

MOLEX CHEMICAL SUBSTANCES SPECIFICATION

FOR PRODUCTS AND PACKAGING: FOR CUSTOMERS

1.0 PURPOSE

Molex recognizes the need to manage the use of chemical substances in accordance with government regulations, industry standards, and customer-specific requirements in order to protect the environment. Controlling the use of hazardous substances is good for the environment and good for Molex's business. The purpose of this specification is to document the Molex controls for known or potentially hazardous substances.

This specification is also intended to convey the level of product environmental information Molex will collect, store, maintain, and make available to customers.

2.0 SCOPE

This specification covers the controls for chemical substances in Molex products and packaging. This specification supports Molex's Environmental, Health, and Safety (EH&S) Policy by documenting Molex's commitment to restricting and reducing the use of hazardous substances. The focus of this specification is on controlling substances that are regulated, projected to be regulated, or have the potential to be regulated for the protection of human health and the environment. It includes all known legal requirements and other industry or customer requirements that are relevant to Molex products and that Molex endorses across product lines.

This specification also covers the product environmental information to be collected, stored, and maintained by Molex, and the availability of this information to customers.

2.1 SCOPE APPLICABLE TO PRODUCTS

This specification applies to the following product categories:

- a) Molex products that are designed, manufactured, sold, or distributed by Molex
- b) Molex products whose design and production are outsourced to third parties
- c) Third parties' products whose design and production are outsourced to Molex, except when the parts and materials are specified by the third parties

As this specification applies to products, any chemical or manufacturing process that has the potential to remain in or on the product is in scope to ensure the product remains in conformance with this specification. Any other chemical or manufacturing process that does not have the potential to remain in or on the product is not in scope.

2.2 SCOPE APPLICABLE TO PACKAGING

This specification applies to packaging materials used for delivery to customers and protection of parts; e.g., trays, reels, sticks, bags, cushions, staples, sheets, wraps, tapes, labels, corrugated cardboard, wooden frames, vinyl ties, and inks or paints for printing on packaging. Packaging is subject to different legal, industry, and customer requirements than products.

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2.3 NEW REGULATIONS

Environmental requirements change rapidly. Molex shall attempt to keep pace with these changes by incorporating them into this specification in a timely manner and by responding to these changes in a proactive way.

To the extent new government regulations go into effect prior to being incorporated into this specification, the new regulations shall take priority over the requirements of this specification. Molex shall incorporate new regulations into this specification when they become released laws.

2.4 LOCAL GOVERNMENTAL REGULATIONS

To the extent local government regulations are more restrictive than the requirements of this specification, the local regulations shall take priority over the requirements of this specification for products sold into those locations.

2.5 INDUSTRY STANDARDS

Industry standards more restrictive than legal requirements and that are adopted by numerous major customers shall be evaluated for their business impact and incorporated into this specification as justified by business conditions.

2.6 CUSTOMER-SPECIFIC REQUIREMENTS

It is understood that at certain times, specific customers may have product or packaging environmental requirements that are more restrictive than the requirements in this specification. In these cases, the specific customer requirements shall be reviewed on a case-by-case basis and application of these requirements may be restricted to the specific parts sold to that customer.

3.0 REFERENCE DOCUMENTS

3.1 EU DIRECTIVE 2011/65/EU (ROHS)

Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment, as amended by commission decisions

3.2 EU DIRECTIVE 2000/53/EC (ELV)

Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on the end-of-life vehicles, as amended by commission decisions

3.3 EU REGULATION 1907/2006 (REACH)

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and restriction of Chemicals (REACH), as amended, including Regulation (EC) 1272/2008

3.4 EU DIRECTIVE 94/62/EC ARTICLE 11 (PACKAGING AND PACKAGING WASTE REDUCTION)

Directive 94/62/EC article 11, of the European Parliament and of the Council of 20 December 1994 on packaging and packaging waste, as amended by commission decisions

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3.5 EU DIRECTIVE 97/129/EC (PACKAGING IDENTIFICATION)

Directive 97/129/EC Commission Decision of 28 January 1997 establishing the identification system for packaging materials pursuant to European Parliament and Council Directive 94/62/EC on packaging and packaging waste (text with EEA relevance)

3.6 SJ/T 11364-2006 MARKING REQUIREMENTS FOR CONTROL OF POLLUTION CAUSED BY ELECTRONIC INFORMATION PRODUCTS (CHINA ROHS LABELING)
3.7 INTERNATIONAL STANDARD FOR PHYTOSANITARY MEASURES NO. 15 WITH MODIFICATIONS TO ANNEX I (2006)
3.8 INTERNATIONAL MATERIAL DATA SYSTEM

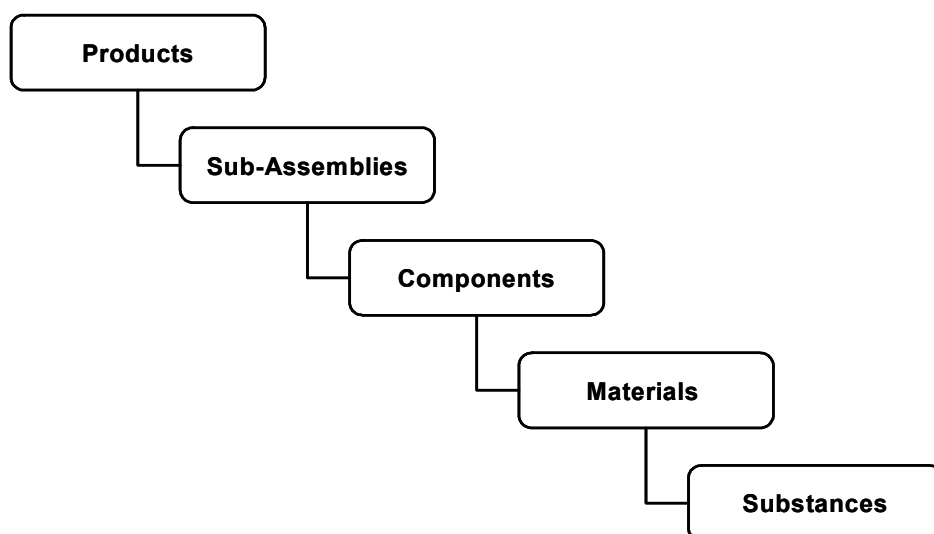
See www.mdsystem.com

3.9 GLOBAL AUTOMOTIVE DECLARABLE SUBSTANCE LIST (GADSL)

See www.gadsl.org

3.10 JEDEC JOINT INDUSTRY GUIDE, JIG-101 – MATERIAL COMPOSITION DECLARATION FOR ELECTRONIC PRODUCTS

See www.ce.org/jig

3.11 IEC 62321 ELECTROTECHNICAL PRODUCTS - DETERMINATION OF LEVELS OF SIX REGULATED SUBSTANCES (LEAD, MERCURY, CADMIUM, HEXAVALENT CHROMIUM, POLYBROMINATED BIPHENYLS, POLYBROMINATED DIPHENYL ETHERS)
4.0 TECHNICAL GLOSSARY
4.1 DEFINITIONS OF PRODUCT CONTENTS


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PRODUCTS – Assembly level parts that are sold to external or internal customers. Sub-assemblies and components may be products themselves, or they may be used in higher-level assemblies that are products.

SUB-ASSEMBLIES – Sub-assemblies are assembled units that are combined with other components or sub-assemblies to create finished products. Sub-assemblies are combinations of components. This level does not exist for all products. This level is referred to as subparts in JIG-101.

COMPONENTS – A component is a part of a sub-assembly or product that is fabricated from material(s) or purchased from suppliers that fabricate them from materials. Components may also result from the combination of other components, materials, substances and/or compounds. (Ex: Plated, lubricated terminals). This level is referred to as subparts in JIG-101.

