2025/40
00013	Cobalt dichloride	7646-79-9	In packaging materials (e.g. as moisture indicator)	0.1 mass% of article	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation
00018	Fluorinated Greenhouse Gases (PFC, SF <sub>6</sub> , HFC)	See IEC62474 reference list	Blowing agents, cleaning agents, insulating media	Must not be present	[EU] REGULATION (EU) No 517/2014 on fluorinated greenhouse gases
00019	Formaldehyde	50-00-0	In wooden packaging and packaging materials	0,062 mg/m <sup>3</sup> of formaldehyde released under specified test conditions; and  <0.05 ppm (TSCA TitleVI,40 test methodology)	[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII; [USA] Toxic Substances Control Act (TSCA)
00021	Lead/Lead Compounds	See IEC62474 reference list	All packaging materials	Must not be present	[EU] Packaging Regulation (EU) 2025/40

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IEC62474 ID	Substances	CAS number	Example Uses	Threshold (Not to Exceed)	Basis
NA	Mercury compounds	See ECHA Restriction #18 listing of substances	In wooden packaging and packaging materials	Must not be present	"[EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII [EU] Packaging Regulation (EU) 2025/40
00032	Ozone Depleting Substances (CFC, Halon, HBFC, HCFC & others)	See IEC62474 reference list	Foaming agent	Must not be present	[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
00201	Pentachlorophenol and its salts and esters	See IEC62474 reference list	In wooden packaging and packaging materials	5 mg/kg (0,0005 % by weight)	[EU] Persistent Organic Pollutants (POPs) Regulation (EU) 2019/1021; [Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.
00163	Tetraboron disodium heptaoxide, hydrate	12267-73-1	In wooden packaging and packaging materials	0.1 mass% of article	[EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation

## 5.2. Phytosanitary Measures for Solid Wood Packaging Materials

The following requirement applies to packaging materials purchased by Keysight and used to package the products Keysight sells.

Packaging wood shall be free from bark, insects and damage caused by them. Solid Wood Packaging Materials shall be heat treated or kiln dried to a minimum core temperature of 56°C for at least 30 minutes in a closed chamber or kiln, which has been tested, evaluated and approved officially for this purpose. In addition, the susceptible wood shall display an officially approved heat treated or kiln dried marking enabling the identification of where and by whom the above treatment has been carried out. A logo or mark, officially endorsed by the NPPO (National Plant Protection Organization) of the country from which the wood packaging materials originate must be permanently affixed to each unit of wood packaging material, and in a location that will remain visible and obvious when packaging is used for shipment of Keysight product(s). Fumigation, Chemical Pressure Impregnation (CPI) or other chemical means are not to be used.

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**5.3. Wooden Packaging (Formaldehyde Markings requirements)**

All wooden articles shall be marked with a label or stamp which contains the “fabricator name”, “manufacturing date” and include text “TSCA Title VI compliant” in both English and French.

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## 6. Product Labeling and Marking Requirements

- 6.1. Battery Labeling Requirements:** Batteries, rechargeable consumer products, and their packaging must have a durable label with the symbol(s) and wording according to the requirements specified in Appendix A. Information should be supplied with products containing a battery to identify the nature of the battery. Products with user-removable batteries should be supplied with information on the safe insertion and removal of the batteries.
- 6.2. Mercury Product Labeling Requirements:** Removable mercury lamps, as well as products containing mercury lamps, must be labeled in accordance with local regulatory requirements.<sup>2</sup>
- 6.3. Paper and Plastic Packaging Labeling Requirements:** All suppliers of paper and plastic packaging materials must ensure that the material is identified, marked and labeled. Refer to Appendix D.
- 6.4. Product Information and Labeling Requirements:** Keysight is required to comply with the Chinese Administrative Measures for the Restriction of Hazardous Substances in Electrical and Electronic Products. Suppliers to Keysight are responsible for ensuring all goods sold and shipped to China meet the information and labeling requirements, including the following: (1) reflect the required product label (which in most cases will include an EFUP or Environmental Friendly Use Period number), (2) reflect the required toxic/hazardous substance table in the product manual or shipment insert which accompanies the product. (3) Reflect the date of manufacture. For further details or questions contact your Keysight representative.
- 6.5. Product End of Life Labeling Requirements:** All electrical and electronic products requiring the European CE marking must also have the crossed-out wheeled bin label with bar.



## 7. Chemical Registration Requirements

- 7.1.** Each chemical substance contained in parts, components, materials and products sold to Keysight must comply with chemical registration and pre-manufacture notification requirements in those countries that have enacted such requirements (including but not limited to: Australia, Canada, China, Japan, South Korea, Switzerland, the United States, and the countries of the European Union). This is to permit import and sale of the parts, components, materials and products sold to Keysight in all of these countries.

