**A. Objective**

This standard establishes the criteria for developing and supplying raw materials, packaging, components, finished products, accessories and process materials that may come in contact with the final product and are related to the presence of hazardous substances, observing the limits applied by this policy and/or legislation dealing with the issue.

**B. Application Area**

Unit Embraco - Compressors and Refrigeration Solutions - Brazil, China, Italy, Slovakia and Mexico;

Unit Embraco - Foundry;

Embraco Unit - Components;

Unit Embraco - Electronics (EECON) - Brazil and China;

Embraco unit - Cooling Solution - Slovakia, Brazil and EUA;

Collectively Denominated "Embraco or Business Units".

**C. Reference Documentation**

**Warning:** Documents listed here and in annex 7 were used only as reference to produce this standard and tables. More trustworthy information regarding legal documentation shall be requested from the corporate legal office. Questions on the interpretation and implementation of related legislation should be referred to the Corporate Legal.

In case of doubts on the part of suppliers, please contact technical support for addressing.

**-** Directive 2011/65/EU of the European Parliament and of the Council of (08/06/2011 - RoHS 2); Restriction of the use of certain Hazardous Substances in electrical and electronic equipment (RoHS II) and future amendments;

- Regulation (EC) 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, amending Directive 1999/45/EC and repealing Council Regulation (EEC) 793/93 and Commission Regulation (EC) 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC;

**D. Definitions**

**Hazardous Substance:** Are those that can cause damage to people, the environment and also hinder processes of recycling or reuse of electrical and electronic products.

**Hazardous Substance Free:** considering that there could be many different interpretations for the word "free", Embraco decided to adopt the expression "HS Compliant" to describe its products instead of using the expression HS free.

**Hazardous Substance Compliant Products (HS Compliant):** are those items purchased, manufactured or commercialized by Embraco that are in accordance with this document, which are in accordance with legislation and customers' requirements involving hazardous substances in refrigeration, electro-electronic.

**Hazardous Substance Accepted as Exemption (HS Exemption):** are those substances that legislation has defined as acceptable in specific applications or Embraco have evaluated with its customer and accept the use in a specific application (see annex 11).

**Controlled Hazardous Substance (RoHS):** refers to those substances that in all Embraco business units will be audited (internally and/or externally), to confirm its conformity with the specification stated on the annex 08, basically are those substances listed on the RoHS Directive 2002/95/EC and its amendments.

**Substance Very High Concern (SVHC-REACH):** refers to those substances listed in the REACH directive (see annex 09) whose detection can be executed eventually by approved laboratories.

**Banned Hazardous Substance (Banned HS):** refers to those substances listed in legislation/regulation/protocol not treated by REACH and RoHS (see annex 07) whose detection can be executed eventually by approved laboratories.

**Approved Laboratory:** labs able to analyze HS in accordance with state-of-the-art acceptable by the involved parts in the supply chain (Embraco, customers and suppliers).

**Limits for Hazardous Substances:** maximum amount of hazardous substance permissible in certain homogeneous material (relationship between hazardous substance mass present in a homogeneous material and the total mass of the homogeneous material under investigation). The limit be adopted will value more conservative among those specified in legislation, where Embraco is present, and also the limits specified by customers who have their own specification for harmful substances.

**Note:** no hazardous substance will be accepted by Embraco that has been intentionally added to a material during its manufacturing process.

**Homogeneous Material:** refers to one of whole with uniform composition/properties that cannot be mechanically disjointed into different materials.

**Intentionally Added:** Shall mean that it is deliberately utilized in the formulation of a material or component where its constant presence is necessary in the final product to provide a specific characteristic of appearance or quality (e.g. oxidation resistance, color, hardness, mechanical resistance, brightness...).

**Mechanically Disjointed:** Refers to materials which, in principle, can be separated by mechanical actions such as unscrewing, cutting, crushing, grinding and abrasive processes.

**Finished Product:** All material that can be sent to a customer without undergoing any processing.

**Accessory:** All components or component sets that can be added to finished products.

**Electrical Product**: all equipment for its operation requires electricity.

**Electronic Product**: all electrical equipment that employs semiconductor components.

**Electro-Electronic Product**: generic denomination abbreviated to designate electrical and electronic product as defined above.

**Process Materials that May Be in Contact with Finished Product:** All materials used in manufacturing processes that may be present, even at residual levels, in finished products.

**Declaration of Compliance:** Document with format defined by Embraco that shall be filled in by the suppliers and signed by its binding representative informing the status of the supplied item regarding compliance with this document. To avoid misunderstanding or false declaration, the self declaration shall be done using as reference a third party analysis report that shall be available as evidence at any time.

**Third Party Analysis Report:** Chemical analysis performed by an approved laboratory to confirm the presence of hazardous substance (concentration and type - name and CAS number) using analysis methodology recognized internationally.

**Bill of Substance (BOS):** Report of chemical composition of the supplied item whose information shall cover 99.9% of the item weight and must be done using standard format (see annex 04).

## 1. General Conditions

The requirements contained in this document apply to all raw materials, components, finished products, accessories, under development (new) and those already developed (currently supplied, and are applicable to all Embraco business units.