MATERIALS (RAW MATERIALS) – Materials are the items of which something is composed or can be made (see also homogeneous materials below). Components may actually consist of several materials. A material may also be a coating that is applied during the construction of the product. For example, in terminals plated with both a nickel and a tin layer, the base metal (copper alloy) and each plating layer is considered a homogeneous material and therefore shall be considered separately. As another example, a cable is constructed of wire, insulation, jacketing and may be marked with ink. Each of these materials is considered a homogeneous material.

SUBSTANCES / SUBSTANCE GROUPS – Substances are physical materials made up of one or more chemical compounds or elements. Substances have a discrete physical existence with uniform properties. A collection of substances that are chemically similar is a substance group, for example lead compounds.

4.2 GENERAL DEFINITIONS

4.2.1 BANNED SUBSTANCES

Banned substances are prohibited substances where the maximum concentration value is 0 weight percent or 0 ppm. No detectable level of a banned substance is permitted in a homogeneous material.

4.2.2 BILL OF SUBSTANCES (BOS)

A bill of substances (BOS) is similar to a bill of materials, but it contains the specific chemical substances that are intentionally used in the composition of the product or component. The BOS details the list of substances at the level of each homogeneous material. The BOS does not include process chemicals unless the chemicals become an integral part of the final product. An example of a process chemical is a lubricant used during the process of the material or part and the chemical does not remain on the material or part when the product is shipped. Alternatively, the BOS includes a surface coating applied during processing that is not removed before product shipment (for example, an environmental barrier). If a solvent evaporates, then the solvent is not included in the BOS, but the remaining substances are declared (for example, hardened glue after the solvent evaporates). The BOS is used in conjunction with the declaration of non-use (see below) to determine if products comply with legal, industry, or customer environmental requirements.

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4.2.3 CHEMICAL ABSTRACT SERVICE (CAS) NUMBER

A number assigned by the American Chemical Society to identify a specific substance or compound.

4.2.4 CONTAINED IN

'Contained in' refers to a situation in which a substance is added to, blended with, fills up, or adheres to products, sub-assemblies, components, or materials. This definition applies to substances that remain in or on the final product, regardless if the substance is intentionally added or an impurity.

4.2.5 DECLARABLE SUBSTANCES

For substances that are not currently prohibited substances, there may still be a legal, industry, or customer or industry requirement to report the weight percent or PPM level when it is above a threshold due to the potential for inclusion in future restrictions. These substances are classified as declarable substances, and are either included in legal requirements (for example, the REACH legislation), or may be included in future restrictions as prohibited substances. Declarable substances shall be reported to Molex when present above thresholds found in this specification.

4.2.6 DECLARATION OF NON-USE (DONU)

A Declaration of Non-Use (DoNU) supplements a bill of substances in order to help determine compliance to legal, industry, and customer product environmental requirements. A DoNU considers substances that may be present unintentionally as contaminants or trace substances in the product or component. The DoNU evaluates each homogeneous material against a list of prohibited and declarable substances (appendix). The DoNU certifies or confirms that none of the homogeneous materials in the product or component contains any prohibited substance above their respective maximum concentration value and reports any declarable substance above their respective reporting threshold.

4.2.7 EXEMPTIONS

Exemptions are specific situations where a deviation is allowed from the requirements that would otherwise apply. Exemptions can apply at any level, but they are generally be grouped into material exemptions, product exemptions, and application exemptions (end-use exemptions). Molex does not specify exemptions for applications since Molex does not control the end-use of its products. In certain cases, Molex may identify products as exempt to specific regulations based on the application of the product, provided the end-use applications are limited and known, or if the customer has confirmed the end-use application in writing.

4.2.8 HOMOGENEOUS MATERIALS

Homogeneous materials are materials that are of uniform composition throughout and that cannot be mechanically disjointed into different materials. Homogeneous materials are raw materials used to fabricate a product, or materials that are applied to a raw material or a product during fabrication. For example, in terminals plated with both a nickel and a tin layer, the base metal (copper alloy) and each plating layer is considered

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a homogeneous material and therefore shall be considered separately. As another example, a cable is constructed of wire, insulation, jacketing and may be marked with ink. Each of these materials is considered a homogeneous material.

4.2.9 IMPURITIES/TRACE SUBSTANCES

Impurities or trace substances are substances in a material that are not intentionally added. Impurities/trace substances are substances that exist in natural materials or substances generated in the process of producing a material. These substances are generally not included in the bill of substances, but shall be addressed in the declaration of non-use.

4.2.10 INTENTIONALLY-ADDED SUBSTANCES (INGREDIENTS)

Intentionally-added substances are substances that are deliberately used in the formulation or fabrication of a product, sub-assembly, component, or material to provide specific characteristics, appearance, or quality. Intentionally-added substances may be prohibited substances, declarable substances, or substances that are neither prohibited nor declarable. Intentionally-added substances may also be referred to as the ingredients of the product. These are the substances that are included in the bill of substances.

4.2.11 MAXIMUM CONCENTRATION VALUE (MCV)

For prohibited substances, the upper limit on the amount of the substance that can be included in the homogeneous material is called the maximum concentration value or MCV. The MCV can be expressed in terms of weight percent or PPM. Maximum concentration values for prohibited substances apply regardless of whether or not the prohibited substance is intentionally-added or an impurity/trace substance and the MCV shall apply to the amount of the substance contained in each homogeneous material.

4.2.12 PROHIBITED SUBSTANCES

Substances for which specific maximum limits (maximum concentration values) are set for their weight percentage or PPM level content in materials. Prohibited substances are determined by legal, industry, or customer requirements. See definition for banned substances also.

The controls on prohibited substances apply to both intentionally-added substances and impurities/trace substances. Prohibited substances are not contained in products or packaging above MCVs found in this specification.

4.2.13 PROPRIETARY SUBSTANCES

Proprietary substances are substances that are considered confidential because they supply some unique, competitive performance, cost, or quality advantages. Prohibited and declarable substances shall not be proprietary substances.

4.2.14 THRESHOLD

The threshold is the level above which the presence of a substance or material in a product shall be declared (declarable substances) based on the requirements of this specification. Thresholds apply regardless of whether the specific substance is an intentionally-added substance or an impurity/trace substance.

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5.0 PRODUCT COMPLIANCE REQUIREMENTS

No prohibited substance listed in appendix A.1.1 is contained (intentionally-added or as an impurity) in the item provided by Molex. No detectable level of banned substances is contained.

Additional substance restrictions may apply. These additional substance restrictions are shown in appendix A.1.2. For example, PVC is targeted for gradual phase-out. Products sold as low-halogen (also known as halogen-free) meet the low-halogen requirements listed in appendix A.1.2.

6.0 SUPPLIER REQUIREMENTS

Product environmental requirements are included as part of our Global Supplier Policy and Manual. Upon request, all Molex suppliers shall be required to provide environmental information for the products, sub-assemblies, components, materials, and substances they supply to Molex. Environmental information includes, but is not limited to, bill of substances, declaration of non-use, and substance testing. In certain cases, based on business conditions, Molex shall contract third-party labs to obtain substance testing.

Suppliers are required by Molex terms and conditions to provide advance notice of any changes that would affect the environmental information they previously supplied. Annually, Molex suppliers shall be required to confirm that previously submitted environmental information has not changed.