## 8. Reportable Substances

- 8.1.** The substances listed in Appendix C must be actively reported to Keysight as material content for raw materials, parts, components, or products supplied to Keysight. Suppliers can use the [gse\\_inquiry@keysight.com](mailto:gse_inquiry@keysight.com) email to make this notification.
- 8.2.** Additionally, substances published by ECHA in the EU REACH candidate List with a date on inclusion after 25 June 2025 (which covers 250 substances) must also be reported where the content is > 0.1% wt/wt.  
The candidate list is available at <https://echa.europa.eu/candidate-list-table>, which will transition to ECHA CHEM [chem.echa.europa.eu/obligation-lists/candidateList](https://chem.echa.europa.eu/obligation-lists/candidateList)

<sup>2</sup> Localization requirements are applicable to items in this section and will be communicated in the purchase contract, in accordance with Section 2.5 of this specification.

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## 9. Definitions

**European CE Marking** – a product marking that specifies compliance to specific European Union Directives or Regulations.

**Homogeneous Material** – is either material with a uniform composition throughout; or a material that consists of a combination of materials, that cannot be disjointed or separated into different materials by mechanical actions such as unscrewing, cutting, crushing, grinding or abrasive processes.

**Intentionally Added** – a situation where a substance is contained in the part, device, or its materials because of deliberate addition, filling, blending, or adhesion, in order to provide a specific characteristic, appearance, property, attribute or quality

**Localization Issues** – compliance strategies that require “local” marking, labeling or documentation will generally be applied to the final product, not to the direct material purchase.

**Must Not Be Present** – Prohibited. The substance shall not be intentionally added, and any trace presence must be below detection limits for that substance.

**ODS/ODC** – Ozone Depleting Substance, synonym to ODC; Ozone Depleting Compounds, synonym to ODS

**Packaging Systems** – consists of all packaging components including cushioning material, plastic materials, paperboard, corrugated containers and wood crate systems, as well as inks, dyes and labels used for marking.

**Parts per Million (ppm)** – used to express concentration. The ppm is  $1,000,000 \times \text{mass substance} / \text{mass of the homogeneous material}$ . Concentrations are unit-less, for example  $100 \text{ ppm} = 0.01\% = 100 \text{ mg/kg}$ .

**Prohibited** – not allowed

**Restricted** – allowed in limited quantities
















**SDS** – Safety Data Sheet

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**APPENDIX A****Labeling Requirements for Batteries, Consumer Products Containing Batteries, and their Packaging**

As defined in Section 8.1, all Batteries, rechargeable consumer products, and their packaging must have the markings defined in the following table and subsequent requirements.

PRODUCT TYPE	WORLDWIDE SYMBOL <sup>3</sup>	WORDING ON LABEL <sup>2</sup>
Alkaline batteries	 无汞  廢電池請回收	<ul style="list-style-type: none"> <li>- Manufacturer's name and address</li> <li>- Either Chinese Low Mercury or Mercury Free character</li> <li>- 无汞碱性电池</li> </ul>
Lead-acid (sealed) batteries and their packaging	   廢電池請回收 <b>Pb</b>	<ul style="list-style-type: none"> <li>- Manufacturer's name and address</li> <li>- "BATTERY MUST BE RECYCLED"</li> <li>- "NON-SPILLABLE" OR "NON-SPILLABLE BATTERY"</li> <li>- "Pb" see Note 1</li> </ul>
Lithium Metal cells and batteries	  廢電池請回收	<ul style="list-style-type: none"> <li>- Manufacturer's name and address</li> <li>- Lithium or , Lithium Metal</li> <li>- See Note 5</li> </ul>
Lithium-Ion cells and batteries	   廢電池請回收 <b>Li-ion</b>	<ul style="list-style-type: none"> <li>- Manufacturer's name and address</li> <li>- Lithium Ion</li> <li>- Watt Hr</li> <li>- See Notes 2, 3, 4</li> </ul>
Nickel metal hydride batteries	   廢電池請回收 <b>Ni-MH</b>	<ul style="list-style-type: none"> <li>- Manufacturer's names and address</li> <li>- "CONTAINS NICKEL METAL HYDRIDE (NiMH) BATTERY"</li> <li>- Must be recycled or disposed of properly.</li> </ul>
Rechargeable consumer products containing not easily removable sealed lead acid batteries	  <b>Pb</b>	<ul style="list-style-type: none"> <li>- Manufacturer's name and address</li> <li>- "CONTAINS SEALED LEAD BATTERY. BATTERY MUST BE RECYCLED."</li> <li>- "Pb" see Note 1</li> </ul>

Note 1 - The chemical symbol "Pb" under the crossed-out wheeled bin is required on all batteries, accumulators and button cells containing more than 0.004% lead by weight.

Note 2 - Lithium-ion cells Watt-hour (Wh) rating must be 20 Wh or less.

Note 3 - Lithium-ion batteries or battery packs Watt-hour (Wh) rating must be 100 Wh or less.

Note 4 - Lithium-ion batteries or battery packs must be marked with the Watt-hour (Wh) rating on the outside case.

Note 5 - Lithium Metal battery SDS or Data Sheet must contain California Perchlorate Statement. "Perchlorate Material – special handling may apply."

<sup>3</sup> Localization requirements are applicable to items in this section and will be communicated in the purchase contract, in accordance with Section 2.5 of this specification.