For packaging the limits for Heavy Metals Combined (CrVI+Cd+Hg+Pb) is 70ppm to attend 94/62/EC directive and customers requirements.

Regarding Ozone Depleting Substances will be not acceptable the use in Embraco products.

The polymeric materials used in applications of PTC (Positive Temperature Coefficient Thermistor) used as engine starting systems, must be free of halogens and their compounds, according to IEC61249-2-21*.

Once Embraco does not produce chemical substance, the directive 67/548/EEC which refers to classification, packaging and labeling of dangerous substances will be not considered in this document.

It's mandatory for Embraco suppliers to keep updated information about compliance with this standard which shall be done using a self-declaration, see table in 2.2.1 section.

Consider halogen free components, those in accordance to the limits established in the standard IEC 61249-2-21.

See below reference limits:

900ppm maximum chlorine;

900ppm maximum bromine;

1500ppm maximum total halogens.

## 2. Specific Conditions

### 2.1. Groups of Hazardous Substances

**2.1.1.** The hazardous substances hereby were classified in 4 groups to trace their origin and when necessary to establish the appropriate treatment.

- Related substances RoHS - annex 08

- Substance Very High Concern (SVHC-REACH) - annex 09

- Banned Hazardous Substances - annex 10
- Hazardous substances treated as an exception - annex 11

**2.1.2.** The limits shown in annex 08 refer to the percentage in weight of the evaluated component present in each homogeneous material.

**2.1.3.** The limits shown in annex 09 refer to the percentage in weight of the evaluated component present (total weight of the supplied item).

### 2.2. Documents

**2.2.1.** To be an Embraco supplier, as a general rule, it is mandatory to provide documents in accordance with the table below, aiming to confirm that all supplied items meet this specification, as well as, to have evidence of the full comprehension of this specification. This documentation may be in the supplier's format, provided that it meets all the minimum requirements to perform the analysis as this standard requires.

| Document | Framework | Validation Period |
|---|---|---|
| BOS* | See Annex 04 | Any time that this specification or the materials used to manufacture the item was changed |
| Declaration Compliance | See Annex 05 | |
| Declaration Not compliance | See Annex 06 | |

*Material under industrial secret can adopt an alternative procedure keeping the BOS closed and signed a specific self declaration presented in the annex 05 and 06.

### 2.3. Presence of Hazardous Substances

**2.3.1.** The impacts of HS presence in a supplied item can demand different treatments. Those H Sthat belong to RoHS and Banned HS group can be considered as Quality Deviation and shall be treated with high priority. SVHC are substances that still have a possibility to be used thus can be treated in a plan that respects all deadlines established by REACH regulation.

For new components in deployment must meet all requirements of this standard without further processing or pending. Any exception to this rule must be approved by the project leader, responsible for HSPM of the plant, and by the quality manager of the plant.

**General Information:** The limits for electronic components to the substances related to RoHS directive, shown in the annex 08 can be changed from 600ppm (0.06%) to 1000ppm (0.1%), or 60ppm (0.006%) to 100ppm (0.01%), if the supplier cannot attend the directive. In this case at the certification of the item must contain the reason of the supplier cannot meet the requirements.

## 3. Quality Controls and Records

**3.1. Suppliers are responsible for evaluating this specification for each supplied item and to maintain the records that prove accomplishment with this procedure. Any changes or alterations to the supplied products must be notified, recorded and approved by Embraco.**

**3.2. With the purpose to confirm the accomplishment with this specification on the part of the suppliers of raw material, components, finished products, accessories, process products and Packaging which may be in contact with finished products, the product supplied to Embraco will be evaluated as presented in flow chart in annex 01 (RoHS) and annex 02 (REACH).**

