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## Supplier Requirements for Product Environmental Compliance

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### 1. SCOPE

At TE Connectivity (TE), we are committed to continuously reduce the negative impact our products and activities may have on human health and the environment, which includes avoiding the use of hazardous substances in our products and in our manufacturing processes. We have therefore created this **Supplier Requirements for Product Environmental Compliance specification** which covers TE's global supplier requirements baseline, along the entire supply chain, for 1) the elimination of “**Banned Substances**”, 2) the controlled usage of “**Restricted Substances**”, 3) the notification of the use/non-use of “**Declarable Substances**” (previously referred to as Substances of Concern), and 4) the **disclosure of material content** information.

These requirements are applicable to all substances, mixtures, consumable process materials, raw materials, components and/or (finished) articles/products (hereinafter referred to as parts), including packaging and samples, supplied to TE and all its companies and brands worldwide (hereinafter referred to as TE) (unless explicitly indicated otherwise) and to the applied manufacturing processes, as specified; regardless of where the products are manufactured, intended to be sold, or used. (Note: this specification is directed to all suppliers although some of the requirements may differ depending on the type of provided materials / goods (see section 4.1 for more details).

The listed requirements are derived from applicable laws and regulations, international treaties, and conventions, (industry) standards and (market-specific) requirements and TE policies (refer to the non-exhaustive list in section 6 *References*). Some of the listed requirements may go beyond the legislative requirements. However, to meet certain specific customer and industry requirements (e.g., product for Mil-Aero industry), TE recognizes the possible need for products containing hazardous substances (e.g., containing intentionally added lead or chromates). It is incumbent on suppliers to understand clearly TE's purchase order requirements for the part numbers ordered and to supply product to TE that is in accordance with the part drawing, applicable standard, and any specified requirements.

All suppliers shall comply with this specification and are expected to promptly provide Product Environmental Compliance information (preferable a Supplier (Full) Material Declaration), when the materials / parts display in **the digital platform** (e.g., Assent, IMDS, CDX, etc.) certifying that supplied materials / parts are in compliance with the listed requirements. It is the responsibility of the supplier to update this compliance information if the previously stated compliance status (must be) changed; either because of an erroneous initial assessment or due to changes in the legislation or due to product changes that have been approved by TE in accordance with the Change Procedure stated herein.

Suppliers shall, upon request from TE, provide documentation to demonstrate the basis for the Material Declaration supplied (e.g., with Product/Material Test reports).

In addition to requirements referenced in this document, all suppliers shall comply with:

- Any other legal and regulatory requirements applicable to any products provided to TE.
- Any additional legal regulatory or customer requirements (of which supplier is aware) when such requirements would apply to products sold by TE and into which supplier's products are incorporated. (Suppliers shall notify TE in writing of any such additional requirements (of which supplier is aware)).
- All regulatory requirements in jurisdictions in which they operate, manufacture, supply and maintain products as compliance with this specification does not release the supplier from the responsibilities given in other applicable legislation and/or specifications and has no impact on the duty of compliance with statutory requirements.

**i** **NOTE**

*TE reserves the right to make changes to this specification and specifications referenced herein. Hard copies of this specification may not be updated. The latest version of this document is available on the TE website at <https://supplier.te.com/web/supplier-portal/home>. Suppliers are responsible for ensuring that they are using the current version of this document. Suppliers shall specify any exceptions to the requirements of this document. Exceptions shall be in writing and must be approved by either a TE business unit Purchasing Manager or Global Commodity Manager in collusion with the relevant Product Environmental Compliance Lead(s).*

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Table 1

### 3. DEFINITIONS

- **Article** - An object which during production is given a special shape, surface or design which determines its function to a greater degree than its chemical composition. A manufactured object which meets the definition of an article does not cease to be an article when it is assembled or joined with other objects to form with them a complex product. In such a situation, that manufactured object remains an 'Article'. This is also known as the "O5A" rule – once an article, always an article.
- **Banned Substance** – A substance whose intentional use is not permitted in any quantity for all indicated applications is defined as a "**Banned Substance (B)**". If a threshold value is indicated, it applies only to impurities (not intentionally added) and the amount of the impurity of the substance must be less than the threshold value. If no threshold value is indicated, this implies that no impurities are allowed above the detectable limits of the valid test standards.

Banned Substances (B), with the indicated applications and the thresholds are listed in TE Hazardous Substance List (Tables 5.1 & 5.2)

- **COTS Part** (previously referred to as Type A Part) – TE purchased part / material, for which NONE of the materials / substances are "completely provided" or "precisely specified" by TE (see TSSM Part definition for the ONLY four scenarios of what constitutes "completely provided" or "precisely specified").

**COTS Part** is commonly referred to as a "**commercial item**" or "**off-the-shelf item**".

In certain cases, TE may "provide" or "precisely specify" ONLY a PORTION of the materials / substances of the part / material being supplied and the supplier specifies or purchases the remainder of the part. For the purposes of this specification, the part / material being supplied in these cases is (considered to be) a COTS part and the requirements for COTS part herein would apply to those portions of the part which are not "provided" or "precisely specified" via TE specification.

An example of this would be cable assemblies; where TE might provide certain components (such as connectors), where-as other components of the assembly (cable, etc.) would not be provided. The cable assemblies in these cases would be considered a COTS Part and the requirements for COTS part herein applies to the components not "provided" or "precisely specified" by TE.

 **NOTE:**

*This COTS Part definition does not alter the definition of "Commercial Product" or "Commercially available Off-the-Shelf (COTS) item" as defined by Federal Acquisition Regulation (FAR) Part 2 and Part 12, which is applicable to IS Government contractors and subcontractors. Please consult your TE Connectivity buyer for commercial item determinations, if applicable.*

- **Declarable Substance** (previously referred to as Substances of Concern (C)) - Certain substances in specific materials / parts supplied to TE that are required to be declared if present and whose use may be prohibited by TE due to TE policy or Industry-specific requirements, e.g., Halogens to support industry Low-Halogen initiatives. These “**Declarable Substances (D)**” are allowed unless explicitly restricted by TE via specification or Purchase Order. In anticipation of future restrictions, TE may request suppliers to eliminate usage of these substances following the *Change Procedure* outlined herein.

Declarable Substances (D), the indicated applications and the thresholds, are listed in TE Hazardous Substance List (Table 5.1 & 5.2).

- **Homogeneous Material** - One material of uniform composition throughout, or a material consisting of a combination of materials, that cannot be disjointed or separated into different materials by mechanical actions such as unscrewing, cutting, crushing, grinding and abrasive processes.

Examples include individual types of plastics, ceramics, glass, metals, alloys, paper, plating layer, board, resins, and coatings.