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### **Additional marking requirements for rechargeable - EU Capacity Labeling**

All portable rechargeable batteries intended to be replaced by the end user, either standalone cells or battery packs, except for lead-acid, must have their capacity in milliamp hours on the label expressed as an integer using the abbreviation 'mAh'. Lead-acid batteries intended to be replaced by the end user must have their capacity in amp hours on the label expressed as a decimal number with one digit using the abbreviation 'Ah'.

#### **Text size for battery packs:**

- For battery packs where the largest side is below 70 cm<sup>2</sup>, the text shall have a minimum size of 1,0 × 5,0 mm (H × L).
- For battery packs where the largest side is equal to or above 70 cm<sup>2</sup>, the text shall have a minimum size of 2,0 × 5,0 mm (H × L).
- The label shall be located only on the external housing, not on each individual cell inside the housing.
- Text size for individual cells, except button cells:
- The text shall have a minimum size of 1,0 × 5,0 mm (H × L).
- Applies to batteries and accumulators sold without packaging
- The label shall be located on the battery or accumulator itself.

For batteries sold with packaging, the capacity labels must also be located on the packaging.

### **Additional marking requirements for non-rechargeable batteries (all chemistries)**

- Battery manufacturer brand name
- Model designation
- Expiration date (month / yr.)
- Country of origin

### **Product End of Life Labeling Size Requirements**

#### **Square batteries**

- Crossed-out wheeled bin label must cover 3% of the batteries largest side area, maximum size of 5cm X 5cm

#### **Cylindrical Batteries**

- Crossed-out wheeled bin label must cover 3% or half of each battery's side area, maximum size of 5cm X 5cm

#### **Small Batteries** (sold separately)

- Where the crossed-out wheeled bin label applied to the package must be smaller than 0.5cm X 0.5cm, a separate 1cm X 1cm mark must be printed on the battery package or shipping package

#### **Battery Indication Type Marks below the Wheeled Bin**

- Marks must be at least one-quarter the size of the crossed-out wheeled bin label

#### **Symbol Color**

- Color shall be as displayed in the table above or black and white

### **Durability**

All marks and labels must be clear and durable.

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**APPENDIX B**

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## APPENDIX C

The following Reportable Substances reflect the 25 June 2025 EU REACH 1907/2006/EC Candidate List (which covers 250 substances) that have been pre-filtered by IEC 62474 as potentially used in electrical and electronic equipment.

IEC62474 ID	Substances	CAS number	Example Uses	Reporting Threshold
00007	Boric Acid	10043-35-3; 11113-50-1	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	0.1% by article weight
00013	Cobalt dichloride	7646-79-9	Pneumatic panels to indicate water contamination	0.1% by article weight
00015	Diocetyl tin (DOT) compounds	See IEC62474 reference list	Stabilizer for PVC, curing catalyst for silicone resin and urethane resin	0.1% by article weight
00026	Lead chromate	7758-97-6	Colorant in plastics; Colorant in paint	0.1% by article weight
00027	Lead chromate molybdate sulphate red (C.I. Pigment Red 104)	12656-85-8	Colorant in plastics; Colorant in red paint	0.1% by article weight
00028	Lead sulfochromate yellow (C.I. Pigment Yellow 34)	1344-37-2	Colorant in plastics; Colorant in yellow paint	0.1% by article weight
00037	Phthalates, Selected Group 2 (DIDP, DINP, DNOP)	See IEC62474 reference list	Plasticizer, dye, pigment, paint, ink, adhesive, lubricant	0.1% by article weight
00055	Tri-substituted organostannic compounds	See IEC62474 reference list	Paint pigment	0.1% by article weight
00057	4-(1,1,3,3-tetramethylbutyl)phenol	140-66-9	Unreacted process chemical	0.1% by article weight
00065	Sulfurous acid, lead salt, dibasic	62229-08-7	Heat stabilizer for PVC, for example for wiring and cabling insulation	0.1% by article weight
00066	1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	112-49-2	Solvent may be used in battery electrolytes for lithium batteries. May be in found in printing inks.	0.1% by article weight
00067	Trilead dioxide phosphonate	12141-20-7	Heat stabilizer for PVC, for example for wiring and cabling insulation	0.1% by article weight
00068	1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4	Solvent used in battery electrolytes for lithium batteries. May be in found in printing inks and paint strippers	0.1% by article weight

