



Molex, LLC.
Product Stewardship

Molex Chemical Substances Specification For Products and Packaging: For Customers

Contents

- 1.0 Purpose
- 2.0 Scope
- 3.0 Revisions
- 4.0 Product Compliance Information
- 5.0 Molex Compliance Requirements
 - 5.1 Product Contents Definition
 - 5.2 Product Requirements
 - 5.3 Supplier Requirements
 - 5.4 Full Material Declaration
 - 5.5 Declaration of Non-Use
 - 5.6 Substance Testing
 - 5.7 XRF Screening
 - 5.8 Packaging Compliance Requirements
 - 5.9 Revisions to Specification
 - 5.10 Molex Specified Parts
 - 5.11 Customer Specified Parts
- 6.0 Definitions
- 7.0 Molex Resources
- 8.0 References

1.0 Purpose

This specification informs the customer on what product environmental information can be requested and the processes Molex used to ensure product compliance.

2.0 Scope

-
- Products:** This specification applies to the following product categories:
- a) 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 third parties specify the parts and materials such as customer-specified parts. 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.
-
- 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 evaluated against different legal, industry, and customer requirements than products.
-

3.0 Revisions

This document supersedes all previous revisions.

Revision:	F
Date of Release:	October 9 th , 2023
Revision Details:	4.0 – Added new regulation listings for PCD. Added chemSHERPA. 5.6 – Updated information on substance testing standards. 7.0 – Added Product Stewardship Data Download Center link. Added link to Molex customer portal. Expanded Molex chemical substances list .

4.0 Product Compliance Information

Customers may request any of the following product compliance information from Molex, many of which are available on the [Product Stewardship Data – Download Center](#). Customers are encouraged to download as many compliance documents as needed from this website.

4.1 Certification of Compliance to EU DIRECTIVE 2011/65/EU (RoHS)

This 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.

4.2 Low-Halogen Declaration

This document certifies that the items provided by Molex comply with the low-halogen (also known as halogen-free) substance restrictions in [Molex Chemical Substances List](#), or as specified by the customer, for each homogeneous material.

4.3 EU REACH Substances of Very High Concern (SVHC)

This document communicates the content of any SVHC above the REACH SVHC threshold per product, as per Article 33 (1) of Regulation (EC) No 1907/2006 (REACH).

4.4 Molex Product Compliance Declaration (PCD)

This is a standard Molex declaration that comprehensively includes the following information:

1. Contact information
2. General product information
3. Product composition
4. Legal / industry compliance information and statuses such as: EU RoHS, REACH (SVHC – Annex XIV, Annex XVII), Halogen-Free Low-Halogen, China RoHS, EU POP, and GADSL, and/or EU MDR

4.5 International Material Data System (IMDS)

Product environmental information submitted to automotive customers via the IMDS system.

4.6 China RoHS Labeling

Labeling information in accordance with SJ/T 11364-2014 (Marking for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Product).

4.7 IPC 1752A Class C & IPC 1752A Class D

Substance Declaration and Full Material Declaration (FMD) available in the form of IPC 1752A standard format.