- 1) A plastic component is a “Homogeneous Material” assuming it is of uniform composition throughout and is neither coated with nor has any other material attached to it which can be mechanically disjointed or separated.
  - 2) An electrical component, such as a resistor, would consist of a variety of “Homogeneous Materials” that could include ceramic, the lead-frame alloy and any plating applied to the lead-frame. Each of these must be treated as a separate “Homogeneous Material”.
  - 3) TE requires that each plating layer or substrate metal is treated as an individual “Homogeneous Material” by TE suppliers.
- **Intentionally Added** - The deliberate use of a substance in the formulation of a material / part where the continued presence of the substance is needed to provide a specific characteristic, appearance or quality, or the substance is required in the manufacturing process to achieve certain functions. If a material is “Intentionally Added” at any point in the supply chain and remains in the product, it must be consistently treated as “Intentionally Added” through the final product assembly. Any catalysts or processing aids that are introduced during the manufacturing process and remain as part of the product are always considered “Intentionally Added”.
  - **Material** - Chemical compounds and mixtures that are supplied to produce parts. Examples of “Materials” are plastics/resins, metals, coatings, paint, adhesives, etc.
  - **Nano Material** - Nanomaterials are chemical substances or materials that are manufactured and used at a very small scale. On 10 June 2022, the new Recommendation (2022/C 229/01) on the definition of nanomaterial was presented. The new Recommendation supports a coherent European Union (EU) regulatory framework for nanomaterials, helping to align legislation across all sectors,

and introduces a new definition that replaces the initial definition of 2011. This new definition does not significantly affect the scope of identified nanomaterials; it still defines 'nanoscale' as the **size range from 1 nm to 100 nm** and states: 'Nanomaterial' means a natural, incidental or manufactured material consisting of solid particles that are present, either on their own or as identifiable constituent particles in aggregates or agglomerates, and where 50% or more of these particles in the number-based size distribution fulfil at least one of the following conditions: a) one or more external dimensions of the particle are in the size range of 1 nm to 100 nm; b) the particle has an elongated shape, such as a rod, fibre or tube, where two external dimensions are smaller than 100 nm and the other dimension is larger than 100 nm; c) the particle has a plate-like shape, where one external dimension is smaller than 100 nm and the other dimensions are larger than 100 nm. ([https://ec.europa.eu/environment/chemicals/nanotech/faq/definition\\_en.htm](https://ec.europa.eu/environment/chemicals/nanotech/faq/definition_en.htm))

- **O5A** – Once an Article, Always an Article. TE is requiring suppliers to follow the European Court of Justice ruling of 10 September 2015 and the revised ECHA Guidance, which state that, in the case of “complex articles”, the threshold for Substances of Very High Concern (SVHC) must be applied to both the product as a whole and simultaneously to each of the articles forming part of its composition.
- **Packaging** – Packaging shall mean all products (and their components) made of any materials of any nature to be used for the containment, protection, handling, delivery, and presentation of products to TE and/or customers. This includes of sales packaging or primary packaging, grouped packaging or secondary packaging and transport packaging or tertiary packaging (this does not include road, rail, ship, and air containers).
- **Part** - Mechanical parts, electrical devices or assemblies (including sub-parts), and components and/or products which are supplied to TE for use in their applications. REACH (Regulation (EC) 1907/2006) refers to these as *Articles*.
- **ppb** – Parts per billion by weight of a substance; equivalent to 1µg/kg or 0.001 mg/kg or 0.0000001 percent by weight. The formula for ppb calculation is  $1,000,000,000 \times \text{mass substance} / \text{mass Homogeneous Material}$
- **ppm** – Parts per million by weight of a substance; equivalent to 1mg/kg or 0.0001 percent by weight. The formula for ppm calculation is  $1,000,000 \times \text{mass substance} / \text{mass Homogeneous Material}$ .
- **Preparation** - A mixture or solution composed of two or more substances.

- **Process Change** - A process change is defined as any significant change to the manufacturing process, equipment modifications or replacements, changes to process parameters, the purchasing of materials from new sources, and process changes of subcontractors that could adversely affect form, fit, or function (including any change that will alter product content and/or environmental compliance status to the requirements listed in TE Hazardous Substance List) of the purchased material / part that has been accepted/approved by TE and/or our customer.
- **Restricted Substance** - Substances that are prohibited for intentional use unless expressly stipulated otherwise in a regulatory exemption or by written approval from TE (such as in a TE specification or a Purchase Order). If a threshold value is indicated, it applies only to impurities (not intentionally added) and the amount of the impurity of the substance must be less than the threshold value.

**Restricted Substances (R)**, with the indicated applications and the thresholds, are listed in TE Hazardous Substance List (Tables 5.1 & 5.2)

- **Substance** - A chemical element and its compounds in the natural state or obtained by any manufacturing process, including any additive necessary to preserve its stability and any impurity deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition. A substance is either a material or a constituent of a material. Most substances will have a unique Chemical Abstracts Service (CAS) Registry Number assigned to them.
- **Supplier of Direct materials / goods** – A supplier who delivers raw materials, components, or services used directly in the production of saleable items and suppliers of finished goods.
- **Supplier of Indirect materials / goods** – A supplier who delivers goods and/or services that are used by TE in the normal course of business (tools, machinery, supplies, computers, and consulting services, etc.). These goods and/or services are used indirectly to support operations (and as such do not end up in TE’s sellable products). TE expects that these indirect materials / goods also comply with all applicable legal and regulatory requirements.
- **Supplier Material Declaration** - A Full Material Declaration discloses all (100%) of the homogeneous materials that are found in the supplied materials / parts and all (100%) of the substances that are contained in those materials. Materials or substances (whether “Intentionally Added” or not) contained in materials / parts purchased by a supplier (and in turn incorporated into supplier’s products) must also be disclosed.

It is recognized that in certain situations, 100% disclosure by CAS Registry Number may not be feasible due to confidentiality or proprietary nature of the information. TE allows for a portion of the disclosure (up to 10%) to be considered confidential but requires that suppliers in those situations indicate the “non-use” of any of these (confidential) substances against TE’s Environmental Related

Substances List (Form 5081-2), meaning that if a confidential substance is found in the 5081-2 list, it must be declared. Follow TEC-238-41 Requirements for Documenting Environmental Related Substance in Full Material Declaration.

Note that the list of substances included in the Environmental Related Substances List (5081-2) is a more extensive list than those indicated in TE Hazardous Substance List herein.

- **TSSM** - TE Supplied or Specified Materials (TSSM) are purchased parts / materials, within which ALL materials / substances are either “completely provided” or “precisely specified” by TE. There are only four scenarios where a part / material could claim to be a TSSM Part.
  - 1) TE supplies ALL the materials for the purchased item - This would typically be an assembler where ALL components of assembly are provided to Supplier. The supplier adds nothing to the part that would impact the material content or compliance.
  - 2) Purchased part is a molded component (e.g., housing) - TE specifies the exact resin by its trade name, manufacturer, grade, colorant, regrind, etc., and typically by a TE part number.
  - 3) Purchased part is a stamped, formed or machined metal (e.g., contact) - TE exactly specifies the metal content by a 100 Series Material Specification.
  - 4) Purchased part is a plated metal component (e.g., contact) - TE either provides the unplated component or exactly specifies the metal content per a 100 Series Material Specification **and** the plating deposit is exactly specified by a 112 Series Finish Specification.

**i** **NOTE**

*Certain parts provided by a Supplier may be a COTS Part while other parts supplied by the same Supplier may be a TSSM Part. It is important that suppliers understand which Type(s) of parts/materials are being provided to TE and conforms to the requirements for that Type(s). For more clarification see supplier responsibilities under 4.1.*

#### 4. REQUIREMENTS

It is the duty of all Suppliers delivering materials / parts to TE to comply with the requirements in this specification. TE also expects that materials / parts (as well as their ingredients) used by the supplier comply with all regulatory requirements in jurisdictions in which they operate, manufacture, supply and maintain products as compliance with this specification does not release the supplier from the responsibilities given in other applicable legislation and/or specifications and has no impact on the duty of compliance with statutory requirements governing the environment, safety, and recycling.



#### 4.1. Requirements dependent on the Type of Supplied Parts

- For COTS Parts ONLY

It is the responsibility of the direct supplier (Tier 1) to TE to ensure compliance to the TE Hazardous Substance List.

The direct supplier is responsible for declaring the compliance of any materials / parts provided regardless of where the intentional additions or trace amounts were introduced into the supply chain.

The direct supplier is also responsible for providing the material content information of such materials / parts when TE requests full material disclosure (Supplier Material Declaration).

- For TSSM Parts ONLY

All materials / parts supplied to TE shall be in conformance with the applicable TE specification(s) specifying material content and compliance requirements.