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IEC62474 ID	Substances	CAS number	Example Uses	Reporting Threshold
00069	4-Aminoazobenzene	60-09-3	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.	0.1% by article weight
00070	Tetralead trioxide sulphate	12202-17-4	Heat stabilizer for PVC, for example for wiring and cabling insulation	0.1% by article weight
00071	Orange lead (lead tetroxide)	1314-41-6	Used in rust-proof primer paints	0.1% by article weight
00072	Pyrochlore, antimony lead yellow	8012-00-8	Used as yellow pigment for colouring plastics and paint	0.1% by article weight
00073	Pentalead tetraoxide sulphate	12065-90-6	Heat stabilizer for plastics; for example, non-transparent PVC	0.1% by article weight
00074	1,2-Diethoxyethane	629-14-1	Solvent used in electrolytes for lithium batteries.	0.1% by article weight
00075	Diboron trioxide	1303-86-2	Found in wood veneers, glass/fiber optics, and ceramics - for industrial applications	0.1% by article weight
00077	Lead cyanamidate	20837-86-9	Used in anticorrosion coatings e.g. steel articles	0.1% by article weight
00079	Silicic acid (H <sub>2</sub> SiO <sub>5</sub> ), barium salt (1:1), lead-doped	68784-75-8	Used in UV emitting light bulbs and lamps	0.1% by article weight
00083	Lead titanium trioxide	12060-00-3	In piezoelectric components, ultrasound transducers, gas igniters, ultrasonic motors, ceramic capacitors and other electronic components that use piezoelectric materials	0.1% by article weight
00084	Lead titanium zirconium oxide	12626-81-2	In piezoelectric components, ultrasound transducers, gas igniters, ultrasonic motors, ceramic capacitors and other electronic components that use piezoelectric materials	0.1% by article weight
00085	Lead oxide sulfate	12036-76-9	Heat stabilizer for PVC used for wiring and cabling insulation.	0.1% by article weight
00086	[Phthalato(2-)]dioxotrilead	69011-06-9	Heat stabilizer for plastics, for example for wiring and cabling insulation.	0.1% by article weight
00087	Dioxobis(stearato)trilead	12578-12-0	Heat stabilizer for plastics, for example for wiring and cabling insulation.	0.1% by article weight
00088	Fatty acids, C16-18, lead salts	91031-62-8	Heat stabilizer for plastics, for example for wiring and cabling insulation.	0.1% by article weight

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IEC62474 ID	Substances	CAS number	Example Uses	Reporting Threshold
00089	Lead dinitrate	10099-74-8	Heat stabilizer in nylon and polyesters, also used as a coating on paper for photo thermography.	0.1% by article weight
00090	Di-isodecyl phthalate (DIDP)	68515-49-1; 26761-40-0	Plasticizer, dye, pigment, paint, ink, adhesive, lubricant	Intentionally Added
00091	Di-n-hexyl phthalate (DnHP)	84-75-3	Plasticizer, dye, pigment, paint, ink, adhesive, lubricant	Intentionally Added
00092	Hexahydromethylphthalic anhydride	See IEC62474 reference list	Primary use is as a hardener for epoxy resins.	0.1% by article weight
00093	Cadmium	7440-43-9	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	0.01% by article weight
00094	Cadmium oxide	1306-19-0	Relay contact; photodiode voltaic cell, Ni/Cd battery	0.01% by article weight
00098	4-Nonylphenol, branched and linear, ethoxylated	See IEC62474 reference list	Nonylphenol ethoxylates are used in paints, lacquers and varnishes in concentrations up to 10% w/w of the mixture.	0.1% by article weight
00099	Cadmium sulphide	1306-23-6	Used in photo-resistors, solar cells and piezoelectric transducers	0.01% by article weight
00102	Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate) (C.I. Direct Red 28)	573-58-0	Dye for textiles and paper	0.1% by article weight
00105	Imidazolidine-2-thione (2-imidazoline-2-thiol)	96-45-7	Used as a catalyst in some acrylic adhesive glues which may be used in adhesive tapes (for example, double sided adhesive tapes)	0.1% by article weight
00107	Diisononyl phthalate (DINP)	28553-12-0; 68515-48-0	Used as a plasticizer for PVC	Intentionally Added
00133	1,3-propanesultone	1120-71-4	Electrolyte fluid of rechargeable lithium ion batteries	0.1% by article weight
00141	4,4'-isopropylidenediphenol	80-05-7	Antioxidant for plasticizer and PVC, ink, paint and adhesive; used as monomer in epoxy resins and plastics	Intentionally Added
00142	Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts	See IEC62474 reference list	Plasticizer, lubricant, corrosion inhibitor	0.1% by article weight
00146	Cadmium hydroxide	21041-95-2	It is generated in the anodes of nickel-cadmium and silver-cadmium batteries during the discharge	0.01% by article weight

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IEC62474 ID	Substances	CAS number	Example Uses	Reporting Threshold
00154	Lead	7439-92-1	Steel, aluminum and copper alloys, lead acid batteries, solder and other applications	0.1% by article weight
00155	2,2-bis(4'-hydroxyphenyl)-4-methylpentane	6807-17-6	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	0.1% by article weight
00162	Tris(4-nonylphenyl, branched and linear) phosphite (TNPP)	See IEC62474 reference list	stabilizer and antioxidant in the processing of various plastic materials such as PVC, Polyolefines or rubbers	0.1% by article weight
00163	Tetraboron disodium heptaoxide, hydrate	12267-73-1	In wood veneers/ pressed wooden panels as starch additive, flame retardant and stabilizer in aminoplastic resin, wood preservative	0.1% by article weight
00164	Diisohexyl phthalate	71850-09-4	Used as a plasticizer for certain plastics and rubbers	0.1% by article weight
00165	Perfluorobutane sulfonic acid (PFBS) and its salts	See IEC62474 reference list	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.	0.1% by article weight
00170	Dibutylbis(pentane-2,4-dionato-O,O')tin	22673-19-4	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.	0.1% by article weight
00172	Bis(2-(2-methoxyethoxy)ethyl)ether	143-24-8	Solvent in electrolyte in lithium-ion batteries, solvent in other manufacturing process (example: solder flux).	0.1% by article weight
00173	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	See IEC62474 reference list	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.	0.1% by article weight