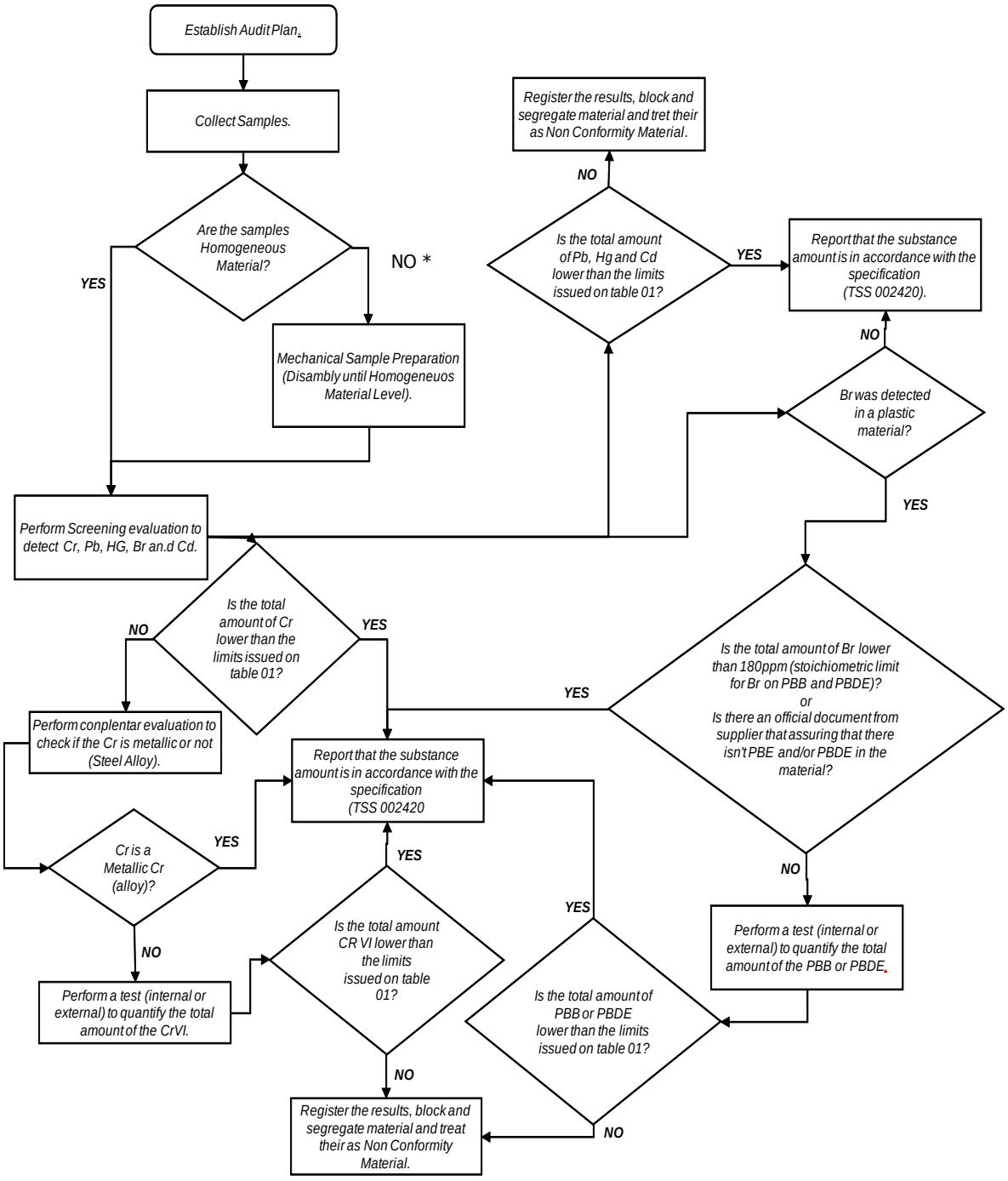
### 3.3. Suspension of Supplying

**3.3.1.** Any item which does not reach the requirements contained in this document can have their supply suspended by Embraco, once finished products shall not be sold. The Supplier commits to be liable for the losses and damages arising from the non-compliance with this procedure, thereto all expenses supported by Embraco shall be reimbursed by supplier, without prejudice to future actions by Embraco.

**General Note:** For questions related to intelligibility and/or translation of this document is recorded that the official reference document was generated in the Portuguese language officially used in Brazil.

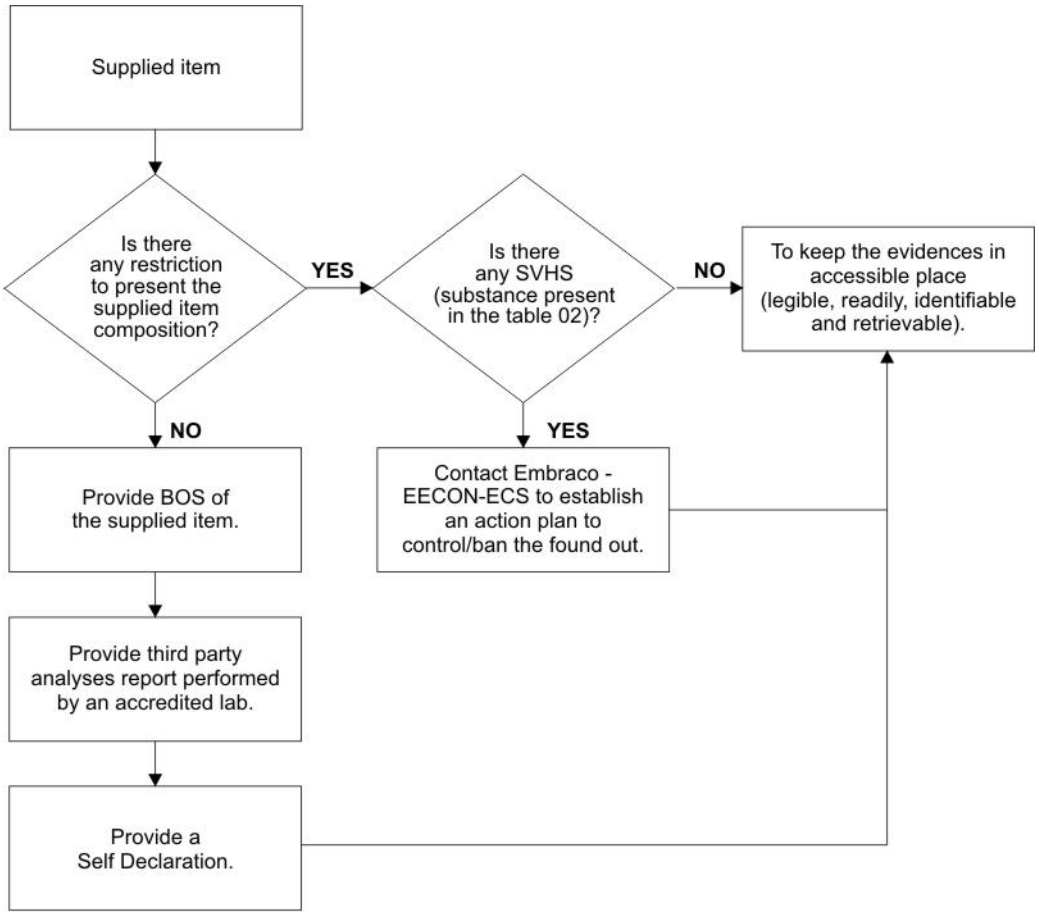
**3.3.2** The Supplier declaration must be returned to Quality department until three months after Embraco's warning (standard email sent).