Suppliers are required to supply product that is in conformance with the Requirements defined on the Purchase Order or other appropriate documents and the Global Terms and Conditions of Purchase. There may be numerous specifications associated with a Purchase Order.

Suppliers of materials / parts to TE shall provide a statement in a manner prescribed by TE certifying supplied materials / parts exactly conform to the TE specification, and that no substances have been added during any manufacturing process that are banned or restricted per TE Hazardous Substance List without the written approval of TE.

- For products / materials that are a combination of COTS and TSSM Parts

In the case that TE ONLY “provides” or “precisely specifies” a PORTION of the materials / substances of the product being supplied, and the supplier specifies or purchases the remainder of the product. The supplier of the product is ONLY responsible for declaring the compliance of the materials / parts he specifies or purchases. For the portions of the products which are not “provided” or “precisely specified” via TE specification the direct supplier is responsible for providing the material content information of such materials / parts when TE requests full material disclosure (Supplier Material Declaration).

An example of such a product would be a cable assembly, where TE might provide certain components (such as connectors), where-as other components of the assembly (cable, etc.) would not be provided.

#### 4.2. Change Procedure

TE must ensure that its customers receive product that is consistent with drawings, product specifications, and inherent performance requirements. To facilitate this requirement for consistency, TE requires that the supplier provides prior written notice to the buyer/ authorized purchasing personnel when product (incl. materials), process or manufacturing location changes are proposed (see section 3 for definition of

a Process Change). Changes that may, in TE's guidance, adversely impact form, fit, function, including any change that will alter product content and/or environmental compliance status to the requirements listed in TE Hazardous Substance List must be pre-approved. The responsible buyer / authorized purchasing personnel must be contacted at least one hundred eighty (180) calendar days prior to any changes being implemented (unless there is a different requirement per Business Unit). The planning and strategy of any agreed changes will be done in strict co-ordination with the TE buyer / authorized purchasing personnel. Changes to product content or process should not be implemented until TE approval is given.

If such a change is approved in writing by TE, the supplier may be required to issue a new part number for the re-formulated material / part and, for COTS Parts only, provide a new Supplier Material Declaration, as requested.

**i** **NOTE**

*Besides the requirements listed under 4.1 & 4.2, all other requirements listed under section 4 are applicable to both COTS and TSSM Parts.*

#### 4.3. Product Labeling and Marking

In addition to the labelling and marking (such as CE marking) required by legislations, or labelling conforming with the corresponding substance requirements in TE's Hazardous Substance List, TE may require that certain materials / parts have additional labelling. If additional labelling is required this will be communicated via the purchase order, product drawings, TE Packaging and Marking requirements or material specifications.

Examples of such additional required labelling are:

- EU RoHS (2011/65/EU) Labeling
  - 1) TE may require that certain materials / parts are labeled to indicate compliance with the RoHS restricted substances (Annex II). The label (format and content) would be as defined herein, or per another mutually agreeable labeling standard.

Label Content :

**“2011/65/EU substance comp” or “Directive 2011/65/EU Substance Compliant”**

The Label shall be applied on the product label – either printed as an integral part of the label or as a sticker applied to the label. Labeling on inner unit package is encouraged wherever feasible; at a minimum, this identification shall be placed on the outer shipping container. The label should be printed in reverse color printing.

- 2) For certain materials / components that TE uses to build into products “in scope” of EU RoHS (2011/65/EU), TE may require a CE Mark (EC No 765/2008) beyond the legal CE mark requirement. Wherever feasible, CE Marking should be on the product, such as by molding;

at a minimum, this identification shall be placed on the shipping container for all saleable products, whether subassemblies or finished product, either printed as an integral part of the label or as a sticker applied to the label.



Figure 1

- China RoHS (MIIT 2016 No.32) Labeling

For certain materials / parts, TE may require, beyond the legal requirement, that the China RoHS label (composed of a recycling symbol for Environmental Friendly Use Period (EFUP) and a RoHS Hazardous Substances chart) be provided as part of the product label. For materials / parts with all six hazardous substances below their respective threshold in accordance with GB/T 26572-2011, the EFUP symbol in Figure 2 shall be used; otherwise (including cases when exemptions are applied), the EFUP symbol in Figure 3 shall be used (Figure 3 depicts an EFUP symbol with a value of 50 years as the example. For the numbering rule to determine the EFUP value, reference SJ/T11388-2009).

The requirements are described in the People's Republic of China Electronic Industry Standard SJ/T 11364-2014. Suppliers shall be aware of and follow this specification, as applicable.

The China RoHS label shall be applied on the product label – either printed as an integral part of the label or as a sticker applied to the label.



Figure 2



Figure 3

- EU WEEE (2012/19/EU) Marking

EU Directive 2012/19/EU (WEEE) requires that any finished EEE in scope shall bear a marking indicating separate collection for EEE. The marking consists of the crossed-out wheeled bin, as shown below in Figure 4. In certain cases (e.g., where TE is the importer or reseller of the WEEE relevant product into the EU) where Suppliers have no legal requirement under WEEE, TE may request that the product be marked with the WEEE logo in accordance with the Directive.



Figure 4

- Recycling labeling

Recycling Labeling requirements apply to suppliers that provide TE packaging materials and suppliers whose packaging materials are used to supply products/materials to TE that could ultimately reach TE customers. The Recycling Labeling requirements are per Packaging Standard TEC-207-14.

#### 4.4. Product Certification

If, beyond what is legally required, Product Certification documents are needed, this will be communicated via drawing, specification or expressly included in Purchase Order instructions. Such documents can be for China RoHS the Supplier's Declaration of RoHS conformity or China RoHS Voluntary Certificate; for EU RoHS a Technical File needed to support TE's preparation of a Declaration of Conformity.

#### 4.5. Hazardous Substance Management System (incl. Testing) and Document Retention

It is TE's expectation that Suppliers maintain a Hazardous Substance Process Management (HSPM) System such as IECQ QC080000, that seeks to minimize or eliminate the production of hazardous substances, to demonstrate that Suppliers are committed to ensuring the sustainability of the environment. The system may be structured to complement any existing management systems in place, such as ISO 9001.

This system should include routinely testing and auditing (validation) the supply chain for the material content in products purchased by TE. This should ensure that no discrepancies are discovered at TE, and that all ensuing consequences can be avoided. TE reserves the right to request suppliers to provide detailed verifications about ongoing testing and auditing of the supply base to ensure compliance with this specification.

Suppliers may be requested to provide test reports (at their expense) demonstrating compliance with this specification.

The supplier is responsible for assuring the validity of the provided test report and must meet the following requirements:

- All tests shall be performed in ISO 17025 certified test laboratories, whose accredited testing scope includes the subject tested substances, or other TE approved laboratory.
- All tests should be performed using methods referenced in relevant technical standards such as for RoHS restricted substances: IEC 62321; for Low Halogen compounds: EN 14582:2016, EPA SW-846 5050/9056.

- Tests should be performed on homogeneous materials (if possible). TE requires that each plating layer or substrate metal is treated as an individual homogeneous material by TE suppliers whenever handling TE test request.
- All test reports should contain:
  - 1) Date of test report, name and location of test laboratory.
  - 2) Information to correlate test sample with supplier part number and TE part number with a serial number, revision, lot, or batch number.
  - 3) Description of test sample as well as actual tested part.
  - 4) The analytical test method used for each sample.
  - 5) Test results should include actual measured amount, and TE limits specified in this specification or the applicable regulation threshold. The test results should indicate pass or fail (or inconclusive for XRF only). Test method detection limit and calibration to the substance tested should also be shown.
  - 6) A photograph highlighting the actual tested part of the sample is recommended.

Test reports may be requested to be updated periodically.