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IEC62474 ID	Substances	CAS number	Example Uses	Reporting Threshold
00177	4,4'-(1-methylpropylidene)bisphenol	77-40-7	Antioxidant for plasticizer and PVC, ink, paint and adhesive; used as monomer in epoxy resins and plastics	0.1% by article weight
00179	orthoboric acid, sodium salt	See IEC62474 reference list	As flame retardant/adhesive ingredients for wood, paper, cotton and other plant-derived materials; glass manufacturing	0.1% by article weight
00180	4-Nonylphenol, branched and linear	See IEC62474 reference list	Paint, glues and polymers	0.1% by article weight
00181	6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol	119-47-1	Adhesives, sealants, lubricants, fuels, hydraulic fluids, metal working, antioxidant/stabilizer for rubber and plastics	0.1% by article weight
00184	1,1'-[ethane-1,2-diylbis(oxy)]bis[2,4,6-tribromobenzene]	37853-59-1	Additive flame retardant in ABS, PC HIPS, thermoplastics and thermoset resins, coatings	0.1% by article weight
00185	2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol	79-94-7	Additive and reactive flame retardant in epoxy resins (printed circuit boards), ABS	0.1% by article weight
00186	4,4'-sulphonyldiphenol	80-09-1	Manufacture of pulp, paper and paper products, textile. Epoxy glues. Substitute for BPA	0.1% by article weight
00187	Barium diboron tetraoxide	13701-59-2	Used in paints and coatings and in some ceramic electronic components	0.1% by article weight
00188	Bis(2-ethylhexyl) tetrabromophthalate	See IEC62474 reference list	Used as an additive flame retardant and as a plasticiser for flexible polyvinylchloride and for use in wire and cable insulation, film and sheeting, carpet backing, coated fabrics, wall coverings, sealant and adhesives	0.1% by article weight
00189	Isobutyl 4-hydroxybenzoate	4247-02-3	Used in the manufacture of substances and in coating products, fillers, putties, plasters, modelling clay, and inks and toners. Used as an anti-microbial agent	0.1% by article weight
00190	Melamine	108-78-1	A monomer combined with formaldehyde and other agents to produce melamine resins. Used as an intermediate chemical for the production of flame retardants and as flame retardant itself. Used in coatings and inks.	0.1% by article weight
00191	Perfluoroheptanoic acid and its salts	See IEC62474 reference list	Greases, textiles and other coated products, and emulsifiers used for manufacturing the Fluoropolymers and fluoroelastomers. Used as a stain or water repellent	0.1% by article weight

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IEC62474 ID	Substances	CAS number	Example Uses	Reporting Threshold
00192	reaction mass of 2,2,3,3,5,5,6,6-octafluoro-4-(1,1,1,2,3,3,3-heptafluoropropan-2-yl)morpholine and 2,2,3,3,5,5,6,6-octafluoro-4-(heptafluoropropyl)morpholine	EC number: 473-390-7	Heat transfer fluid	0.1% by article weight
00193	Per- and poly-fluoroalkyl substances (PFAS)	See IEC62474 reference list	Coatings for electronic components, wires and cables; plastics; adhesives; lubricants; membranes; elastomers; gaskets; cleaning chemicals; photolithography; insulation material; and flame retardants	Intentionally Added
00194	bis(4-chlorophenyl) sulphone	80-07-9	Additive for thermoplastic resin (fluoroethane) and fluoropolymers for rubber production	0.1% by article weight
00195	diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	75980-60-8	Photopolymerization initiator; Coating material/paint; UV-curable resin; Resin additive; Silk screen printing ink; Cable assembly (adhesive); Surface treatment marking ink; Solder mask (photoinitiator)	0.1% by article weight
00196	2,4,6-tri-tert-butylphenol	732-26-3	May be used either as an intermediate to or directly as an antioxidant/stabiliser in plastic materials	0.1% by article weight
00197	2-(2H-benzotriazol-2-yl)-4-(1,1,3,3-tetramethylbutyl)phenol (UV-329)	3147-75-9	UV absorber/protection agent which exhibits excellent compatibility with a wide range of plastics, particularly demonstrating high effectiveness in coatings, PVC, and unsaturated polyester. Can be used alone or in combination with other functional stabilizers and additives. Typical applications of UV-329 include air care products, coating products, adhesives and sealants, lubricants and greases, polishes and waxes, and polycarbonate covers, such as those for sensors and lights. Typical addition concentration is 0.1-3%. May also be used up to 5% in organic solderability preservative (OSP) applied to PCBs	0.1% by article weight