7.0 BILL OF SUBSTANCES

Molex has established a single standard for bill of substances in order to:

- Satisfy all legal requirements and the majority of customer requirements for product environmental information
- Provide clear direction to internal product development and procurement functions
- Facilitate the development of global systems for storing, maintaining, and accessing product environmental information
- Provide consistent, global requirements for suppliers

For the substances that are reported in a BOS, the following information is provided:

- Substance names and/or CAS numbers
- Nominal OR minimum and maximum weight percentage or PPM levels in each homogeneous material

Molex maintains substance information on all intentionally-added substances, except that up to 10% of the intentionally-added substances may be classified as proprietary substances. Proprietary substances shall not contain prohibited or declarable substances above the MCVs/thresholds in appendix A.

8.0 DECLARATION OF NON-USE

Molex shall collect, store, and maintain substance information on the substances listed in appendix A. This information shall be used to create declarations of non-use according to the requirements in appendix A or other customer documents. Molex shall confirm that no homogeneous materials contain prohibited substances at a level that exceeds the MCVs in appendix A.1. Also, Molex shall declare the level of declarable substances contained at the homogeneous material level for cases where the threshold is exceeded.

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9.0 SUBSTANCE TESTING

Substance testing is used to verify that products comply with legal, industry, and customer requirements. Molex and its suppliers performs substance testing according to accepted industry practices (for example, IEC 62321), and testing is performed for each homogeneous material within the product. Annual testing is not performed; instead, suppliers are required to submit annual re-certification that the composition is unchanged, the manufacturing process is unchanged, and the test results are still expected to be representative. Substance testing is conducted using one of the approved methods in the following table:

Substance	Polymer Materials	Metallic Materials
PBB/PBDE	GC-MS HPLC	n/a
Cr+6	UV/VIS	
Hg	CV-AA CV-AFS DMA ICP	
Pb/Cd/Cr	ICP AAS	
Halogen	IC	n/a

AAS: Atomic Absorption Spectrometer

CV-AA: Cold-Vapor – Atomic Absorption

CV-AFS: Cold-Vapor – Atomic Fluorescence Spectrometer

DMA: Direct Mercury Analysis

GC-MS: Gas Chromatograph - Mass Spectrometer

HPLC: High-Performance Liquid Chromatograph

IC: Ion Chromatograph

ICP: Inductively Coupled Plasma

UV/VIS: Ultraviolet / Visible Spectrometer

10.0 XRF SCREENING

Molex performs X-ray fluorescence screening of certain prohibited substances to assess conformance to these requirements and to further ensure compliance to legal and customer requirements.

11.0 ENVIRONMENTAL INFORMATION PROVIDED TO CUSTOMERS

Molex maintains relevant policy statements on the Molex website (www.molex.com) that address legislation and industry trends that affect its products. In addition, Molex will provide part-specific information:

11.1 CERTIFICATION OF COMPLIANCE TO EU DIRECTIVE 2011/65/EU (RoHS)

Molex maintains RoHS Certificates of Compliance on its website (www.molex.com). The document certifies that the product provided by Molex complies with the requirements of EU Directive 2011/65/EU, including all applicable amendments in effect at the time of certification.

11.2 LOW-HALOGEN DECLARATION

As requested by customers, Molex will provide a document to certify that the items provided by Molex comply with the low-halogen (also known as halogen-free) substance restrictions in appendix A.1.2, or as specified by the customer, for each homogeneous material.

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11.3 REACH SVHC COMMUNICATION

In order to fulfill Article 33 (1) of Regulation (EC) No 1907/2006 (REACH), Molex directs all customers to the Molex website (www.molex.com) to obtain REACH Substance of Very High Concern (SVHC) content. As requested by customers, Molex will provide a document to communicate the content of any SVHC above the REACH threshold per product.

11.4 DECLARATION OF NON-USE (DoNU)

As requested by customers, Molex will provide a document to certify that the items provided by Molex comply with the substance restrictions in appendix A.1 for each homogeneous material.

11.5 MOLEX PRODUCT COMPLIANCE DECLARATION

As requested by customers, Molex will provide a Molex standard declaration including the following information:

- General Information
 - a) Product information – P/N, description, etc.
 - b) Name of the creator of the declaration
 - c) Date
- Product composition (Bill of Substances)
- Process information (for lead-free soldering, where applicable)
- Legal compliance information/status

11.6 INTERNATIONAL MATERIAL DATA SYSTEM (IMDS)

For products sold to automotive customers, Molex shall supply product environmental information to customers via the IMDS system.

11.7 CHINA RoHS LABELING

Molex shall comply with the requirements of SJ/T 11364-2006 Marking Requirements for Control of Pollution Caused by Electronic Information products by providing labeling information to customers via the Molex website (www.molex.com).

11.8 IPC 1752A MATERIALS DECLARATION

As requested, Molex shall supply a materials declaration using the IPC 1752A standard format.

11.9 CUSTOMER-SPECIFIC DECLARATION FORMATS

As requested by customers and justified by business conditions, Molex shall supply product environmental information in customer-specific formats.

11.10 OTHER INDUSTRY STANDARD FORMATS

As requested, Molex shall provide product environmental information in other industry standard formats.

11.11 SUBSTANCE TEST REPORTS

As requested and justified by business conditions, Molex shall provide substance test reports to support bill of substances and declaration of non-use information.

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12.0 PACKAGING COMPLIANCE REQUIREMENTS

Molex packaging shall comply with the requirements established in EU Directive 1994/62/EC, as amended by commission decisions released prior to the latest revision of this document. Pallets and other wood packaging used to transport Molex products to customers shall meet the requirements of the International Standard for Phytosanitary Measures No. 15 with modifications to Annex 1 (2006).

Packaging does not contain prohibited substances above the MCVs listed in appendix B of this specification.

13.0 DOCUMENT CHANGE MANAGEMENT

Molex shall review this document at least annually and make whatever changes are necessary to continue to control substances that are regulated, projected to be regulated, or have the potential to be regulated for the protection of human health and the environment. This includes all legal, industry, and customer requirements that are relevant to Molex products.

14.0 EXCEPTIONS

Exceptions to this specification shall be approved by the Molex QEHS.

15.0 REVISION HISTORY

Revision	Date	Description
A	2007/05/18	Initial release
B	2008/05/07	- Changed title and text from 'Guideline' to 'Specification' - Clarified threshold/MCV throughout document - Added Halogen-Free / Low-Halogen information throughout document and Appendix B - Clarified 4.3.5 Proprietary Substance - Removed substance groups from 7.0 BOS - Updated 8.0, acceptable methods table - Thorough revision to Appendix A
C	2009/07/22	- Added 'For Customers' to title - Thorough revision and clarification throughout - Clarified definitions of Prohibited and Banned Substances - Thorough revision to Appendix due to new substance restrictions - Addition of Appendix B: Packaging Prohibited and Declarable Substances
D	2013/02/11	- Thorough revision and clarification throughout - Swapped Purpose and Scope order - Added to 2.1 Scope Applicable to Products regarding manufacturing process - Updated 3.0 Reference Documents - Added prohibited/declarable substances to Appendix A (shaded rows)

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QEHS SPECIFICATION

APPENDIX A

Product Prohibited and Declarable Substances

Molex consolidated legislation, industry standards, and customer-specific requirements into a single set of prohibited substances. For a part to be compliant to legislation and customer requirements, it shall not contain prohibited substances over the maximum concentration value for each prohibited substance.

In addition, Molex requires certain substances to be declared by its suppliers if they exist in the material or part over a threshold. While these substances are not prohibited at this time, they are declarable so Molex can react to changes in legislation, industry standards, and customer requirements in an efficient manner.

If a substance is both prohibited and declarable, the substance is not contained above the MCV and shall be declared by suppliers above the threshold. Shaded substances are new or have been modified.

A.1 Prohibited Substances

A.1.1 In addition to the prohibited substances listed in this appendix, all substances listed as prohibited in GADSL are not contained over the maximum concentration value. If a substance is listed both in GADSL and this appendix, the lowest MCV shall apply.