In addition to being compliant with the requirements of this specification, all Suppliers are expected to:

- Comply with Quality Specification TEC-1005: Total Quality Management Requirements for Suppliers, or a TE Business Unit equivalent.
- Permit representatives and customers of TE and applicable regulatory agencies access to the supplier's premises (and the premises of the supplier's subcontractors and suppliers) for the purpose of evaluating the supplier's facilities, processes, goods, HSPM system and records.
- Maintain records (conforming to Quality Specification TEC-1005 or equivalent) for each of the materials / parts supplied.
- Notify TE promptly if nonconforming part/material has been shipped to TE and take necessary actions (conforming to TEC-1005 or equivalent).

#### **4.6. Disclosure of material content information**

TE prefers to receive Full Material Declarations (Supplier Material Declaration – see definitions sections for more details) on materials / parts provided to TE.

Supplementing standard TEC-238-41 defines the requirements and process for documenting Product Environmental Compliance (PEC) related substances in a Full Material Declaration (FMD) for all raw materials and purchased components that may end up in TE products.

Important to know is that a substance should be declared as it exists in the final product state delivered to TE i.e., only those substances that are or are anticipated to be present in the final part should be declared (e.g.: substance(s) become part of the final plating, lubricant solids, a hardened adhesive, etc.). If a declaration is to be made in a different stage and further changes could take place on substance ingredients (e.g.: reactants before chemical reaction such as uncured silicone or epoxy, or volatile solvent that will evaporate and not remain in final product state), it will be rejected by TE after data validation. After submission, if there is any change to the materials and/or mass of a product's components e.g., because of an engineering change, or if any hidden proprietary substance becomes a regulatory banned or restricted or declarable substance (such as RoHS and REACH SVHC), requires that supplier immediately updates the information provided previously to TE and gets written approval. Follow above mentioned 4.2. Change Procedure.

TE requires suppliers to submit a FMD in the format of IPC1752 standard and using Assent Materials Declaration Tool. Supplier could either create a FMD online using Materials Declaration tool or upload an existing IPC1752 xml file generated by other tools used by supplier.

## 5. TE HAZARDOUS SUBSTANCE LIST

This TE Hazardous Substance List contains all substance(s)(groups) that are banned (B), restricted (R) or are declarable (D) in alphabetical order. These requirements are applicable to all substances, mixtures, consumable process materials, raw materials, components and/or (finished) articles/products, including packaging, supplied to TE (unless explicitly indicated otherwise) and to the applied manufacturing processes, as specified; regardless of where the products are manufactured, intended to be sold, or used.

When a substance is listed in the below table with a CAS number, then the requirement applies to the substance with that specific CAS number only. For substances without a specific CAS number, refer to TE's Environmental Related Substances List (5081-2) to find individual substances within that substance category.

When the references indicate Industry Requirement (e.g., Halogens to support industry Low-Halogen initiatives) these requirements will be explicitly communicated via product drawing, specification, or purchase order instructions.

When Substances with classification of Declarable (D) are restricted by certain Industry Requirements, these restrictions are in addition to the basic requirements defined under classification of Restricted Substance (R). For example, basic requirement for Lead / Lead Compounds in parts and materials are 1000ppm per homogeneous materials, while certain Industry requirements may require 100ppm per plastic material.

### 5.1. In Products

SUBSTANCE (GROUP)	CAS No.	CLASSIFICATION	THRESHOLD	SCOPE / APPLICATION(S)	REFERENCES
2,4,6-Tri-t-Butylphenol (2,4,6-TTBP)	732-26-3	B	Intentionally added	Antioxidant and lubricating and fuel oils	JAPAN REACH
			0.3 % by weight of product	Chemical products	US TSCA
2-Methoxyethanol	109-86-4	B	Intentionally added	All, except packaging	US TSCA CEPA 1999
Alkanes C10-C13, chloro (short-chain chlorinated paraffins) (SCCPs)	85535-84-8 Several	B	1500ppm by weight	All	Stockholm Convention 2019/1021/EU (POPs) China New pollutants

SUBSTANCE (GROUP)	CAS No.	CLASSIFICATION	THRESHOLD	SCOPE / APPLICATION(S)	REFERENCES
<b>Animal byproducts</b>	/	D	Intentionally added	All, except packaging	EU No 722/2012
<b>Antimony/Antimony compounds</b>	Several (see 5081-2)	D	1000ppm per homogeneous materials	All, except packaging	Industry Requirement
<b>Any other substances not listed in this specification, but covered by TE 5081-2 Environmental-Related Substances List</b>	Several (see 5081-2)	D	Detectable levels per homogeneous materials	All, except packaging	Industry Requirement
<b>Arsenic/Arsenic Compounds</b>	7440-38-2	B	Intentionally added	Wood and Wood Packaging materials	REACH Annex XVII
	Several (see 5081-2)	D	1000ppm per homogeneous materials	All, except semiconductors, metal alloys and packaging	Industry requirement
<b>Asbestos</b>	1332-21-4 12001-28-4 12001-29-5 12172-73-5 77536-66-4 77536-67-5 77536-68-6 132207-32-0	B	1000ppm by weight of product	All, except packaging	REACH Annex XVII
<b>Benzenamine, N-phenyl-, reaction products with styrene and 2,4,4-trimethylpentene (BNST)</b>	68921-45-9	B	Intentionally added	All, except for additive in rubber and packaging	CEPA 1999
<b>Beryllium/Beryllium Compounds</b>	Several (see 5081-2)	D	1000ppm per homogeneous materials	All, except packaging	Industry Requirement



SUBSTANCE (GROUP)	CAS No.	CLASSIFICATION	THRESHOLD	SCOPE / APPLICATION(S)	REFERENCES
<b>Biocides (any) used in treatment of wood packaging or transport material not approved In EU Biocides Directive or other local legislation</b>	Several	B	Intentionally added	Packaging and packaging components	Industry Requirement
<b>Bis(2-ethylhexyl) phthalate (DEHP)</b>	117-81-7	R	1000ppm per homogeneous materials	All, except packaging and batteries	2011/65/EU (RoHS)
<b>Bisphenol A (BPA) Derivates or any material containing BPA</b>	80-05-7 several	D	Intentionally added	All, except packaging	Industry Requirement
<b>Bromine</b>	7726-95-6	D	900ppm per homogeneous materials	All, except packaging	Industry Requirement Low Hal
<b>Brominated compounds (other than flame retardants)</b>	Several (see 5081-2)	D	900ppm per homogeneous materials	All, except packaging	Industry Requirement Low Hal
<b>Brominated Flame Retardants (other than PBBs, PBDAs or HBCDDs)</b>	Several (see 5081-2)	D	900ppm per homogeneous materials	All, except packaging	Industry Requirement Low Hal
<b>Butyl Benzyl Phthalate (BBP)</b>	85-68-7	R	1000ppm per homogeneous materials	All, except packaging and batteries	2011/65/EU (RoHS)
<b>Cadmium</b> <b>Cadmium Compounds</b>	7440-43-9 Several (see 5081-2)	R	100ppm per homogeneous materials	All except - packaging - batteries	2011/65/EU (RoHS) China RoHS 2 (MIIT 2016 No.32) 2000/53/EC (ELV)
			5ppm by weight of Battery	All batteries (cells and packs)	2006/66/EC (Battery)
		D	2ppm per homogeneous materials	Wood and wooden materials	Industry Requirement