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IEC62474 ID	Substances	CAS number	Example Uses	Reporting Threshold
00198	2-(dimethylamino)-2-[(4-methylphenyl)methyl]-1-[4-(morpholin-4-yl)phenyl]butan-1-one	119344-86-4	Photo-initiator for UV inks and coatings. Typical applications include displays, coatings, inks, resists. In all applications substance is reacted other than where it may be present as a mixture >0.1% in ink/toner that has not yet been cured (e.g. ink/toner in a cartridge)	0.1% by article weight
00199	Bumetrizole (UV-326)	3896-11-5	UV protection agent. Weatherability enhancer for materials such as polyvinyl chloride, polyethylene, polypropylene, acrylic resins, PVB, styrene-based resins. It is suitable for use with polyolefins and cold-cured polyesters. Formulations are used for coatings, inks and toners, textile dyes and impregnation products, production of polymers like rubber production and processing and rigid foams and flexible foams, adhesives and sealants, lubricants, and greases. History of use in thermoplastic resins for cable and speaker gaskets	0.1% by article weight
00200	Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol	See IEC62474 reference list	Protective paints and coatings, lacquers and varnishes (e.g. anti-corrosion) for ships and large industrial equipment, adhesives and sealants, printing inks, rubber formulations, polymer production, construction materials, antioxidant in rubber	0.1% by article weight
00202	Bis( $\alpha,\alpha$ -dimethylbenzyl) peroxide	80-43-3	Used in expanded polystyrene as co-synergist for FR grades	0.1% by article weight
00206	Triphenyl phosphate	115-86-6	Adhesives, sealants and coating products. Flame retardant and plasticizer in various polymers and elastomers. Adds water resistance and tensile strength properties to some products.	0.1% by article weight
00207	6-[(C10-C13)-alkyl-(branched, unsaturated)-2,5-dioxopyrrolidin-1-yl]hexanoic acid	2156592-54-8	Hydraulic fluids, lubricants and greases.	0.1% by article weight
00208	O,O,O-triphenyl phosphorothioate	597-82-0	Lubricants, greases, hydraulic fluids, flame retardants and plasticizers.	0.1% by article weight

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IEC62474 ID	Substances	CAS number	Example Uses	Reporting Threshold
00209	Octamethyltrisiloxane	107-51-7	Release Paper for Labels, Elastomer for Conductive Pads, Shielding Rubber, EMI Absorber (Elastomer), paints, coatings and adhesives, paint removers, fillers, putties, plasters, modelling clay, ink and toners, sealants, non-metal surface, treatment agents, polymer preparations, heat transfer fluids.	0.1% by article weight
00210	Perfluamine	338-83-0	Heat transfer fluid, immersion cooling.	0.1% by article weight
00211	reaction mass of: triphenylthiophosphate and tertiary butylated phenyl derivatives	192268-65-8	Hydraulic fluids, lubricants and greases	0.1% by article weight
00212	1,1,1,3,5,5,5-heptamethyl-3-[(trimethylsilyl)oxy]trisiloxane	17928-28-8	Surface treatments and coatings	0.1% by article weight
00213	decamethyltetrasiloxane	141-62-8	Lubricants and greases, surface treatments and heat transfer fluid	0.1% by article weight

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## APPENDIX D

### Packaging Materials Requirements

Packaging and packaging materials shall be marked in accordance with the following guidance. Additional restrictions identified in the GSE are also applicable to Keysight Packaging Materials including but not limited to Restrictions in Packaging Section 5. This requirement applies to all primary, secondary and tertiary packaging for products, parts, subassemblies, materials and supplies obtained by Keysight Technologies for incorporation or distribution to Keysight customers.

The objective of these stated requirements is to ensure that the choice of packaging materials used is recyclable, including cushioning material, plastic materials, corrugated containers and wood crate systems. Suppliers are discouraged from using permanent glues or adhesives to attach various materials. This applies to molded and fabricated cushioning material, plastic film, bagging materials, paperboard/corrugated fiberboard and wooden crates.

**Plastic Material Coding Identification:** For materials that are commonly used in packaging systems, the table below provides examples of the applicable coding that is required to be permanently embossed, marked or labeled on all components of the packaging system. To assure international acceptance, such markings shall be consistent with the requirements of ISO 11469 and the ISO 1043 series of standards. Symbols must meet minimum sizing requirements. Smaller identification symbols are permitted when the part or unit size does not allow the minimum size to be placed on the unit or part. The identification marking and symbol must be placed on the item either on the bottom or other conspicuous location and must be durable, legible and clearly visible. Capital letters must be used for all text.

#### Plastic codes and corresponding abbreviation code names (examples only)

Name of plastic	Polyester	High-Density Polyethylene	Polyvinyl Chloride	Low-Density Polyethylene	Polypropylene	Polystyrene	Others
Plastic code	01	02	03	04	05	06	07
Abbreviation code name	PET	HDPE	PVC	LDPE	PP	PS	Others



Example of the marking for plastic recyclable packaging

**Paperboard and Corrugated Fiberboard:** Internationally required marks are acceptable. The mark can be used in conjunction with the international alphanumeric paper designation.