## Annex 01 - RoHS



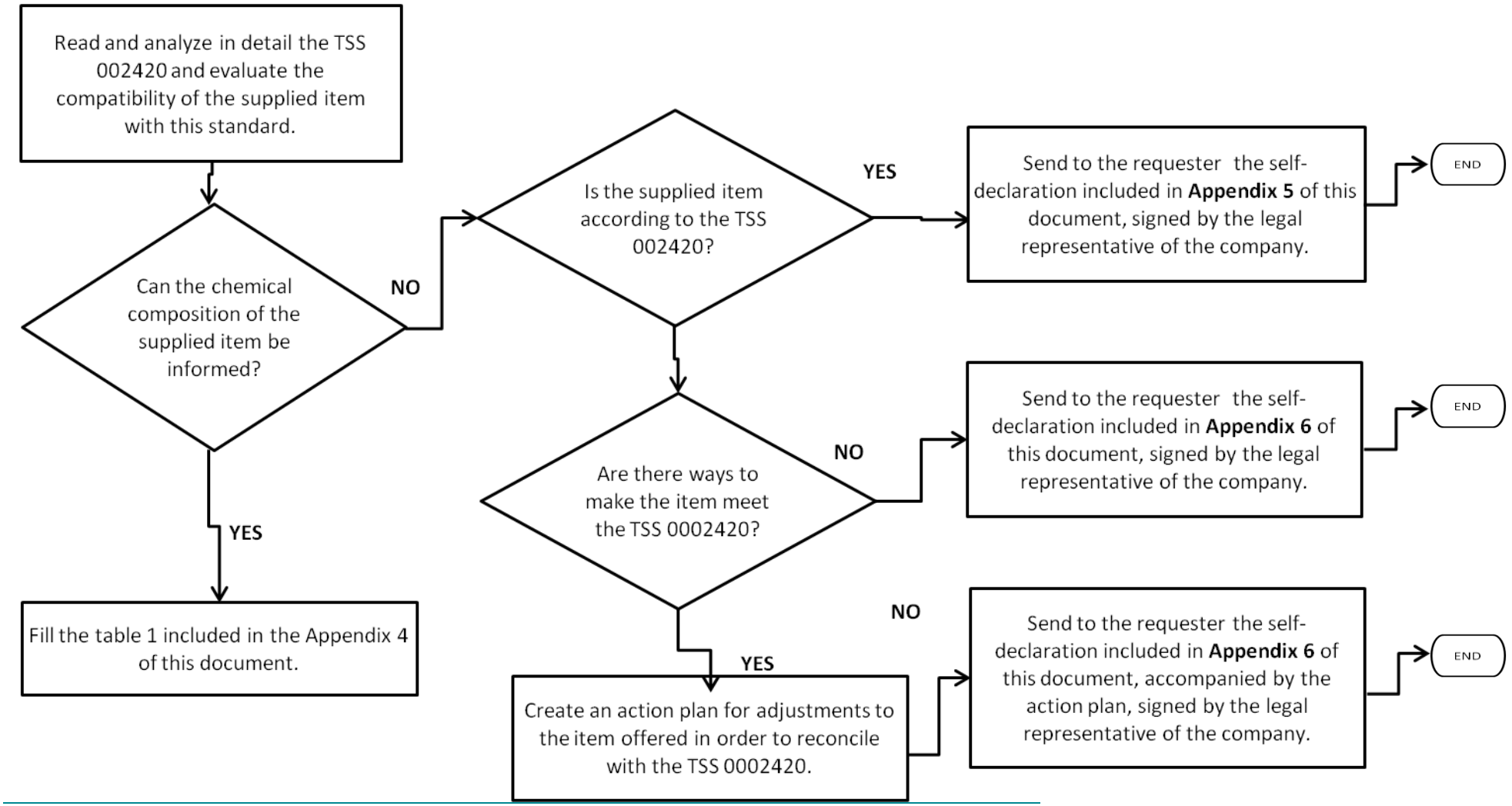

Note: When the measured sample surface with a coating, and need to analyze Cr+6 in the metallic coating, don't disassemble it; Determination of hexavalent chromium in corrosion protection coatings should implement boiling-water extraction procedure, and acceptance criteria is "negative ", MDL = 0.02ppm/50cm$^2$;