Item	Substance Group	CAS No.	Maximum Concentration Value	Exemption	Known Applications
A.1.1-1	GADSL declarable substances not found here (found at www.gadsl.org)	Multiple	Unless mentioned elsewhere: MCVs as listed in GADSL		
A.1.1-2	1-(2-Dimethoxyphosphorylsulfanylethylsulfanyl)ethane; 2-ethylsulfanylethoxy-dimethoxy-sulfanylidene-phosphorane	8022-00-2	Intentional addition banned Impurities prohibited above 1000 ppm		
A.1.1-3	1-(Diethoxyphosphoryloxy-ethoxy-phosphoryl)oxyethane	107-49-3	Intentional addition banned Impurities prohibited above 1000 ppm		
A.1.1-4	1,2,3-trichlorobenzene	87-61-6	Intentional addition banned Impurities prohibited above 1000 ppm		
A.1.1-5	1,2,4-trichlorobenzene	120-82-1	Intentional addition banned Impurities prohibited above 1000 ppm		
A.1.1-6	1,4 Dioxane	123-91-1	Prohibited above 1000 ppm		

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Item	Substance Group	CAS No.	Maximum Concentration Value	Exemption	Known Applications
A.1.1-7	2-benzotriazol-2-yl-4,6-ditert-butylphenol 2-(2H-benzotriazol-2-yl)-4,6-di-tert-butylphenol 2-(2H-1,2,3-benzotriazol-2-yl)-4,6-di-tert-butylphenol 2-(2H-benzotriazol-2-yl)-4,6-bis(1,1-dimethylethyl)-phenol 2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol 2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol	Multiple, including: 25973-55-1 36437-37-3	Banned		Decorative laminate Adhesives (excluding those of plant and animal origin), putty, and caulking or sealing fillers Paints and printing ink Helmets Motor vehicle parts (excluding parts made of metal) Lighting covers Lenses for protective spectacles and frames for spectacles Deodorants Waxes Surfboards Inked ribbons Photographic paper Buttons Plastic articles (e.g., pipes, bathtubs)
A.1.1-8	2-Butanone oxime	96-29-7	Prohibited above 1000 ppm		
A.1.1-9	2-Fluoroacetamide	640-19-7	Intentional addition banned Impurities prohibited above 1000 ppm		
A.1.1-10	2-Fluoroacetic acid	144-49-0	Intentional addition banned Impurities prohibited above 1000 ppm		
A.1.1-11	2,4-dinitrotoluene	121-14-2	Prohibited above 1000 ppm		
A.1.1-12	4-Nitrobiphenyl and its salts	Multiple	Banned		Impurities in textile and leather paints, antioxidants in lubricants, rubber/latex, plastics
A.1.1-13	5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	81-15-2	Prohibited above 500 ppm		Fragrance in cosmetics
A.1.1-14	Aldrin Dieldrin Endrine	309-00-2 60-57-1 72-20-8	Banned		Pesticides Antiseptics for wood, insecticide, and mildew repellant Paints (for antiseptic, bug-repellent, and mildew repellent purposes) Antiseptics for wood, insecticide, and mildew repellant Paints (only for antiseptic, bug-repellent, and mildew repellent purposes) Sheep's wool (excluding wool containing wool grease)

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Item	Substance Group	CAS No.	Maximum Concentration Value	Exemption	Known Applications
A.1.1-15	Alkylphenols, including Nonyl Phenols	Multiple	Banned		
A.1.1-16	Aluminium phosphide	20859-73-8	Intentional addition banned Impurities prohibited above 1000 ppm		
A.1.1-17	Amines, carcinogenic, which are formed from Azo-dyes, and the azocolorants and azodyes that form them	Multiple	Banned		In dyes for textiles
A.1.1-18	Amines, which can form carcinogenic Nitrosamines	Multiple	Intentional addition banned Impurities prohibited above 1000 ppm		Polyurethane foams, corrosion inhibitors, lubricants, rubber, colourants, herbicides
A.1.1-19	Ammonium sulphide Ammonium hydrogen sulphide Ammonium polysulphide	12135-76-1 12124-99-1 9080-17-5	Banned		
A.1.1-20	Aromatic amines, including: 2-Naphthylamine and its salts 4-Aminobiphenyl and its salts Aniline and its salts Benzidine and its salts	Multiple	Banned		Impurities in textile and leather paints, antioxidants in lubricants, rubber/latex, plastics Rubber antioxidant Styrene butadiene rubber
A.1.1-21	Arsenic and its compounds*	Multiple	Banned	Banned in paint, ink, wood products, fungicides, and preservatives. Declarable above 0 ppm in all other Materials.	Paints, smelted materials, biocides (including wood treatment), leather and textile finishes, glasses, pyrotechnic objects, metal finishes, electronics
A.1.1-22	Asbestos (including fibers and minerals)	Multiple	Banned		Friction pads, gaskets, insulations
A.1.1-23	Benzene	71-43-2	Banned		Fuel constituent, raw material/contaminant in other chemicals
A.1.1-24	Benzyl butyl phthalate	85-68-7	Prohibited above 1000 ppm		Plasticizer
A.1.1-25	Beryllium oxide	1304-56-9	Banned		Ceramics
A.1.1-26	Bis(chloromethyl) ether (BCME)	542-88-1	Banned		Surface treatment of vulcanized rubber to increase adhesion, and in the manufacture of flame-retardant fabrics
A.1.1-27	Bisphenol-A*	80-05-7	Prohibited above 50 ppm		Manufacture of polycarbonate
A.1.1-28	Butyl bromoacetate	5292-43-3	Prohibited above 50 ppm		
A.1.1-29	Butylphenol, 2,4,6-tri-tert	732-26-3	Banned		Antioxidants and other regulating additives (only for lubrication and fuel oil purposes) Lubricant

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Item	Substance Group	CAS No.	Maximum Concentration Value	Exemption	Known Applications
A.1.1-30	Cadmium and its compounds	Multiple	Intentional addition banned Impurities prohibited above 5 ppm	Solder: 20 ppm Metals (including plating): 75 ppm Ceramic: 80 ppm Glass: 80 ppm Declarable above 50 ppm for all Materials	Surface protection of metals, stabilizers in polymers, pigments, in paints and plastics, electronics
A.1.1-31	Carbon disulfide	75-15-0	Prohibited above 100 ppm		
A.1.1-32	Carbon monoxide	630-08-0	Prohibited above 100 ppm		
A.1.1-33	Chlordanes	Multiple	Banned		Antiseptics for wood and insecticide Adhesives for wood Paints (only for antiseptic or bug-repellent purposes) Antiseptics and bug-repellent treated wood Antiseptics and bug-repellent-treated laminated board
A.1.1-34	Chlordecone	143-50-0	Intentional addition banned		
A.1.1-35	Chlorinated or brominated Dioxins or Furans	Multiple	Banned		
A.1.1-36	Chlorinated Paraffines, Medium length (MCCP)* (C=14-17)	Multiple	Intentional addition banned Impurities prohibited above 900 ppm		Flame retarding substances
A.1.1-37	Chlorinated Paraffines, Short length (SCCP) (C=10-13)	Multiple	Banned		Flame retarding substances
A.1.1-38	Chloromethyl methyl ether (CMME)	107-30-2	Banned		Surface treatment of vulcanized rubber to increase adhesion, and in the manufacture of flame-retardant fabrics
A.1.1-39	Chromium (VI) and its compounds	Multiple	Banned	EU RoHS Exemptions	Chromium pigments, chromated surfaces e.g. "Chromium Yellow", corrosion inhibitors, residues from dyeing and leather tanning.
A.1.1-40	Cobalt dichloride	7646-79-9	Banned	Banned if used as a moisture indicator used for a dessicant agent (e.g. silica gel). Prohibited above 1000 ppm if used in other Materials.	Moisture indicator used for a desiccant (e.g. silica gel)
A.1.1-41	Creosote Coal tar Tar oils Anthracene	Multiple	Banned	Banned if used in the treatment of wood. Declarable above 1000 ppm if used in other Materials.	Treatment of wood
A.1.1-42	Cyanide and its compounds	Multiple	Banned		