Paper Packaging Material	Initials	Packaging Type
Fiberboard, Corrugated	CFB	Shipping cartons, layer pads, dividers and over packs
Corrugated Cardboard	CB	Stiffeners, corner guards and edge guards
Paperboard	PB	Chipboard cartons
Paper	WPP	Tissue and molded pulp
Non-Corrugated Solid Fiberboard	NCFB	Stiffeners, corner guards and edge guards

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**CFB** Example of the marking for Paper and Corrugated Fiberboard recyclable packaging**Packaging made of Wood, including Wooden Crates**

As per Section 5.2 of the GSE, all wooden crates, packaging made of wood and pallets made of wood must be treated and marked in accordance with the provisions of the International Standard for Phytosanitary Measures (ISPM) #15: *Guidelines for Regulating Wood Packaging Material in International Trade*. Please note that as stated in section 5.2 that Fumigation, Chemical Pressure Impregnation (CPI) or other chemical means are not to be used.

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### Specification Revision History

Revision	Changes	Approval	Date
Y	<p><b>4.2 General Restrictions</b></p> <p>Reflects [EU] Persistent Organic Pollutants (POPs) Regulation (EU) 2019/1021:</p> <ul style="list-style-type: none"> <li>• 00096 Pentadecafluorooctanoic acid (PFOA), &lt;0.0000025 % by weight</li> <li>• 00097 Ammonium pentadecafluorooctanoate (APFO), &lt;0.0000025 % by weight</li> <li>• 00143 Perfluorohexane-1-sulphonic acid and its salts, &lt;0.0000025 % by weight, with &lt;0.0001 % by weight for the sum of concentrations of all PFHxS-related compounds</li> </ul> <p>Stockholm Convention new substance additions (to be codified)</p> <ul style="list-style-type: none"> <li>• 00130 2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328) Must not be present</li> <li>• 00147 "Dechlorane Plus"™ Must not be present</li> </ul> <p>Reflects [EU] REACH Regulation (EC) No.1907/2006</p> <p>Added</p> <ul style="list-style-type: none"> <li>• 00108 Benzo[a]pyrene (BaP), &lt; 0.1% by article weight</li> <li>• 00109 Benzo[e]pyrene (BeP), &lt; 0.1% by article weight</li> <li>• 00110 Benzo[a]anthracene (BaA), &lt; 0.1% by article weight</li> <li>• 00111 Chrysen (CHR), &lt; 0.1% by article weight</li> <li>• 00112 Benzo[b]fluoranthene (BbFA), &lt; 0.1% by article weight</li> <li>• 00113 Benzo[j]fluoranthene (BjFA), &lt; 0.1% by article weight</li> <li>• 00114 Benzo[k]fluoranthene (BkFA), &lt; 0.1% by article weight</li> <li>• 00115 Dibenzo[a,h]anthracene (DBAhA), &lt; 0.1% by article weight</li> <li>• 00116 Benzo[a]pyrene (BaP), &lt; 0.1% by article weight</li> <li>• 00117 Benzo[e]pyrene (BeP), &lt; 0.1% by article weight</li> <li>• 00118 Benzo[a]anthracene (BaA), &lt; 0.1% by article weight</li> <li>• 00119 Chrysen (CHR), &lt; 0.1% by article weight</li> <li>• 00120 Benzo[b]fluoranthene (BbFA), &lt; 0.1% by article weight</li> <li>• 00121 Benzo[j]fluoranthene (BjFA), &lt; 0.1% by article weight</li> <li>• 00122 Benzo[k]fluoranthene (BkFA), &lt; 0.1% by article weight</li> <li>• 00123 Dibenzo[a,h]anthracene (DBAhA), &lt; 0.1% by article weight</li> </ul> <p>Updated to reflect current IEC 62474 Substance Group name, no restriction changes:</p> <ul style="list-style-type: none"> <li>• 00004, 00017, 00052, 00147, 00161</li> </ul> <p><b>4.3 Specific Applications</b></p> <p>Reflects [EU] REACH Regulation (EC) No.1907/2006 substances listed in Annex XVII</p> <ul style="list-style-type: none"> <li>• 0001 Diarsenic pentoxide, Must Not Be Present</li> <li>• 0002 Diarsenic trioxide, Must Not Be Present</li> <li>• 00019 Formaldehyde, 0,062 mg/m3 of formaldehyde released under specified test conditions and 0.05 ppm under TSCA TitleVI,40 test methodology</li> <li>• 00141 4,4'-isopropylidenediphenol, &lt;0.02% by weight</li> </ul> <p>Reflects French Environmental Code</p> <ul style="list-style-type: none"> <li>• (NA) MOAH and MOSH; 0.1% or 1 ppm the mass concentration in the ink of compounds with 3 to 7 aromatic rings</li> </ul> <p><b>4.4 Battery Content Restrictions</b></p> <p>Reflects the entry into force of Regulation (EU) 2023/1542 concerning batteries and waste batteries; repealing EU Battery Directive 2006/66/EC. Basis change only, no restriction changes</p> <ul style="list-style-type: none"> <li>• 00011 Cadmium/Cadmium compounds</li> <li>• 00025 Lead/Lead Compounds</li> <li>• 00030 Mercury/Mercury Compounds</li> </ul> <p><b>5.0 Packaging</b></p> <p>Formaldehyde, 0,062 mg/m3 of formaldehyde released under specified test conditions and 0.05 ppm under TSCA TitleVI,40 test methodology</p> <p><b>Appendix C</b></p> <p>Reflects [EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation of June 14, 2023 covering 235 substances.</p> <ul style="list-style-type: none"> <li>• Removed to reflect their promotion to Section 4.2: 00143</li> <li>• Added Substances: 00015, 00016, 00026, 00027, 00028, 00037, 00094, 00099, 00184, 00185, 00186, 00187, 00188, 00189, 00190, 00191, 00192, 00193, 00194, 00195</li> </ul> <p>Removed Revision History V</p>	Robert Tait	Nov. 1, 2023