## Annex 02 - REACH

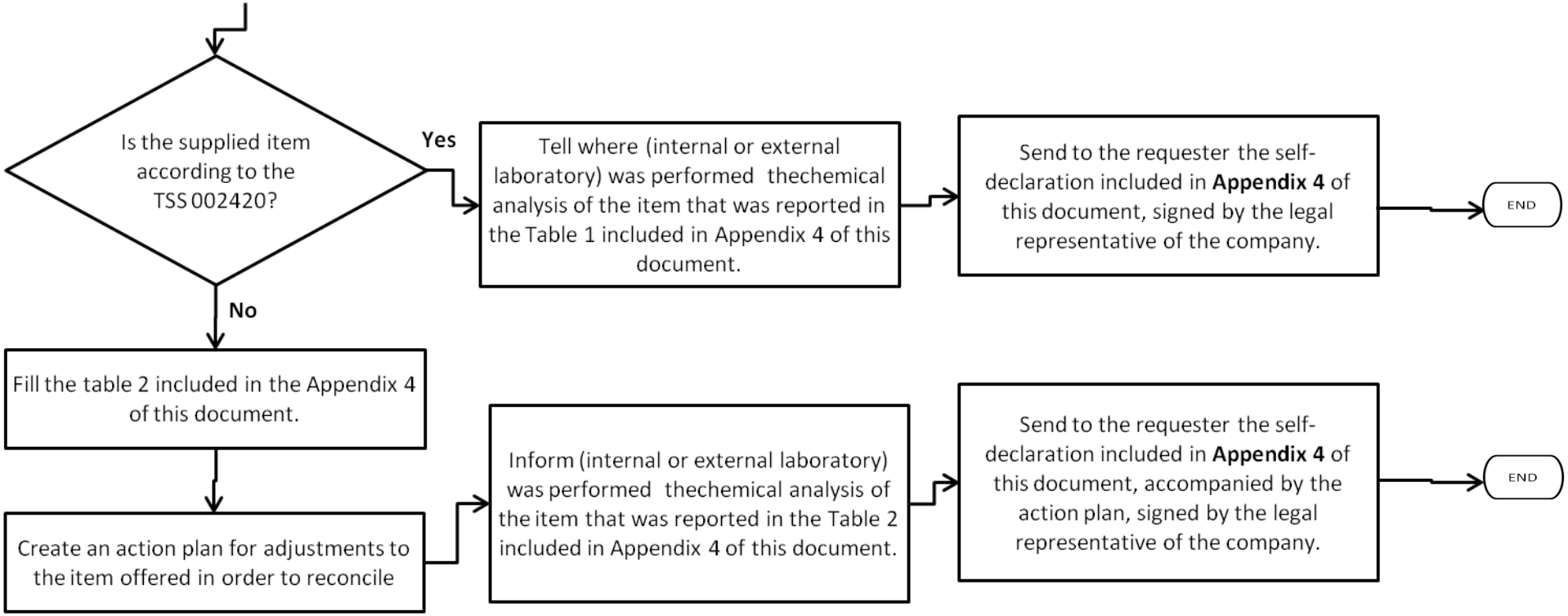



* Only those supplier that provide the third party analyses will have free pass.

**Annex 03 - Floowchart to Analyse the TSS 002420 - Part 01**



**Annex 03 – Flowchart to Analyse the TSS 002420 - Part 02**



## Annex 04 - TSS 002420 - Bill of Substance (BOS)

List to be completed by supplier and returned a PDF copy to the requestor and to the e-mail address of Embraco dept that sent the Compliance Statement request.

***Observação:** No anexo 04-A estão as instruções para preenchimento das tabelas abaixo

| **Supply and Information Responsible** | |
|---|---|
| **Company's Name:** | |
| **Address:** | **Place:** |
| **In change of answers:** | |
| **E-mail:** | **Phone:** |

**All information included herein should portray exactly what the item provided represents.**

| **Table 01 - Information regarding the item provided that meets the requirements of this standard** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **(1) Description of item:** | | | | | **(2) Item weight (g):** | | | |
| **(3) Product family:** | | | | | **(4) Code Embraco:** | | | |
| **-5** | **-6** | **-7** | **-8** | **-9** | **-11** | **-13** | **-14** | **-15** |
| **Component** | **Homogeneous material** | **Weight (g)** | **Chemical composition of homogeneous material** | **CAS Number** | **Percentage weight of the chemical in homogeneous material (%)** | **Exemption (Yes/ No)** | **Clause No.** | **Exemption deadline** |
| | | | | | | | | |

| **Table 02 - Information relating to that item supplied does not meet the requirements of this standard** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **(1) Description of item:** | | | | | **(2) Item weight (g):** | | | | |
| **(3) Product Family:** | | | | | **(4) Code Embraco:** | | | | |
| **-5** | **-6** | **-7** | **-10** | **-9** | **-11** | **-12** | **-13** | **-14** | **-15** |
| **Component** | **Homogeneous material** | **Weight (g)** | **Not compliant chemical substance** | **CAS Number** | **Percentage weight of the chemical in homogeneous material (%)** | **Percentage of chemical element not as the weight of the Item (%)** | **Exemption (Yes/ No)** | **Clause No.** | **Exemption deadline** |
| | | | | | | | | | |