SUBSTANCE (GROUP)	CAS No.	CLASSIFICATION	THRESHOLD	SCOPE / APPLICATION(S)	REFERENCES
			5ppm per homogeneous materials	Plastic, rubber, ink, pigment, paint, dyes	
			20ppm per homogeneous materials	Solder materials, plating, surface coating	
			50ppm per homogeneous material	Metal materials	
<b>Chlordecone</b>	143-50-0	B	Intentionally added	All	Stockholm Convention 2019/1021/EU (POPs)
<b>Chlorinated Flame Retardants</b>	Several (see 5081-2)	D	900ppm per homogeneous materials	All, except packaging	Industry Requirement Low Hal
<b>Chlorinated Organic Solvents</b>	Several	D	Intentionally added	Detergents, cleaning agents, degreasers, adhesive	Industry Requirement
<b>Chlorine Compounds (other than flame retardants)</b>	Several (see 5081-2)	D	900ppm per homogeneous materials	All, except packaging	Industry Requirements Low Hal
<b>Chromium VI Compounds</b>	Several (see 5081-2)	R	1000ppm per homogeneous materials	All, except packaging and batteries	2011/65/EU (RoHS) China RoHS 2 (MIIT 2016 No.32) 2000/53/EC (ELV)
		D	Intentionally added or 500ppm per homogeneous materials	All, except packaging and batteries	Industry Requirement
<b>Decabromodiphenyl ethane (DBDPE)</b>	84852-53-9	D	Intentionally added	All, except packaging	CEPA 1999

SUBSTANCE (GROUP)	CAS No.	CLASSIFICATION	THRESHOLD	SCOPE / APPLICATION(S)	REFERENCES
<b>Dechlorane Plus</b>	13560-89-9	D	Intentionally added	All, except packaging	CEPA 1999 China New pollutants
<b>Dibutylphthalate (DBP)</b>	84-74-2	R	1000ppm per homogeneous materials	All, except packaging and batteries	2011/65/EU (RoHS)
<b>Diisobutyl phthalate (DIBP)</b>	84-69-5	R	1000ppm per homogeneous materials	All, except packaging and batteries	2011/65/EU (RoHS)
<b>Dimethyl Fumarate (DMF)</b>	624-49-7	R	0.1ppm by weight of product	Packaging or packaging components	REACH Annex XVII
<b>Dodecachloropentacyclo 1, 3, 4-Metheno-1H-cyclobuta(cd)pentalene, Mirex</b>	2385-85-5	B	Intentionally added	All	Stockholm Convention 2019/1021/EU (POPs)
<b>Endosulfan</b>	115-29-7 959-98-8 33213-65-9	B	Intentionally added	All	Stockholm Convention 2019/1021/EU (POPs)
<b>Expanded polystyrene (EPS)</b>	9003-53-6	R	Intentionally added	Packaging and packaging components, EPS loose fill (EPS Peanuts) as a fill agent	California Assembly Bill No 3025 Industry Requirement
		D	Intentionally added	Packaging and packaging components	Industry Requirement
<b>Flame Retardants (containing phosphorus), selected</b>	Several (see 5081-2)	D	1000ppm per homogeneous materials	All, except packaging	Industry Requirement TSCA
<b>Fluorinated Flame Retardants</b>	Several (see 5081-2)	D	900ppm per homogeneous materials	All, except packaging	Low Hal
<b>Fluorinated Greenhouse Gases Compounds (HFC, PFC, SF6, etc.)</b>	Several (see 5081-2)	B	Intentionally added	All	EU No 517/2014 (GHG)

SUBSTANCE (GROUP)	CAS No.	CLASSIFICATION	THRESHOLD	SCOPE / APPLICATION(S)	REFERENCES
<b>Fluorine Compounds (other than flame retardants)</b>	Several (see 5081-2)	D	900ppm per homogeneous materials	All, except packaging	Industry Requirement Low Hal
<b>Formaldehyde</b>	50-00-0	B	Intentionally added	Composite Wood products or wood components and packaging	ChemVerbotsV Industry Requirement
			75ppm by weight of product	Textile product and packaging	Austria BGBl 1990/194
		D	Intentionally added	Detergents, cleaning agents and polishes	Austria BGBl 1990/194 Industry Requirement
<b>Heavy Metals (Cadmium + Lead + Hexavalent Chromium +Mercury)</b>	7440-43-9 7439-92-1 18540-29-9 7439-97-6	R	100ppm combined total by weight	Packaging and packaging materials	94/62/EC
<b>Hexabromobiphenyl</b>	36355-01-8	B	Intentionally added	All	Stockholm Convention 2019/1021/EU (POPs)
<b>Hexabromocyclododecane (HBCDD)</b>	25637-99-4 3194-55-6 134237-50-6 134237-51-7 134237-52-8	B	100ppm by weight	All	Stockholm Convention 2019/1021/EU (POPs)
<b>Hexachlorobenzene</b>	118-74-1	B	Intentionally added	All	Stockholm Convention 2019/1021/EU (POPs)

SUBSTANCE (GROUP)	CAS No.	CLASSIFICATION	THRESHOLD	SCOPE / APPLICATION(S)	REFERENCES
<b>Hexachlorobutadiene (HCBD)</b>	87-68-3	B	Intentionally added	All except for burning as waste fuel	Stockholm Convention 2019/1021/EU (POPs) US TSCA
<b>Hexachlorocyclohexanes, including lindane</b>	608-73-1 58-89-9 319-85-7 319-84-6	B		All	Stockholm Convention 2019/1021/EU (POPs)
<b>Latex</b>	/	D	Intentionally added	All, except packaging	Industry Requirement
<b>LC-PFCAs (C9-C21)</b>	Several (see 5081-2)	D	1 ppm	All, except packaging	CEPA 1999
<b>C9 – C14 PFCAs their salts and related substances</b>	Several (see 5081-2)	R	25 ppb by weight of article 260 ppb sum of related substances	All, except packaging	ORRChem
<b>Lead</b> <b>Lead Compounds</b>	7439-92-1 Several (see 5081-2)	R	1000ppm per homogeneous materials	All except - packaging - batteries - surface contact layer of cables or cords with thermoset or thermoplastic coatings	2011/65/EU (RoHS) China RoHS 2 (MIIT 2016 No.32) 2000/53/EC (ELV)
			300ppm by weight of surface coating	surface contact layer of cables or cords with thermoset or thermoplastic coatings	CA Prop 65
			40ppm by weight of battery	All batteries (cells and packs)	2006/66/EC (Battery)

SUBSTANCE (GROUP)	CAS No.	CLASSIFICATION	THRESHOLD	SCOPE / APPLICATION(S)	REFERENCES
		D	90ppm per homogeneous materials	wood and wooden materials	Industry Requirement
			100ppm per homogeneous materials	Paint, Plastic, rubber, ink, pigment, dyes, non-metallic and non-ceramic coatings	
			500ppm per homogeneous material	Solder materials, Metal materials	
<b>Mercury</b> <b>Mercury Compounds</b>	7439-97-6 Several (see 5081-2)	R	1000ppm per homogeneous materials	All, except packaging and batteries	2011/65/EU (RoHS) China RoHS 2 (MIIT 2016 No.32) 2000/53/EC (ELV)
			5ppm by weight of battery	All batteries	2006/66/EC (Battery)
		D	Intentionally added or 50ppm per homogeneous materials	All, except packaging and batteries	Industry Requirement
<b>MOAH containing 1 to 7 aromatic rings</b>	several	B	1.0% w/w (1000 ppm)	Inks on packaging and for printing intended for the public	French Mineral Oil Decree
<b>MOSH containing 16 to 35 carbon atoms</b>	several	B	0.1% w/w (1000 ppm)	Inks on packaging and for printing intended for the public	French Mineral Oil Decree
<b>Nano materials</b>	several	D	Intentionally added	All	Industry Requirement
<b>N,N'-Di-2-tolyl-1,4-phenylenediamine</b>	15017-02-4	B	Intentionally added	Rubber anti-aging agent and Styrene-butadiene rubber	Japan REACH (Kashin-Ho CSCL)
<b>N,N'-Di-4-tolyl-1,4-phenylenediamine</b>	620-91-7	B	Intentionally added	Rubber anti-aging agent and Styrene-butadiene rubber	Japan REACH (Kashin-Ho CSCL)