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Item	Substance Group	CAS No.	Maximum Concentration Value	Exemption	Known Applications
A.1.1-43	Cyclododecane	294-62-2	Intentional addition banned Impurities prohibited above 1000 ppm		
A.1.1-44	Cyclopentane	287-92-3	Intentional addition banned		
A.1.1-45	DBBT	99688-47-8	Banned		
A.1.1-46	DDT	50-29-3	Banned		Antiseptics for wood, insecticide, and mildew repellent Paints (only for antiseptic, bug-repellent, and mildew repellent purposes)
A.1.1-47	Diarsenic pentaoxide*	1303-28-2	Prohibited above 1000 ppm		
A.1.1-48	Diarsenic trioxide*	1327-53-3	Prohibited above 1000 ppm		
A.1.1-49	Dicofol Kelthane	Multiple	Banned		
A.1.1-50	Diethoxy-(4-nitrophenoxy)-sulfanylidene-phosphorane	56-38-2	Intentional addition banned Impurities prohibited above 1000 ppm		
A.1.1-51	Dihydrogenated tallow dimethylammonium chloride	61789-80-8	Prohibited above 1000 ppm		Surfactant
A.1.1-52	Dimethoxy-(4-nitrophenoxy)-sulfanylidene-phosphorane	298-00-0	Intentional addition banned Impurities prohibited above 1000 ppm		
A.1.1-53	Dimethyl ditallow ammonium chloride*	68783-78-8	Prohibited above 1000 ppm		Surfactant
A.1.1-54	Dimethyl-(diethylamido-1-chlorocrotonyl)-phosphate	13171-21-6	Intentional addition banned Impurities prohibited above 1000 ppm		
A.1.1-55	Dimethylfumarate	624-49-7	Banned		
A.1.1-56	Dioctyldimethylammonium chloride / Distearyl dimethylammonium chloride	107-64-2	Prohibited above 1000 ppm		Surfactant
A.1.1-57	Endangered species of flora and fauna See www.cites.org for list of species and requirements	n/a	Banned		
A.1.1-58	Endosulfan	115-29-7	Intentional addition banned Impurities prohibited above 1000 ppm		
A.1.1-59	Epoxides	Multiple	Banned		
A.1.1-60	Ethyl-/Methyl-Glycols and their Acetates	Multiple	Banned		
A.1.1-61	Ethylenediamine	85404-18-8	Prohibited above 1000 ppm		

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Item	Substance Group	CAS No.	Maximum Concentration Value	Exemption	Known Applications
A.1.1-62	Formaldehyde	Multiple	Banned		Residues and degradation products of plastics (aminoplasts, urea- and melamine resins, foam plastics, vulcanization accelerators, basis for synthetic tannins, biocides, adhesives, formed woods
A.1.1-63	Halogenated aromatic compounds	76253-60-6 81161-70-8 99688-47-8	Banned	Banned in capacitors and transformers only. Declarable above 0 ppm if used in other Materials.	
A.1.1-64	Halogenated naphthalenes, including Polychlorinated Naphthalenes (PCN)	Multiple	Banned		Petrochemical additive Lubricant and cutting oil Antiseptics for wood, insecticide, and mildew repellent Paints (only for antiseptic, bug-repellent, and mildew repellent purposes)
A.1.1-65	Hexabromocyclododecane (HBCDD)*	Multiple	Prohibited above 900 ppm		
A.1.1-66	Hexachloro-1,3-butadiene (HCBD)	87-68-3	Banned		Used mainly as an intermediate in the manufacture of rubber compounds. It is also used in the production of lubricants
A.1.1-67	Hexachlorobenzene Pentachlorobenzene Tetrachlorobenzene	Multiple	Banned		
A.1.1-68	Hexachlorocyclohexane isomers	Multiple	Banned		
A.1.1-69	Hexachloroethane	67-72-1	Intentional addition banned		
A.1.1-70	Hydrogen sulfide	7783-06-4	Prohibited above 1000 ppm		
A.1.1-71	Isobutane	75-28-5	Intentional addition banned		
A.1.1-72	Isopropyl alcohol	67-63-0	Intentional addition banned		

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Item	Substance Group	CAS No.	Maximum Concentration Value	Exemption	Known Applications
A.1.1-73	Lead and its compounds	Multiple	Intentional addition banned Impurities prohibited above 100 ppm	Electroless nickel plating: 800 ppm Ceramic: 800 ppm Glass: 800 ppm Solder: 1000 ppm Steel that has intentionally-added lead: 3500 ppm Al alloys that have intentionally-added lead: 4000 ppm Cu alloys that have intentionally-added lead: 40,000 ppm Other metals (including plating): 500 ppm Declarable above 50 ppm for all Materials	Lead as component in metals and alloys: e.g. bearing metals, steel, brass, aluminium processed in automated machines. Lead compounds, e.g. lead-containing stabilizers and pigments, corrosion inhibitors etc.
A.1.1-74	Lithium, soluble compounds	Multiple	Intentional addition banned		
A.1.1-75	Mercury and its compounds	Multiple	Banned	EU RoHS Exemptions	Metallic mercury, and inorganic and organic mercury compounds used in high intensity discharge (HID) lamps, electric switches, luminescent material for instrument lighting, pyrotechnic initiators etc.
A.1.1-76	Methanol*	67-56-1	Prohibited above 50000 ppm		Window Washer fluid applications
A.1.1-77	Methyl chloroform	74552-83-3	Banned		
A.1.1-78	Methyl isocyanate	624-83-9	Banned		
A.1.1-79	Methylenediphenyl diisocyanate (MDI)	97568-33-7	Prohibited above 1000 ppm		
A.1.1-80	Methylene chloride	75-09-2	Banned		
A.1.1-81	Mineral fibres (Natural or Synthetic) except Continuous Filament Fibres*	Multiple	Prohibited above 1000 ppm		Friction lining, screens, re-enforcements, insulation, cables
A.1.1-82	Mirex (Perchlordecone); Dodecachlorooctahydro-1,3,4-metheno-2H-cycrobuta(cd) pentalene	2385-85-5	Banned		Flame retardant in plastics, rubber, paint, paper, and electrical goods from 1959 to 1972. Mirex was sold as a flame retardant under the trade name Dechlorane, and chlordecone was also known as Kepone. Antiseptics for wood
A.1.1-83	Musk ketone	81-14-1	Prohibited above 500 ppm		