**Where was performed chemical analysis that generated the information contained in the table above?**

**[ ] Internal analysis, labs supplier.**

**[ ] External analysis by laboratory Outsourced: _____**

**(Enter here the name of the outsourced laboratory)**

**If the analysis was run on an outsourced laboratory, please attach the report to analyze this document.**

| **Comments:** |
|---|
| |

| **Legally responsible for the information:** | **Name:** | **Signature** |
|---|---|---|
| | **Position:** | **Phone:** |
| | **Local:** | **Date:** |

## Annex 04 - A - TSS 002420 – Instructions for filling the tables - Annex 04

| Table field | Description | Requested Content |
|---|---|---|
| **(1)** | Item description | Insert detailed description item with original part number. The item is an element received by Embraco, this material will have an internally stock and management code, can be a just one component or a component group. Example: Electrical conexion cable (item) composed of a conductor wield (component 1), conexion terminal (component 2) terminal insulator (component 3) |
| **(2)** | Item weight (g) | Total weight in grams of the item in field (1). |
| **(3)** | Embraco code | If already exist, please to inform the Embraco Item code. |
| **(4)** | Product of family | Items with similar applications in Embraco products produced by similar process: Ex.: Blank steel, Aluminum, Plastic Box, Carton Box, oil, grease, ink, adhesive, adhesive tape, electrical cable, resistor, capacitor, transistor, integrated circuit, etc... |
| **(5)** | Component | A part of a item according to desciribed in item (1) |
| **(6)** | Homogeneous Material | Inform the homogeneous material present in each component (see TSS 002420 the definition of homogeneous material) |
| **(7)** | Weight (g) | Insert a weight (mass) homogeneous material described in field (6) in grams |
| **(8)** | Chemical composition of homogeneous material | Inform the name of chemical elements that form a homogeneous material described in field (6). |
| **(9)** | CAS number material | Inform the CAS number of each chemical element described field (8) according to nomenclature ESIS (CAS site http://ecb.jrc.ec.europa.eu/ ) |
| **(10)** | Chemical element not compliance | Inform the name of chemical elements that are not in concordance with the requirements included in this version of TSS 002420 |
| **(11)** | Homogeneous material weight (percentages %) | The percentage weight of chemical element in homogeneous material is the same of a weight in cheminal element described in item (8) divided by a homogeneous material (7) x 100%. |
| **(12)** | Item weight (percentages %) | The percentage of weight in chemical elements not compliance is the same of chemical element not compliance described in item (10) divided by an item weight (2) x 100%. |
| **（13）** | Exemption (Yes/ No) | If (11) or (12) of the value exceeds the TSS 002420's requirements, the need to inform whether this material is included in the exemption list or not; If it is exempt items to fill in the "yes", otherwise fill in the "No"; |
| **（14）** | Clause No. | If (13) is filled "Yes", inform the related document number and the promulgation of the time; |
| **（15）** | Exemption deadline | Inform the exemption deadline of this substance in the related document; |

If necessary insert new lines in the tables so that information about the items are complete.
Tables must be sent in a PDF copy to the requestor.

## Annex 05 - Declaration - Compliance

Returned a PDF copy to the requestor and to the email address of Embraco dept that sent the Compliance Statement request.

**(to put on Supplier's headedpaper)**

## Declaration

This Declaration is made by _____ (hereinafter the "Supplier"), for the benefit of _____ (to be included by Embraco, the name and the address of the Embraco legal entity which the Supplier has contact with) and/or any of its parent and/or affiliated company (herein named as "Embraco") which your Company is dealing with.

The undersigned Supplier warrants that **any and all materials, components, products** (hereinafter "Products") **supplied and/or distributed by Supplier to Embraco comply with all relevant applicable legislation regarding Hazardous Substances ("HS") cited in the TSS 002420**, including without limitation the RoHS Directives and REACH Regulation in the light of all their legally effective changes and versions, especially that these Products do not contain any material or substance (i) banned under the RoHS directives; (ii) not registered under REACH Regulation; (iii) restricted as SVHC according to the REACH Regulation or (iv) prohibited by any other rule and/or legislation concerning HS.

If requested by Embraco, the Supplier undertakes to provide the evidence (including but not limited to results of laboratory tests) which certify the compliance with the applicable legislation related to any and all Products supplied.

The supplier will at the earliest inform Embraco about any and all changes with regard to its compliance with the applicable legislation and will carry out the necessary steps required by such legislation.

Embraco respectfully remind that any false declaration constitutes a criminal and civil offence and all damages generated to Embraco will be reverted to your Company.

Place: _____

Date: _____

Name: _____

Function: _____

Signature: _____

## Annex 06 – Declaration – Not compliance

Returned a PDF copy to the requestor and to the email address of Embraco dept that sent the Compliance Statement request

**(to put on Supplier's headedpaper)**

**Declaration**

This Declaration is made by _____ (hereinafter the "Supplier"), for the benefit of _____ (to be included by Embraco, the name and the address of the Embraco legal entity which the Supplier has contact with) and/or any of its parent and/or affiliated company (herein named as "Embraco") which your Company is dealing with.