SUBSTANCE (GROUP)	CAS No.	CLASSIFICATION	THRESHOLD	SCOPE / APPLICATION(S)	REFERENCES
<b>N,N'-ditolyl-p-phenylenediamin</b>	27417-40-9	B	Intentionally added	Rubber anti-aging agent and Styrene-butadiene rubber	Japan REACH (Kashin-Ho CSCL)
<b>N,N'-dixyl-p-phenylene diamine</b>	70290-05-0	B	Intentionally added	Rubber anti-aging agent and Styrene-butadiene rubber	Japan REACH (Kashin-Ho CSCL)
<b>N-Nitrosodimethylamine</b>	62-75-9	B	Intentionally added	All, except packaging	CEPA 1999
<b>Ntolyl-N'-xylyl-p-phenylenediamine</b>	28726-30-9	B	Intentionally added	Rubber anti-aging agent and Styrene-butadiene rubber	Japan REACH (Kashin-Ho CSCL)
<b>Tri-substituted organostanic compounds, Dibutyltin (DBT) compounds</b>	Several (see 5081-2)	B	1000 ppm per homogeneous materials for DBT, intentionally added for the rest	All, except packaging	REACH Annex XVII
<b>Ozone Depleting Substances (CFC, Halon, HFBC, HCFC &amp; others)</b>	Several (see 5081-2)	B	Intentionally added	All	ODS Montreal Protocol
<b>Pentachlorobenzene</b>	608-93-5	B	Intentionally added	All	Stockholm Convention 2019/1021/EU (POPs)
<b>Pentachlorothiophenol (PCTP)</b>	133-49-3	B	0.1 % by weight of product	All, except packaging	US TSCA
<b>Pentachlorophenol and its salts and esters</b>	87-86-5 And others	B	Intentionally added	All	Stockholm Convention 2019/1021/EU (POPs)
<b>Perchlorate Compounds</b>	Several (see 5081-2)	B	6ppb by weight of product	All, except packaging	California Perchlorate Contamination Prevention Act
<b>Per- and polyfluoroalkyl substances (PFAS)</b>	Several (see 5081-2)	R	Intentionally added	Packaging and Packaging components	US TPCH

SUBSTANCE (GROUP)	CAS No.	CLASSIFICATION	THRESHOLD	SCOPE / APPLICATION(S)	REFERENCES
		D	Intentionally added	All, except packaging	Industry requirement
<b>Perfluorohexane sulfonic acid (PFHxS) its salts and related substances</b>	355-46-4 and others	R	25 ppb per Homogeneous materials 1000 ppb sum of related substances	All	Stockholm Convention China New pollutants ORRChem
<b>Perfluorooctane sulfonic acid and its derivatives (PFOS)</b>	Several (see 5081-2)	B	10ppm by weight in substances and mixtures  1000ppm per homogenous material in articles  or 1ug/m2 per coated material	All	Stockholm Convention 2019/1021/EU (POPs) ORRChem China New pollutants
<b>Perfluorooctanoic acid (PFOA), its salts and PFOA-related compounds</b>	Several (see 5081-2)	B	PFOA or any of its salts: 0.025 ppm per homogenous materials  PFOA-related compound or a combination of PFOA-related compounds: 1 ppm per homogenous materials	All	Stockholm Convention 2019/1021/EU (POPs) ORRChem China New pollutants
<b>Phenol, isopropylated, phosphate (3:1) (PIP (3:1))</b>	68937-41-7	B	Intentionally added	All, except packaging	US TSCA
<b>Phenol, 2-(2H-benzotriazol-2-yl)- 4,6-bis(1,1-dimethylpropyl) (UV-328)</b>	25973-55-1	B	Intentionally added	All, except packaging	Future Stockholm Convention
<b>Phthalates (Other than BBP, DBP,DEHP,DIBP)</b>	Several (see 5081-2)	D	1000ppm per homogeneous materials	All, except packaging and batteries	Industry Requirement
<b>Polybrominated Biphenyls (PBB)</b>	Several (see 5081-2)	R	1000ppm per homogeneous materials	All	2011/65/EU (RoHS)  China RoHS 2 (MIIT 2016 No.32)



SUBSTANCE (GROUP)	CAS No.	CLASSIFICATION	THRESHOLD	SCOPE / APPLICATION(S)	REFERENCES
<b>Polybrominated Diphenyl Ethers (PBDE)</b>	Several (see 5081-2)	R	1000ppm per homogeneous materials	All, except packaging and batteries	2011/65/EU (RoHS) China RoHS 2 (MIIT 2016 No.32)
<b>Polychlorinated Biphenyls (PCB)</b>	1336-36-3 and others	B	Intentionally added	All	Stockholm Convention 2019/1021/EU (POPs)
<b>Polychlorinated and polybrominated dioxins and furans</b>	Several (see 5081-2)	B	Intentionally added	All, except packaging and batteries	ChemVerbotsV
<b>Polychlorinated dibenzo-p-dioxins (PCDD) and polychlorinated dibenzofurans (PCDF)</b>	Several (see 5081-2)	B	Intentionally added	All	Stockholm Convention 2019/1021/EU (POPs)
<b>Polychlorinated Naphthalenes (PCNs)</b>	Several (see 5081-2)	B	Intentionally added	All	Stockholm Convention 2019/1021/EU (POPs)
<b>Polychlorinated Terphenyls (PCTs)</b>	Several (see 5081-2)	B	Intentionally added	All, except packaging	CEPA 1999
<b>Polycyclic-aromatic hydrocarbons (PAH)</b>	50-32-8	B	Intentionally added	All, except packaging	REACH Annex XVII
	192-97-2	D	1ppm / 0.5ppm per weight of rubber or plastic component	All, except packaging	Industry Requirement
	56-55-3				
	218-01-9				
	205-82-3				
	205-99-2				
	207-08-9				
	53-70-3				

SUBSTANCE (GROUP)	CAS No.	CLASSIFICATION	THRESHOLD	SCOPE / APPLICATION(S)	REFERENCES
	And others (see 5081-2)				
<b>Polyvinylchloride (PVC), its Mixtures, its Copolymers</b>	9002-86-2	D	Intentionally added	All, except packaging	Industry Requirement
<b>Radioactive Substances</b>	Several (see 5081-2)	B	Intentionally added	All, except packaging	2013/59/Euratom
<b>REACH Annex XIV (Authorisation List)</b>	Several – See ECHA Website for latest list: <a href="https://echa.europa.eu/authorisation-list">https://echa.europa.eu/authorisation-list</a>	R	1000ppm by weight of Article	As specified in Annex XIV	2006/1907/EC
<b>REACH Annex XVII (Restriction List)</b>	Several – See ECHA Website for latest list: <a href="https://echa.europa.eu/substances-restricted-under-reach">https://echa.europa.eu/substances-restricted-under-reach</a>	R	As applicable (see ECHA website)	As specified in Annex XVII	2006/1907/EC
<b>REACH Candidate List of SVHC</b>	Several - See ECHA Website for the latest list: <a href="https://echa.europa.eu/candidate-list-table">https://echa.europa.eu/candidate-list-table</a>	D	1000ppm by weight of Article	All, except batteries	2006/1907/EC
<b>Red Phosphorous</b>	7723-14-0	D	Intentionally added	All, except packaging and batteries	Industry Requirement
<b>Tetrabromobisphenol A, TBBPA</b>	79-94-7	D	Intentionally added	All, except packaging and batteries	Industry Requirement
<b>Tetrabromodiphenyl ether</b> <b>Pentabromodiphenyl ether</b> <b>Hexabromodiphenyl ether</b>	Several	B	10ppm per weight in substances or for a combination of the substances up to 500 ppm by weight in mixtures or articles.	All, except articles in scope of RoHS	Stockholm Convention 2019/1021/EU (POPs)