Effective: 1 April 2026

Revision	Changes	Approval	Date
Z	<b>4.2 General Restrictions</b> Reflects [EU] Persistent Organic Pollutants (POPs) Regulation (EU) 2019/1021: <ul style="list-style-type: none"> <li>00201 Pentachlorophenol and its salts and esters 5 mg/kg (0,0005 % by weight)</li> </ul> <b>5.0 Packaging</b> <ul style="list-style-type: none"> <li>00201 Pentachlorophenol and its salts and esters 5 mg/kg (0,0005 % by weight)</li> </ul> <b>Appendix C</b> Reflects [EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation of June 27, 2024 covering 241 substances <ul style="list-style-type: none"> <li>Added Substances: 00196, 00197, 00198, 00199, 00200, 00202</li> </ul> Removed Revision History W	Robert Tait	Nov. 1, 2024
AA	<b>4.2 General Restrictions</b> Reflects [EU] Persistent Organic Pollutants (POPs) Regulation (EU) 2019/1021: <ul style="list-style-type: none"> <li>00064 DecaBDE; added POPs to basis, no restriction changes</li> <li>00130 UV-328, updated basis, no restriction changes</li> <li>00147 Dechlorane Plus™, updated basis, no restriction changes</li> <li>00178 MCCP, must not be present</li> <li>00205 PFHxS-related compounds, must not be present</li> </ul> Reflects [EU] REACH Regulation (EC) No.1907/2006 Added <ul style="list-style-type: none"> <li>00016 Dimethylfumarate (DMF), 0.00001 mass% of the part</li> <li>00131 1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters or mixed decyl and hexyl and octyl diesters, 0.1% by article weight</li> </ul> Consolidated 00149, 00150, 00151 into a single entry, no restriction changes. Removed <ul style="list-style-type: none"> <li>Moved to Appendix C: 00075, 00102, 00105</li> <li>Moved to Section 4.3; 00079, 00146</li> </ul> Updated to reflect current IEC 62474 Substance / Group name, or example uses; no restriction changes: <ul style="list-style-type: none"> <li>00001, 00002, 00038, 00059, 00076, 00080, 00081, 00082, 00124, 00126, 00129, 00135, 00138</li> </ul> <b>4.3 Specific Applications</b> <ul style="list-style-type: none"> <li>Reflects [EU] REACH Regulation (EC) No.1907/2006 Annex XVII, Restriction #23; Cadmium and its compounds (0.01%): 00093, 00094, 00099, 00146</li> <li>Reflects [EU] REACH Regulation (EC) No.1907/2006 Annex XVII, Restriction #46a, 00098 4-Nonylphenol, branched and linear, ethoxylated, &lt;0.01% by weight</li> <li>Reflects [EU] REACH Regulation (EC) No.1907/2006 Annex XVII, Restriction #63, Lead and its compounds (0.1%): 00026, 00027, 00028, 00065, 00067, 00070, 00071, 00072, 00073, 00079, 00083, 00084, 00085, 00086, 00087, 00088, 00089, 00154</li> </ul> Updated to reflect current IEC 62474 Substance / Group name, or example uses; no restriction changes: <ul style="list-style-type: none"> <li>00010, 00024</li> </ul> <b>5. Content Restrictions Specific to Packaging</b> Table format changed to match that of Section 4.4, including updates to reflect current IEC 62474 Substance / Group name changes reflected elsewhere; no restriction changes: <b>Appendix C</b> Reflects [EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation of June 25, 2025, covering 250 substances. <ul style="list-style-type: none"> <li>Added Substances: 00075, 00079, 00093, 00094, 00099, 00102, 00105, 00146, 00206, 00207, 00208, 00209, 00210, 00211, 00212, 00213</li> <li>Removed to reflect their promotion to Section 4.2: 00016, 00131, 00178</li> <li>Updated to reflect current IEC 62474 Substance / Group name, or example uses; no threshold changes: 00162, 00202</li> </ul> Removed Revision History X	Robert Tait	Nov. 1, 2025