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Item	Substance Group	CAS No.	Maximum Concentration Value	Exemption	Known Applications
A.1.1-84	N-[bis(dimethylamino)phosphoryloxy-dimethylamino-phosphoryl]-N-methyl-methanamine	152-16-9	Intentional addition banned Impurities prohibited above 1000 ppm		
A.1.1-85	N-Butyl glycidyl ether	85858-60-2	Prohibited above 1000 ppm		
A.1.1-86	NCC ether (4-Chlorophenyl cyclopropyl ketone o-(4-nitrobenzyl)oxime)	94097-88-8	Prohibited 100 ppm		
A.1.1-87	Nitrogen trifluoride	7783-54-2	Banned		
A.1.1-88	Nitrofen	1836-75-5	Intentional addition banned Impurities prohibited above 1000 ppm		
A.1.1-89	N-Methyl-2-Pyrrolidone	872-50-4	Prohibited 1000 ppm		
A.1.1-90	N-Methylformamide	123-39-7	Prohibited above 1000 ppm		
A.1.1-91	Nonylphenol and octylphenol ethoxylates	68152-92-1 9002-93-1 68987-90-6 9036-19-5	Banned		Surfactants, leather processing
A.1.1-92	O-Nitrobenzaldehyde (2-nitrobenzaldehyde)	552-89-6	Prohibited above 1000 ppm		
A.1.1-93	Organic arsenic compounds	Multiple	Intentional addition banned Impurities prohibited above 1000 ppm		
A.1.1-94	Organic tin compounds: Bis (tributyltin) oxide Dibutyltin compounds Dibutyltin hydrogen borate (DBB) Dioctyltin compounds (DOT) Diorganotin compounds Monobutyltin compounds Monooctyltin compounds Tetrabutyltin compounds Tributyl tin oxides (TBTO) Tributyl tins (TBT) Tricyclohexyltin compounds Triphenyl tins (TPT) Triphenyltin Oxide (TPTO)	Multiple	Banned		Stabilizer for polymers Biocides Antiseptics for wood and mildew repellent Paints (only for the purposes of repelling shellfish, seaweed, and other marine life) and printing ink Fishing net
A.1.1-95	O-Toluidine generating substances	Multiple, including: 97-39-2	Banned		

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Item	Substance Group	CAS No.	Maximum Concentration Value	Exemption	Known Applications
A.1.1-96	Ozone Depleting Substances (including CFC, HFC, PFC, Halons, HBFC, HCFC, and SF6)	Multiple	Banned		Solvent and other dispersive applications. Also includes manufacturing process uses resulting in impurities associated with leather, foams, paints, rubbers, and adhesives applications. Fire extinguishers Refrigerant
A.1.1-97	Pentachlorobenzenethiol	133-49-3	Intentional addition banned Impurities prohibited above 1000 ppm		
A.1.1-98	Perchlorates	Multiple	Intentional addition banned Impurities prohibited above 0.006 ppm		Pyrotechnical compound
A.1.1-99	Perfluoroalkyl sulfantes (PFAS)	Multiple	Prohibited above 100 ppm		
A.1.1-100	Perfluorooctane sulfonates (PFOS)	Multiple	Banned		Surface coatings, Surfactants, Ingredient in the textile protective treatment. May not be placed on the market or used as a substance or constituent of preparations or in products or parts.
A.1.1-101	Perfluorooctanoic acids (PFOA)	Multiple	Intentional addition banned Impurities prohibited above 50 ppm		Fluoropolymers are used to make automotive components, including fuel hoses, gaskets, wire insulations, bearings. PFOA is used as a polymerization aid and it is not expected to be present at greater than trace levels in the components made from fluoropolymers
A.1.1-102	Polybrominated Biphenyls (PBB)	Multiple	Banned		
A.1.1-103	Polybrominated Diphenylethers (PBDE)	Multiple	Banned		Flame retardant
A.1.1-104	Polybrominated Terphenyls (PBT)	Multiple	Prohibited above 10 ppm		Flame retardants in plastics and textiles.

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Item	Substance Group	CAS No.	Maximum Concentration Value	Exemption	Known Applications
A.1.1-105	Polychlorinated Biphenyls (PCB)	Multiple	Banned		Insulation fluid in electrical systems, switch boards transformers and condensers, in wood and paper impregnation, as a softening agent Lubricating oil, cutting oil or hydraulic oil Adhesives (excluding those of plant or animal origin), putty and caulking or sealing fillers Paints (excluding water-based paint), printing ink and carbonless copying paper Heating and cooling devices using a liquid as heat-transfer medium Transformers containing oil, paper capacitors oil, and organic membrane capacitors Air-conditioners, television receivers, and microwave ovens
A.1.1-106	Polychlorinated phenols	Multiple	Prohibited above 10 ppm		
A.1.1-107	Polychlorinated Terphenyls (PCT)	Multiple	Banned		Insulation fluid in electrical systems, switch boards transformers and condensers, in wood and paper impregnation, as a softening agent
A.1.1-108	Polycyclic aromatic hydrocarbons (PAH; PCAH)	Multiple	Banned		Extender oils, extender oils in tires, synthetic rubber
A.1.1-109	Radioactive Substances	Multiple	Banned		High intensity discharge lamps
A.1.1-110	Silica, crystalline	14808-60-7	Intentional addition banned		
A.1.1-111	Sodium azide	26628-22-8	Intentional addition banned Impurities prohibited above 1000 ppm		Pyrotechnical compound
A.1.1-112	Sodium fluoroacetate	62-74-8	Intentional addition banned Impurities prohibited above 1000 ppm		
A.1.1-113	Substances that may cause skin sensitization	Multiple; see CAS list on Supplier Portal	Banned	Applications that are not intended to come into direct and prolonged or repeated contact with the skin	
A.1.1-114	Synthetic and natural latex rubber	Multiple	Banned		
A.1.1-115	Tetrafluoromethane	75-73-0	Prohibited above 1000 ppm		
A.1.1-116	Toluendiisocyanate (TDI)	9017-01-0	Banned	Exemption for primer steel	
A.1.1-117	Toluene*	108-88-3	Prohibited above 1000 ppm		Residues in adhesives and paints.

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Item	Substance Group	CAS No.	Maximum Concentration Value	Exemption	Known Applications
A.1.1-118	Toxaphene	8001-35-2	Banned		
A.1.1-119	Tri-cresyl phosphates	Multiple	Intentional addition banned		
A.1.1-120	Trichlorobenzene	50-31-7	Intentional addition banned		
A.1.1-121	Triclosan	9012-63-9	Prohibited above 10 ppm		
A.1.1-122	Tris-(1-aziridiny) phosphine oxide	545-55-1	Banned		Flame retardant
A.1.1-123	Tris(2,3-dibromopropyl)phosphate [TRIS]	126-72-7	Banned		Flame retardant
A.1.1-124	Ugilec	76253-60-6	Banned		
A.1.1-125	Vinyl chloride (monomer)	75-35-4 75-01-4	Banned		Residual monomer in polymers
A.1.1-126	Volatile esters of bromoacetic acids	96-32-2 105-36-2 35223-80-4 18991-98-5	Banned		
A.1.1-127	Yellow Phosphorus	12185-10-3	Banned		

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A.1.2 Phase-out Substances

Additional Substance restrictions may apply:

Item	Substance Group	CAS No.	Maximum Concentration Value	Known Applications
A.1.2-1	Antimony and its compounds*	Multiple	Banned	Flame retardant for plastics and rubber/latex, opacifier, friction material component
A.1.2-2	Beryllium and its compounds*	Multiple	Banned	Electric contacts, relays and switches; electronics
A.1.2-3	Bromine and its compounds*	Multiple	Prohibited above 900 ppm	Flame retardant Colorant
A.1.2-4	Bromine and chlorine combined*	Multiple	Intentional addition banned Impurities prohibited above 1500 ppm	Flame retardants Colorants
A.1.2-5	Chlorine and its compounds*	Multiple	Prohibited above 900 ppm	Hardener or cross linking agent for polymers and epoxy resins Flame retardant
A.1.2-6	Phosphorus flame retardants*	Multiple	Intentional addition banned Impurities prohibited above 500 ppm	Flame retardant
A.1.2-7	Phthalates (all)*	Multiple	Banned	Plasticizer
A.1.2-8	Polyvinyl Chloride (PVC)*	9002-86-2	Banned	Plastic covering of cable; boots/caps
A.1.2-9	Selenium and its compounds*	Multiple	Banned	Photoelectronic device, Glass colorant and decolorant, Free-cutting steel, Semiconductor

Low-Halogen

Parts that are specified to be low-halogen (also known as halogen-free) meet the following substance restrictions for each homogeneous material.