SUBSTANCE (GROUP)	CAS No.	CLASSIFICATION	THRESHOLD	SCOPE / APPLICATION(S)	REFERENCES
<b>Heptabromodiphenyl ether</b> <b>Bis(pentabromophenyl) ether</b> <b>(decabromodiphenyl ether; decaBDE)</b>			Articles in scope of RoHS are exempted		
<b>Tetrachlorobenzene</b>	634-90-2	B	Intentionally added	All, except packaging	SOR/2012-285
<b>Total Bromine and Chlorine (Br+Cl)</b>	Several	D	1500ppm per homogeneous materials	All, except packaging	Industry Requirement
<b>Volatile Organic Compounds (VOCs)</b>	Several	B	See China VOC GB standard	Paints, coatings, inks, adhesives, cleaning agents supplied to China	GB 30981-2020 GB 24409-2020 GB 33372-2020 GB 38507-2020 GB 38508-2020

## 5.2. In Manufacturing Processes

The restrictions in this section apply to the manufacturing process chemicals used to create materials or components for TE; and the assembly of TE products including direct use during production or indirect use for manufacturing equipment, machines, or tools during maintenance. All suppliers shall comply with all regulatory requirements in jurisdictions in which they operate, manufacture, supply and maintain products. (Below list is not all inclusive.)

SUBSTANCE (GROUP)	CAS No.	CLASSIFICATION	THRESHOLD	SCOPE	REFERENCES
Animal byproducts	/	D	Intentionally added	Manufacturing process	EU No 722/2012
Hexachloroethane	67-72-1	B	Intentionally added	Manufacturing process of nonferrous metals	Montreal Protocol (ODS) (EU) No 517/2014 (F-gases)
Hexachlorobutadiene (HCBd)	87-68-3	B	Intentionally added	Manufacturing process	US TSCA
Ozone Depleting Substances (CFC, Halon, HBFC, HCFC & others)	Several (see 5081-2)	B	Intentionally added	All manufacturing processes	Montreal Protocol (ODS) (EU) No 517/2014 (F-gases)
Perfluorooctane Sulfonate, C <sub>8</sub> F <sub>17</sub> SO <sub>2</sub> X (X = OH, Metal salt, halide, amide, and other derivatives including polymers) (PFOS)	Several (see 5081-2)	B	Intentionally added	Manufacturing process	Stockholm Convention 2019/1021/EU (POPs)
Pentachlorothiophenol (PCPT)	133-49-3	B	0.1 % by weight of product	Manufacturing process	US TSCA
Per- and polyfluoroalkyl substances (PFAS)	Several (see 5081-2)	D	Intentionally added	Manufacturing process	Industry requirement
PIP (3:1)	68937-41-7	B	Intentionally added	Manufacturing process	US TSCA
Sulfur fluoride (SF <sub>6</sub> )	2551-62-4	B	Intentionally added	Manufacturing process of magnesium die-casting	Montreal Protocol (ODS) (EU) No 517/2014 (F-gases)

## 6. REFERENCES

The following references do not form an exhaustive list and may be located on the below referenced websites. Unless otherwise specified, the latest edition of the document (including the applicable amendments) applies.

**2000/53/EC (ELV):** Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of-life vehicles (ELV). For the latest ELV exemption list, please visit the official website of the European Commission about ELV: [http://ec.europa.eu/environment/waste/elv/legislation\\_en.htm](http://ec.europa.eu/environment/waste/elv/legislation_en.htm)

**2006/66/EC (Batteries):** Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC

**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 (RoHS) recast. The RoHS recast replaced Directive 2002/95/EC. The EEE product scope under RoHS recast was broadened from 8 to 11 categories. For the latest RoHS exemption list (RoHS directive Annex III for Categories 1-7 and 10, and Annex IV for Categories 8 and 9), please visit the official website of the European Commission about RoHS: [https://ec.europa.eu/environment/waste/rohs\\_eee/adaptation\\_en.htm](https://ec.europa.eu/environment/waste/rohs_eee/adaptation_en.htm)

**2012/19/EU (WEEE):** Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE) recast.

**2013/59/Euratom:** Council Directive 2013/59/Euratom of 5 December 2013 laying down basic safety standards for protection against the dangers arising from exposure to ionizing radiation

**768/2008/EC:** Decision No 768/2008/EC of the European Parliament and of the Council of 9 July 2008 on a common framework for the marketing of products, and repealing Council Decision 93/465/EEC

**94/62/EC:** Directive of the European Parliament and of the Council of 20 December 1994 on packaging and packaging Waste

**Austria BGBl 1990/194:** Formaldehydverordnung, §2, 12/2/1990, Austrian National Law

**Basel Convention:** Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal

**BGBl. II Nr 159/2008:** Batterienverordnung - Austrian Batteries Ordinance 159/2008 – and amendments

**California Assembly Bill No 3025:** Prohibition on the sale of polystyrene loose fill packaging

**California Prop 65 (CA Prop 65):** The Safe Drinking Water and Toxic Enforcement Act of 1986

**California the Perchlorate Contamination Prevention Act:** The Perchlorate Contamination Prevention Act of 2003

**Canada UDI:** Canada Health Notice on Identification of Medical Devices Containing DEHP or BPA

**CEPA 1999:** Canadian Environmental Protection Act (c33,1999)

**ChemO:** 813.11 Ordinance of 5 June 2015 on Protection against Dangerous Substances and Preparations - Swiss Chemical Ordinance, ChemO

**ChemVerbotsV:** The Prohibition of Chemicals Ordinance of 20 January 2017 (Germany)

**China ELV (MIIT 2015 No.38):** Management Requirement on hazardous substances in automobiles and Recyclability and recoverability

**China New pollutants (MEE 2022 No.28):** New Pollutants for Priority Management Category (2023 edition)

**China RoHS 2 (MIIT 2016 No.32):** Administration on the Restriction of Hazardous Substances in Electrical and Electronic Products

**China RoHS Catalog:** China RoHS catalog of Electrical and Electronic Products Subject to RoHS Compliance Management (Batch One)

**China RoHS Conformity Assessment System:** SAMR & MIIT Announcement on Releasing the Implementation Arrangements of the RoHS Conformity Assessment System for Electrical and Electronic Products

**EC No 1005/2009 (ODS):** Regulation (EC) No 1005/2009 of the European Parliament and of the Council of 16 September 2009 on substances that Deplete the Ozone Layer

**EC No 1013/2006:** Regulation (EC) No 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste

**EC No 1272/2008 (CLP):** Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on Classification, Labelling and Packaging of Substances and Mixtures (CLP)

**EC No 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), establishing a European Chemicals Agency (ECHA).

**EC No 765/2008:** Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products and repealing Regulation (EEC) No 339/93

**EN IEC 63000:** Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances (replaced EN50581 as of Nov. 19<sup>th</sup>, 2021)

**EU 2017/745 (MDR):** Regulation of the European Union on the clinical investigation and sale of medical devices for human use.

**EU 2017/852:** Regulation (EU) 2017/852 of the European parliament and of the council of 17 May 2017 on Mercury

**EU 2019/1020:** Regulation (EU) 2019/1020 of the European Parliament and of the Council of 20 June 2019 on market surveillance and compliance of products and amending Directive 2004/42/EC and Regulations (EC) No 765/2008 and (EU) No 305/2011.