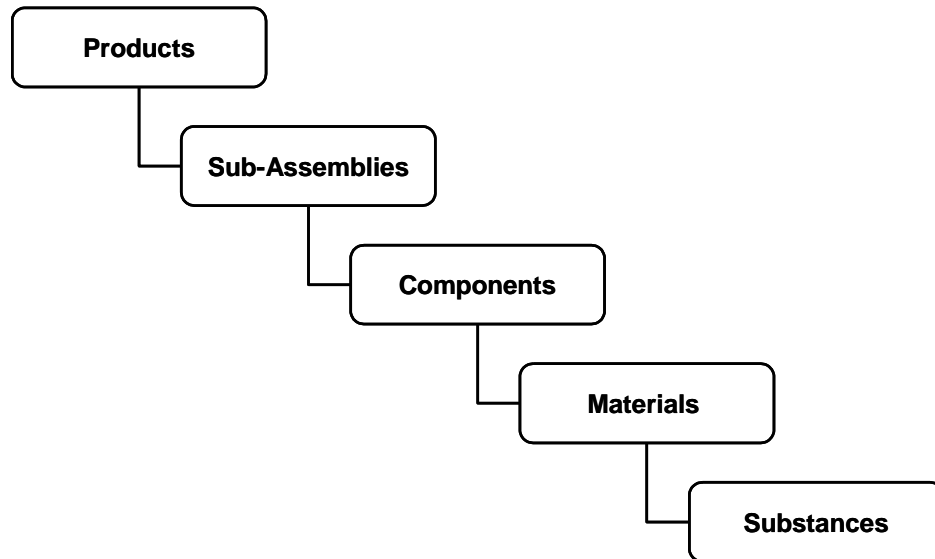
4.8 chemSHERPA

An industry-standard declaration following Japan's Joint Article Management Promotion-consortium (JAMP) requirements.

If additional forms not listed here are required, customers may request them through the [Molex customer portal](#), or contact their sales representative directly.

5.0 Molex Compliance Requirements

5.1 Product Contents Definition



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.

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).

Materials (Raw Materials) – Materials are the items of which something is composed or can be made (see also homogeneous materials below). Components may 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.

5.2 Product Requirements

No products provided by Molex shall contain any prohibited substance above the thresholds listed in [Molex Chemical Substances List](#) (intentionally added or as an impurity). No detectable level of banned substances is contained. Additional substance restrictions may apply, such as products must gradually phase out PVC, and be low-halogen or halogen-free. Exception to this specification shall be approved by Molex EHS only if it meets customer requirements.

5.3 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, full material declaration, declaration of non-use, and substance testing. In certain cases, based on business conditions, Molex shall contract third-party labs to obtain substance testing.

Molex terms and conditions require suppliers to provide advanced notice of any changes that would affect the environmental information they previously supplied. Annually, Molex suppliers of raw materials shall be required to confirm that previously submitted environmental information has not changed.

5.4 Full Material Declaration

A standard Full Material Declaration is provided to:

- Satisfy all legal requirements and most 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.
- Report on substance names and/or CAS numbers.
- Report on nominal OR minimum and maximum substance concentration levels in each homogeneous material.

Molex maintains substance information on all intentionally added substances, except that up to 5% 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 [Molex Chemical Substances List](#).

5.5 Declaration of Non-Use

Molex shall collect, store, and maintain substance information on the substances listed in [Molex Chemical Substances List](#). This information shall be used to complete the declarations of non-use form. Molex shall confirm that no homogeneous materials contain prohibited substances at a level that exceeds the listed MCVs. Also, Molex shall declare the level of declarable substances contained at the homogeneous material level for cases where the threshold is exceeded.

5.6 Substance Testing

Substance testing is used to verify that products comply with legal, industry, and customer requirements. Molex and its suppliers perform substance testing through ISO 17025 accredited laboratories and strictly followed the procedures specified in IEC 62321. 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.

5.7 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.

5.8 Packaging Compliance Requirements

Packaging compliance information is available to customer upon request. Molex packaging shall comply with the requirements established in EU Directive 1994/62/EC, and REACH Regulation 1907/2006, 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 [Molex Chemical Substances List](#).

5.9 Revisions to Specification

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.

5.10 Molex-Specified Parts

Component suppliers may not be required to submit FMD for any parts (products, sub-assemblies, components, or materials) which Molex specifies the materials and design, e.g., a molded part for which Molex specified the resin to be used. In this case, Molex may obtain environmental information directly from the material supplier(s), and the component supplier may be required to provide documentation as well (for example, declaration of non-use). Molex may require component suppliers to confirm that the parts, as supplied, are manufactured using the Molex-specified material(s).