The undersigned Supplier does not warrants that **any and all materials, components, products** (hereinafter "Products") **supplied and/or distributed by Supplier to Embraco comply with all relevant applicable legislation regarding Hazardous Substances ("HS"), ("HS") cited in the TSS 002420**, including without limitation the RoHS Directives and REACH Regulation in the light of all their legally effective changes and versions, especially that these Products do not contain any material or substance (i) banned under the RoHS directives; (ii) not registered under REACH Regulation; (iii) restricted as SVHC according to the REACH Regulation or (iv) prohibited by any other rule and/or legislation concerning HS.

If requested by Embraco, the Supplier undertakes to provide the evidence (including but not limited to results of laboratory tests) which certify the compliance with the applicable legislation related to any and all Products supplied.

The supplier will at the earliest inform Embraco about any and all changes with regard to its compliance with the applicable legislation and will carry out the necessary steps required by such legislation.

Embraco respectfully remind that any false declaration constitutes a criminal and civil offence and all damages generated to Embraco will be reverted to your Company.

Place: _____

Date: _____

Name: _____

Function: _____

Signature: _____

## Annex 7 - (1) Laws about Hazardous Substances

| |
|---|
| 1 – Chine RoHS - SJ/T 11363-2006: Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products; |
| 2 – California RoHS; |
| 3 – J-MOSS Japan - JIS C 0950 title "The marking for presence of the specific chemical substances for electrical and electronic equipment"; |
| 4 – Norwegian PoHS (Prohibition on Certain Hazardous Substances in Consumer Products); |
| 5 - 76/769/EEC - Directive regulations and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations; |
| 6 – 94/62/EEC - European Parliament and Council Directive 94/62/EC of 20/12/1994 on packaging and packaging waste; |
| 7 – Montreal Protocol on Substances that Deplete the Ozone Layer; |
| 8 – Regulation (EC) N° 1005/2009 on substances that deplete the ozone layer; |
| 9 – US Clean Air Act; |
| 10 – Japan: Ozone Layer Protection Act; |
| 11 – Japanese Law: The law concerning the Examination and Regulation Of Manufacture etc. Of chemical Substances, Class 1; |
| 12 – U.S Nuclear Regulatory; |
| 13 – Commission Title 10 CFR Part 20. Laws for the regulation of nuclear source material, nuclear fuel material, and reactors, 1986 (Japanese law); |
| 14 – Japanese Law: The law concerning the Examination and Regulation Of Manufacture etc.<br>Of chemical Substances, Class 2; |
| 15 – European Parliament and Council Directive 94/62/EC; |
| 16 – Stockholm convention on persistent organic pollutants; |
| 17 – 2006/122/EC - Directive relating to restrictions on the marketing and use of certain dangerous substance and preparations (perfluorooctane sulfonates); |
| 18 – Germany: ChemVerbots V; |
| 19 – California Proposition 65; |
| 20 – OSPAR Priority Chemicals List; |
| 21 - AfPS GS 2014:01 PAK issued by the Central Experience Exchange Committee (ZEK) in connection with the German. Accreditation Body for GS Mark issuing Bodies (ZLS); |
| 22 - The Commission of the European Communities, 2009/251/EC; |
| 23 - New European Commission Decision 2009/425/EC; |
| 24 - Directive 67/548/EEC on approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances. |
| 25 - Testing and assessment of polycyclic aromatic hydrocarbons (PAHs) in the course of awarding the GS mark - Specification pursuant to article 21(1) no. 3 of the Product Safety Act (ProdSG) – AfPS GS 2014:01 PAK |