**EU 2019/1021 (POPs):** Regulation (EU) 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants (POPs) (with EEA relevance)

**EU No 517/2014 (GHG):** Regulation (EU) No 517/2014 of the European Parliament and of the Council of 16 April 2014 on fluorinated greenhouse gases and repealing Regulation (EC) No 842/2006

**EU No 528/2012 (BPR):** Regulation (EU) 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the placing on the market and use of biocidal products (BPR)

**EU No 722/2012:** Commission Regulation (EU) No 722/2012 of 8 August 2012 concerning particular requirements as regards the requirements laid down in Council Directives 90/385/EEC and 93/42/EEC with respect to active implantable medical devices and medical devices manufactured utilizing tissues of animal origin (with EEA relevance)

**EN IEC 63000:2018:** Technical documentation for the assessment of electrical and electronics products with respect to the restriction of hazardous substances

**FLG No II 447/2002:** Ordinance by the Federal Minister for Agriculture, Forestry, Environment and Water: Management on Bans and Restrictions for Partly Fluorinated and Fully Fluorinated Hydrocarbons and Sulphur Hexafluoride

**French Mineral Oil Decree:** Order of 13 April 2022 specifying the substances contained in mineral oils whose use is prohibited on packaging and for printing intended for the public. Amendment to Art. 112 of decree no. 1010-105 on the 'fight against waste and the circular economy'.

**GB 24409-2020:** Limits of harmful substances of vehicle coatings

**GB 24427-2021:** Content limitation of mercury, cadmium and lead for zinc anode primary battery

**GB 30981-2020:** Limits of harmful substances of industrial protective coatings

**GB 33372-2020:** Limits of Volatile Organic Compounds (VOCs) content in Adhesive

**GB 38507-2020:** Limits of Volatile Organic Compounds (VOCs) in printing ink

**GB 38508-2020:** Limits of Volatile Organic Compounds (VOCs) content in cleaning agent

**GB/T 26572-2011:** Chinese Standards on the Requirements of Concentration Limits for Certain Restricted Substances in Electrical and Electronic Products, 2011

**GB/T 30512-2014:** Chinese Standards on the Requirements for Prohibited Substances on Automobiles

**GB/T 39560:** Series standards Determination of certain substances in electrical and electronic products

**German GS Mark:** GS (Geprüfte Sicherheit) safety testing product certification, which includes Polyaromatic Hydrocarbons (PAHs) tests

[http://ec.europa.eu/environment/waste/rohs\\_eee/legis\\_en.htm](http://ec.europa.eu/environment/waste/rohs_eee/legis_en.htm): The official website of the European Commission with the information about RoHS2.

[http://ec.europa.eu/environment/waste/elv/legislation\\_en.htm](http://ec.europa.eu/environment/waste/elv/legislation_en.htm): The official website of the European Commission with the information about ELV.

<http://echa.europa.eu/>: ECHA (European Chemicals Agency)

<http://europa.eu/>: Europa - The European Union On-Line

<https://supplier.te.com>: TE Supplier Portal

<http://www.jedec.org>: JEDEC

<http://www.miit.gov.cn>: Ministry of Industry and Information Technology of the People's Republic of China

**IEC 62321**: Testing of RoHS restricted substances

**IEC 62474**: Material Declaration for Products of and for the Electrotechnical Industry

**IECQ QC 080000**: IEC Quality Assessment System for Electronic Components -Hazardous Substance Process Management System Requirements

**IPC-1752**: Materials Declaration Management Standard

**ISPM-15**: International standards For Phytosanitary Measures No.15 - Regulation of Wood Packaging Material in International Trade

**Japan** The Law Concerning the Examination and Regulation of Manufacture etc. of Chemical Substances

**Japan** Preventive measures against health impairment due to asbestos, 2007

**Japanese Laws**: Japanese Laws for the Regulation of Nuclear Source Material, Nuclear Fuel Material, and Reactors, 1986

**Japan No 53, 1988**: Law Concerning the Protection of the Ozone Layer through the Control of Specified Substances and other measures

**Japan REACH**: Japan No. 117 of 1973 Chemical Substance Control Law (CSCL "Kashinho", Japan REACH)

**JEDEC JESD201**: Environmental Acceptance Requirements for Tin Whisker Susceptibility on Tin and Tin Alloy Surface Finishes

**JESD22A121.01**: Test Method for Measuring Whisker Growth on Tin and Tin Alloy Surface Finishes

**JIG-201**: Joint Industry Guide (JIG) Material Composition Declaration for Packaging of Electrotechnical Products

**JP002**: Current Tin Whiskers Theory and Mitigation Practice Guidelines

**Minamata Convention**: Minamata Convention (MC) on Mercury by United Nations Environment Program (UNEP)

**Montreal Protocol**: Montreal Protocol on Substances that Deplete the Ozone Layer, ISBN 978-9966-076-79-3

**Norwegian Regulation No. 550**: Regulation No 550 of 27 May 2013 amending the regulation No. 922 of 2004 with restriction on consumer products that contain perfluorooctanoic acid (PFOA), 27 May 2013

**ORRChem**: 814.81 Ordinance of 18 May 2005 on the Reduction of Risks relating to the Use of Certain Particularly Dangerous substances, Preparations and Articles - Swiss Chemical Risk Reduction Ordinance, ORRChem

**OSHA**: OSHA; 29 CFR 1910 Subpart Z – Toxic and Hazardous Substances:.1001-1052, US

**OSPAR**: Oslo-Paris Convention for The Protection of The Marine Environment Of The North-East Atlantic



**Russia RoHS:** EAC RoHS - TR CU 037/2016 Technical regulation of the Eurasian Economic Union on restriction of the use of certain hazardous substances in products of electrical engineering and radio-electronics

**SJ-T 11364-2014:** Marking for the restriction of the use of hazardous substances in electronic and electrical product.

**SJ/T 11388-2009:** General Guidelines of Environment-friendly Use Period of Electronic Information Products

**SOR/2012-285:** Prohibition of Certain Toxic Substances Regulations, 2012, Canada

**SOR/2014-254:** Products Containing Mercury Regulations, Canada

**Stockholm Convention:** Stockholm Convention on Persistent Organic Pollutants (POPs) by United Nations Environment Program (UNEP)

**TPCH:** Toxics in Packaging Clearinghouse (TPCH) of 1992

**USC 14301 – 143361996:** Mercury-Containing and Rechargeable Battery Management Act, US

**US TSCA:** Toxic Substances Control Act (TSCA) (as amended), US

**VKIS – VSI – IGM – BGHM:** List of substances for Metal Working fluids according to DIN 51385 for Metalworking

**100 Series:** TE Material Specifications, as applicable

**112 Series:** TE Finish Specifications, as applicable

**TEC-1005:** TE Total Quality Management Requirements for Suppliers

**TEC-1015:** TE Connectivity Guide to Supplier Social Responsibility

**TEC-112-65:** Plating, Tin (Whisker Mitigated, Lead-Free), Electrodeposited

**TEC-207-14:** Recycling Symbols and Codes for Packaging Material

**TEC-238-41:** TE Requirements for Documenting Environmental Related Substance in Full Material Declaration

**FORM 5214:** TE Global Terms and Conditions of Purchase

**FORM 5081-2:** Environmental Related Substances (Declarable Substance List), which is a compilation list of Banned, Restricted and Declarable substances under global legislations as well as relevant electronic industry lists. Examples of substances in 5081-2 include: POPs, ODS, RoHS, REACH SVHC, REACH Annex XIV, REACH Annex XVII, PFOA, PFOS, GADSL, etc. This list is not an exhaustive (complete) list of all substances that could be found within a listed substance group. In cases where a CAS number of "Various" is shown along with a description including Other (e.g. Various – Other Brominated Compounds) this would include all other substances falling into this category even though not listed specifically in 5081-2. (NOTE: Go to the TE Supplier Portal at <https://supplier.te.com>, click "Documents" on top menu, search for KEYWORD 5081.)

## REVISION HISTORY

Rev	Date	Revision Description
AA	19 April, 2023	Release of new TEC-138-702