5.11 Customer-Specified Parts

When customers require the use of components or materials from specific suppliers, and that the customer has requested Molex to manage EHS data, Molex shall request environmental information from those suppliers as necessary to satisfy the legal, industry, and customer requirements for environmental information for the products involved.

When customers require the use of components from specific suppliers, and that the customer has clearly communicated to Molex that EHS data for the customer-specified part is NOT required, then EHS data is not required. Since such components are out of scope of MCSS requirements, it cannot be allowed to be applied to general market products (custom product only, sold to a single customer). On that note, if the customer does not clearly waive the requirement with written communications, Molex must continue to manage EHS data, meaning collecting it from its supplier(s).

In the event a customer-specified supplier refuses to provide EHS information, Molex shall notify the customer and reserve the right to change to another supplier.

6.0 Definitions

Banned Substances

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

Chemical Abstract Service (CAS) Number

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

Contained In

This term refers to a situation where 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 of if the substance is intentionally added or an impurity.

Customer-Specified Parts

When customers require the use of components or materials from specific suppliers, Molex shall request environmental information from those suppliers as necessary to satisfy the legal, industry, and customer requirements for environmental information for the products involved. In the event a customer-specified supplier refuses to provide such information, Molex shall notify the customer and reserve the right to change to another supplier.

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.

Declaration of Non-Use (DoNU)

Supplements a full material declaration 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 the [Molex Chemical Substances List](#). 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.

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 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.

Full Material Declaration (FMD)

A Full Material Declaration (FMD) is like a bill of materials, but it contains the specific chemical substances that are intentionally used in the composition of the product or component. The FMD details the list of substances at the level of each homogeneous material. The FMD 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 FMD 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 FMD, but the remaining substances are declared (for example, hardened glue after the solvent evaporates). The FMD is used in conjunction with the declaration of non-use (see below) to determine if products comply with legal, industry, or customer environmental requirements.

Halogen

Halogen refers to substances: fluorine, chlorine, bromine, iodine, astatine, and their compounds. For example, chlorine and its compounds are considered halogens. The term "Halogen Free Low Halogen" (HFLH) is a Molex compliance requirement. Compliant with HFLH means that the product is either free of all halogen substances or is compliant with the industry standards: JS709C, JEDEC JEP 709, and IEC 61249-2. Not Compliant would mean the opposite. These substances are targeted for gradual phase out. For a more extensive list of these phase-out substances, refer to [MCSS Prohibited and Declarable Substances](#).

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 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.

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 full material declaration but shall be addressed in the declaration of non-use.

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 full material declaration.

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 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.

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.

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.

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.

7.0 Molex Resources

[Molex Chemical Substances List](http://www.molex.com/suppliers/images/CASNumberList_Search1.xlsx)

http://www.molex.com/suppliers/images/CASNumberList_Search1.xlsx

[Molex Customer Portal](https://molex.my.site.com/buy/s/)

<https://molex.my.site.com/buy/s/>

[Product Stewardship Data – Download Center](https://experience.molex.com/solutions/product-environmental-compliance-information/)

<https://experience.molex.com/solutions/product-environmental-compliance-information/>

8.0 References

China SJ/T 11364-2014

Marking for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Product (China RoHS Labeling)

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.

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.

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.

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).

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, Authorization, and restriction of Chemicals (REACH), as amended, including Regulation (EC) 1272/2008.

Global Automotive Declarable Substance List (GADSL)

<https://www.gadsl.org/>

IEC 62321 Electrotechnical Products

Determination of Levels of Six Regulated Substances (Lead, Mercury, Cadmium, Hexavalent Chromium, Polybrominated Biphenyls, Polybrominated Diphenyl Ethers)

IEC 62474 – Material Declaration for Products of And for The Electrotechnical Industry

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

International Material Data System (IMDS)

<https://public.mdssystem.com/en/web/imds-public-pages>

ISPM 15

International Standard for Phytosanitary Measures No. 15 With Modifications to Annex I (2006)