Substance Group	MCV
Bromine	900 ppm
Chlorine	900 ppm
The sum of bromine and chlorine	1500 ppm

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A.2 Declarable Substances

In addition to the declarable substances listed in this appendix, all substances in the following legislation and industry standards are declared if any exist over the listed threshold. If a substance is both prohibited and declarable, the substance is not contained above the MCV and is declared above the threshold. If a substance is listed in multiple declarable lists, the lowest threshold applies.

Item	Substance Group	CAS No.	Threshold	Known Applications
A.2-1	GADSL declarable substances not found here (found at www.gadsl.org)	Multiple	Unless mentioned elsewhere: Thresholds as listed in GADSL	
A.2-2	Carcinogens, Mutagens, and Reproductive Toxins (Categories 1 and 2) per Regulation (EC) 1272/2008 (found at www.echa.europa.eu/web/guest/regulations/clp/legislation)	Multiple	Unless mentioned elsewhere: Declarable if intentionally added Impurities declarable above 1000 ppm	
A.2-3	Annex XVII substances per Regulation (EC) 1907/2006 (found at ec.europa.eu/enterprise/sectors/chemicals/reach/restrictions)	Multiple	Unless mentioned elsewhere: Declarable if intentionally added Impurities declarable above 1000 ppm	
A.2-4	REACH Substances of Very High Concern (SVHC) (found at echa.europa.eu/web/guest/candidate-list-table)	Multiple	Unless mentioned elsewhere: Declarable if intentionally added Impurities declarable above 1000 ppm by homogeneous material	
A.2-5	2-Butoxyethanol	111-76-2	Declarable if intentionally added Impurities declarable above 1000 ppm	
A.2-6	Acetaldehyde	75-07-0	Declarable if intentionally added Impurities declarable above 1000 ppm	Emitted substance from polymer components
A.2-7	Acetamide Acrylamide Dimethylformamide (N,N-Dimethylformamide) Methylacrylamidomethoxy-acetate Thioperoxydicarbonic diamide-([(H ₂ N)C(S)] ₂ S ₂), tetramethyl- (Thiram)	Multiple	Declarable if intentionally added Impurities declarable above 100 ppm	Solvent additive, stabilizer for softening agents Production of polyacrylamide (residual monomer)
A.2-8	Acrylonitrile	107-13-1	Declarable if intentionally added Impurities declarable above 1000 ppm	Production of plastics, resins and rubbers eg. ABS (residual monomer)
A.2-9	Alkylphenol ethoxylates, except Nonylphenol and octylphenol ethoxylates	Multiple	Declarable if intentionally added above 1000 ppm Impurities declarable above 1000 ppm	Surfactant
A.2-10	Aluminum and its compounds	Multiple	Declarable	Metals
A.2-11	Amines, aliphatic	Multiple	Declarable if intentionally added Impurities declarable above 100 ppm	
A.2-12	Ammonia	7664-41-7	Declarable if intentionally added Impurities declarable above 1000 ppm	

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Item	Substance Group	CAS No.	Threshold	Known Applications
A.2-13	Antimony and its compounds*	Multiple	Declarable if intentionally added Impurities declarable above 50 ppm	Flame retardant for plastics and rubber/latex, opacifier, friction material component
A.2-14	Aromatic compounds as monomers (except where listed separately)	Multiple	Declarable if intentionally added above 100 ppm Impurities declarable above 100 ppm	
A.2-15	Arsenic and its compounds*	Multiple	Declarable if intentionally added Impurities declarable above 0 ppm	Paints, smelted materials, biocides (including wood treatment), leather and textile finishes, glasses, pyrotechnic objects, metal finishes, electronics
A.2-16	Astatine and its compounds	Multiple	Declarable if intentionally added Impurities declarable above 1000 ppm	
A.2-17	Barium compounds (organic or water soluble)	Multiple	Impurities declarable above 100 ppm	Color pigments, stabilizers for PVC, lubricant additives
A.2-18	Beryllium and its compounds*	Multiple	Declarable if intentionally added Impurities declarable above 0 ppm	Electric contacts, relays and switches; electronics
A.2-19	Bismuth and its compounds	Multiple	Declarable if intentionally added Impurities declarable above 100 ppm	Solder
A.2-20	Bisphenol-A*	80-05-7	Declarable if intentionally added Impurities declarable above 25 ppm	Manufacture of polycarbonate
A.2-21	Boron and its compounds	Multiple	Declarable if intentionally added Impurities declarable above 1000 ppm	
A.2-22	Brominated flame retardants (not specified elsewhere)	Multiple	Declarable if intentionally added Impurities declarable above 900 ppm	Flame retardant
A.2-23	Bromine and chlorine combined*	Multiple	Declarable if intentionally added Impurities declarable above 1500 ppm	Flame retardants Colorants
A.2-24	Bromine and its compounds*	Multiple	Declarable if intentionally added Impurities declarable above 900 ppm	Flame retardant Colorant
A.2-25	Butadiene, 1,3 -	106-99-0	Declarable if intentionally added Impurities declarable above 1000 ppm	Manufacturing of synthetic rubber for tyres, as homopolymerisate (BR), as copolymerisate with Styrene (SBR) or Acrylonitrile (NR), starting product of Sulfolane, Chloroprene, Hexadamine, softeners, Tetrahydrophthalic acid anhydride, residual monomer in ABS
A.2-26	Chlorinated flame retardants	Multiple	Declarable if intentionally added Impurities declarable above 900 ppm	Flame retardant
A.2-27	Chlorinated Paraffines, Medium length (MCCP)* (C=14-17)	Multiple	Impurities declarable above 100 ppm	Flame retarding substances
A.2-28	Chlorine and its compounds*	Multiple	Declarable if intentionally added Impurities declarable above 900 ppm	Hardener or cross linking agent for polymers and epoxy resins Flame retardant
A.2-29	Chromium (III) and its compounds	Multiple	Declarable if intentionally added Impurities declarable above 100 ppm	

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Item	Substance Group	CAS No.	Threshold	Known Applications
A.2-30	Cobalt and its compounds	Multiple	Declarable if intentionally added Impurities declarable above 100 ppm	Hard metals, galvanic Zn-Co-plating, element in metals
A.2-31	Colophony (Rosin)	8050-09-7 148499-15-4	Declarable if intentionally added Impurities declarable above 1000 ppm	Solders, adhesives, sealants
A.2-32	Copper and its compounds	Multiple	Declarable if intentionally added Impurities declarable above 100 ppm	Metal strip, wire, components,
A.2-33	Diarsenic trioxide*	1327-53-3	Declarable if intentionally added	
A.2-34	Dibutyl phthalate	84-74-2	Declarable if intentionally added Impurities declarable above 1000 ppm	Plasticizier
A.2-35	Dimethyl ditallow ammonium chloride*	68783-78-8	Declarable if intentionally added	Surfactant
A.2-36	Ethylene alcohol	71767-64-1	Declarable if intentionally added above 1000 ppm Impurities declarable above 1000 ppm	
A.2-37	Ferrosilicon and alloys	Multiple	Declarable if intentionally added above 100 ppm Impurities declarable above 100 ppm	
A.2-38	Fibrous glass	Multiple	Declarable if intentionally added Impurities declarable above 1000 ppm	Plastic reinforcement
A.2-39	Fluorine and its compounds	Multiple	Declarable if intentionally added Impurities declarable above 1000 ppm	
A.2-40	Formic acid	64-18-6	Declarable if intentionally added Impurities declarable above 1000 ppm	
A.2-41	Gold and its compounds	Multiple	Declarable if intentionally added Impurities declarable above 100 ppm	
A.2-42	Hexamethylenetetramine	100-97-0	Declarable if intentionally added Impurities declarable above 0 ppm	
A.2-43	Hexane	92112-69-1	Declarable above 1000 ppm	
A.2-44	Hydrazine and its compounds	302-01-2	Declarable if intentionally added Impurities declarable above 1000 ppm	Residual monomers in plastics, pigments and adhesives, antioxidants stabilizing of Amines, Phenols, in oils, greases, natural latex; blowing agents for foamed plastics
A.2-45	Iodine and its compounds	Multiple	Declarable if intentionally added Impurities declarable above 1000 ppm	
A.2-46	Iron and its compounds	Multiple	Declarable if intentionally added above 100 ppm Impurities declarable above 100 ppm	
A.2-47	Long chain chlorinated paraffins (LCCP) (C=18-30)	Multiple	Declarable if intentionally added Impurities declarable above 1000 ppm	
A.2-48	Magnesium and its compounds	Multiple	Declarable if intentionally added above 100 ppm Impurities declarable above 100 ppm	
A.2-49	Manganese and its compounds	Multiple	Declarable if intentionally added Impurities declarable above 1000 ppm	
A.2-50	Methanol*	67-56-1	Declarable if intentionally added Impurities declarable above 1000 ppm	Window Washer fluid applications

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Item	Substance Group	CAS No.	Threshold	Known Applications
A.2-51	Methanediisocyanate (MDI)	101-68-8 2536-05-2 5873-54-1 26447-40-5	Declarable above 1000 ppm	
A.2-52	Methyl ethyl ketone Methyl isobutyl ketone	78-93-3 108-10-1	Declarable if intentionally added Impurities declarable above 1000 ppm	
A.2-53	Mineral fibres (Natural or Synthetic) except Continuous Filament Fibres*	Multiple	Declarable if intentionally added Impurities declarable above 100 ppm	Friction lining, screens, re-enforcements, insulation, cables
A.2-54	Molybdenum	7439-98-7	Declarable if intentionally added Impurities declarable above 1000 ppm	
A.2-55	Nickel and its compounds	Multiple	Declarable if intentionally added Impurities declarable above 0 ppm	Welding electrodes, flame spraying, special materials, component in metals
A.2-56	Nitrites	Multiple	Declarable if intentionally added Impurities declarable above 1000 ppm	Additives in engine coolants, vulcanising agents in rubber products, anticorrosion surface additive. Reaction product precursor for potentially carcinogenic N-nitroso- compounds
A.2-57	Nitrocellulose	9004-70-0	Declarable if intentionally added Impurities declarable above 1000 ppm	Pyrotechnical compound
A.2-58	Octachlorostyrene	8001-30-7	Declarable if intentionally added Impurities declarable above 1000 ppm	
A.2-59	Organic phosphorous compounds	Multiple	Declarable if intentionally added Impurities declarable above 100 ppm	
A.2-60	Organic silicon compounds	Multiple	Declarable if intentionally added above 100 ppm Impurities declarable above 100 ppm	
A.2-61	Other Organic Tin Compounds	Multiple	Declarable if intentionally added Impurities declarable above 1000 ppm	
A.2-62	Palladium and its compounds	Multiple	Declarable if intentionally added above 100 ppm Impurities declarable above 100 ppm	
A.2-63	Perfluoropolymers	Multiple	Declarable if intentionally added Impurities declarable above 1000 ppm	
A.2-64	Phenol	108-95-2	Declarable if intentionally added Impurities declarable above 1000 ppm	Residual monomer in phenolic resins, epoxy resins, anti-oxidant in phenol derivatives, decomposition product in polymeric materials, wooden materials and textiles
A.2-65	Phosphorus and its compounds*	Multiple	Declarable if intentionally added Impurities declarable above 1000 ppm	
A.2-66	Phosphorus flame retardants*	Multiple	Declarable if intentionally added Impurities declarable above 500 ppm	
A.2-67	Phthalates (all)*	Multiple	Declarable if intentionally added Impurities declarable above 0 ppm	Plasticizer
A.2-68	Polyamine curing agents	Multiple	Declarable if intentionally added Impurities declarable above 1000 ppm	

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Item	Substance Group	CAS No.	Threshold	Known Applications
A.2-69	Polyvinyl Chloride (PVC)*	9002-86-2	Declarable if intentionally added Impurities declarable above 0 ppm	Plastic covering of cable; boots/caps
A.2-70	Rare earth metals and their compounds	Multiple	Declarable above 100 ppm	
A.2-71	Rubidium and its compounds	Multiple	Declarable above 100 ppm	
A.2-72	Selenium and its compounds*	Multiple	Declarable if intentionally added Impurities declarable above 0 ppm	Photoelectronic device, Glass colorant and decolorant, Free-cutting steel, Semiconductor
A.2-73	Silver and its compounds	Multiple	Declarable if intentionally added above 100 ppm Impurities declarable above 100 ppm	
A.2-74	Styrene	100-42-5	Declarable if intentionally added Impurities declarable above 1000 ppm	Residual monomer in ABS-, Polystyrene-, SMC-, UPE-resin
A.2-75	Tantalum and its compounds	Multiple	Declarable if intentionally added Impurities declarable above 100 ppm	
A.2-76	Tellurium and its compounds	Multiple	Declarable if intentionally added Impurities declarable above 100 ppm	
A.2-77	Thallium and its compounds	Multiple	Declarable if intentionally added Impurities declarable above 100 ppm	Electric components, sensors
A.2-78	Tin and its compounds	Multiple	Declarable if intentionally added Impurities declarable above 100 ppm	
A.2-79	Toluene*	108-88-3	Declarable if intentionally added	Residues in adhesives and paints.
A.2-80	Trichloroethylene	79-01-6	Declarable if intentionally added Impurities declarable above 1000 ppm	
A.2-81	Tungsten and its compounds	Multiple	Declarable if intentionally added Impurities declarable above 100 ppm	
A.2-82	Vanadium	7440-62-2 1314-62-1	Declarable if intentionally added Impurities declarable above 1000 ppm	
A.2-83	Xylene	1330-20-7	Declarable if intentionally added Impurities declarable above 1000 ppm	
A.2-84	Zinc and its compounds	Multiple	Declarable if intentionally added Impurities declarable above 100 ppm	

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APPENDIX B

Packaging Prohibited and Declarable Substances

Molex consolidated legislation, industry standards, and customer-specific requirements into a single set of prohibited substances for packaging. For packaging to be compliant to legislation and customer requirements, it shall not contain prohibited substances over the maximum concentration value for each prohibited substance.

B.1 Prohibited Substances

Item	Substance/Material	CAS No.	Maximum Concentration Value
B.1-1	Lead, cadmium, mercury, and hexavalent chromium		Intentional addition banned Impurities prohibited above 100 ppm (the sum of lead, cadmium, mercury, and hexavalent chromium)
B.1-2	Expanded polystyrene (EPS)		Banned
B.1-3	Cobalt dichloride	7646-79-9	Banned
B.1-4	Dimethylfumarate		Banned
B.1-5	Polyurethan	68400-67-9	Banned

B.2 Phase-out Substances

Item	Substance/Material	Maximum Concentration Value
B.2-1	Polyvinyl chloride (PVC)	Molex and packaging suppliers shall gradually phase-out all use of PVC in packaging. Unless specified by Molex, PVC shall not be used.

B.3 Declarable Substances

All Substances on REACH SVHC Candidate List Declarable if intentionally added or as impurity above 1000 ppm in each homogeneous packaging material.

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