## Annex 08 - Related substances RoHS

| No | Group | Name | CAS Number | EC Number | Possibile Uses | Limits |
|---|---|---|---|---|---|---|
| 1 | Polybrominated Diphenylethers (PBDEs) | Bromodiphenyl ether | 101-55-3 | | Flame retardant | 600ppm (0,06%) by weight in homogeneous material. |
| 2 | | Decabromodiphenyl ether | 1163-19-5 | | | |
| 3 | | Dibromodiphenyl ether | 2050-47-7 | | | |
| 4 | | Pentabromodidphenyl ether (note: Commercially available PeBDPO is a complex reaction mixture containing a variety of brominated iphenyloxides. | 32534-81-10 | | | |
| 5 | | Pentabromodidphenyl ether (note: Commercially available PeBDPO is a complex reaction mixture containing a variety of brominated iphenyloxides. | 32534-81-9 | | | |
| 6 | | Octabromodiphenyl ether | 32536-52-0 | | | |
| 7 | | Hexabromodiphenyl ether | 36483-60-0 | | | |
| 8 | | Tetrabromodiphenyl ethers | 40088-47-9 | | | |
| 9 | | Tribromodiphenyl ether | 49690-94-0 | | | |
| 10 | | Nonabromodiphenylether | 63936-56-1 | | | |
| 11 | | Heptabromodiphenylether | 68928-80-3 | | | |
| 12 | Polybrominated Biphenyls (PBBs) | Decabromobiphenyl | 13654-09-6 | | | 600ppm (0,06%) by weight in homogeneous material. |
| 13 | | 2-Bromobiphenyl | 2052-7-5 | | | |
| 14 | | 3-Bromobiphenyl | 2113-57-7 | | | |
| 15 | | Nonabiphenyl | 27753-52-2 | | | |
| 16 | | Heptabromobiphenyl | 35194-78-6 | | | |
| 17 | | hexabromo-1,1-biphenyl | 36355-01-8 | | | |
| 18 | | Tetrabromobiphenyl | 40088-45-7 | | | |
| 19 | | Pentabromobiphenyl | 56307-79-0 | | | |
| 20 | | Tribromobiphenyl | 59080-34-1 | | | |
| 21 | Polybrominated Biphenyls (PBBs) | Hexabromobiphenyl | 59080-40-9 | | | 600ppm (0,06%) by weight in homogeneous material. |
| 22 | | Polybrominated Biphenyls | 59536-65-1 | | | |
| 23 | | Octabromobiphenyl | 61288-13-9 | | | |
| 24 | | Firemaster FF-1 | 67774-32-7 | | | |
| 25 | | 4-Bromobiphenyl | 92-66-0 | | | |
| 26 | | Dibromobiphenyl | 92-86-4 | | | |
| 27 | Mercury */Mercury Compounds) * | Mercury II nitrate | 10045-94-0 | | Solders, batteries, oven glass, stabilizers Fluorescent lamp, electric contact material, coloring pigment, corrosion inhibitor, switch, high-efficiency light emitter | |
| 28 | | Mercury chloride | 10112-91-1 | | | |
| 29 | | Mercury II sulfide | 1344-48-5 | | | |
| 30 | | Mercury (II) oxide | 21908-53-2 | | | |
| 31 | | Mercury | 7439-97-6 | 231-106-7 | | |
| 32 | | Mercury (II) chloride | 7487-94-7 | | | |
| 33 | | Mercury sulphate | 7783-35-9 | | | |
| 34 | Lead */Lead Compounds * | Lead (II) oxide | 1317-36-8 | | Rubber hardener, pigment, paint, lubricant, plastic stabilizer, battery material, free cutting alloy material, optical material, X-ray shield, electric soldering material | 600ppm (0,06%) by weight in homogeneous material. |
| 35 | | Trilead-bis(carbonate)-dihydroxide | 1319-46-6 | | | |
| 36 | | Lead hydroxidcarbonate | 1344-36-1 | | | |
| 37 | | Lead sulfate, sulphuric acid, lead salt | 15739-80-7 | | | |
| 38 | | Lead acetate | 301-04-2 | | | |
| 39 | | Lead (II) carbonate | 598-63-0 | | | |
| 40 | | Lead (II) acetate, trihydrate | 6080-56-4 | | | |
| 41 | | Lead | 7439-92-1 | 231-100-4 | | |
| 42 | | Lead (II) sulfate | 7446-14-2 | | | |
| 43 | Lead */Lead Compounds * | Lead phosphate | 7446-27-7 | | | 600ppm (0,06%) by weight in homogeneous material. |
| 44 | | Lead (II) chromate | 7758-97-6 | | | |
| 45 | | Lead stearate | 1072-35-1 | | | |
| 46 | | Lead (II) titanate | 12060-00-3 | | | |
| 47 | | Lead chromate molybdate; | 12656-85-8 | 235-759-9 | Lead-acid batteries, | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | Sulfate Red Pigment Red 104 | | | lead roofing and flashing, lead solders in electronic equipment and in radiation shielding. | |
| 48 | | Lead hexafluorosilicate | 25808-74-6 | 247-278-1 | | |
| 49 | | Lead(II) methanesulphonate | 17570-76-2 | 401-750-5 | | |
| 50 | | Lead arsenate | 3687-31-8 | | Metal finishes; Pigment, paint, dye, glass antifoam agent, III-V group semiconductor substrate, flame retardant | |
| 51 | Lead */Lead Compounds * | Heavy metals etramethyllead | 75-74-1 | 200-897-0 | | 600ppm (0,06%) by weight in homogeneous material. |
| 52 | | Lead selenide | 12069-00-0 | | Rubber hardener, pigment, paint, lubricant, plastic stabilizer, battery material, free cutting alloy material, optical material, X-ray shield, electric soldering material | |
| 53 | | Lead sulphate, tribasic | 12202-17-4 | | | |
| 54 | | Lead (IV) oxide | 1309-60-0 | | | |
| 55 | | Lead (II,IV) oxide | 1314-41-6 | | | |
| 56 | | Lead (II) sulfide | 1314-87-0 | | | |
| 57 | Hexavalent Chromium/Hexavalent Chromium Compounds) | Barium chromate | 10294-40-3 | | Pigment, paint, ink, catalyst, plating, corrosion-resistant surface treatment, dye, paint drying agent, surface treatment, chromate treatment, enhancement of paint adhesion enhancement, anti-corrosion | *: Not allowed in metallic coating; The above outside 600ppm (0,06%) by weight in homogeneous material. |
| 58 | | Chromium trioxide | 1333-82-0 | | | |
| 59 | | Zinc chromate | 13530-65-9 | | | |
| 60 | Hexavalent Chromium/Hexavalent Chromium Compounds) | Calcium chromate | 13765-19-0 | | | |
| 61 | | Hexavalent Chromium | 18540-29-9 | | | |
| 62 | | Sodium chromate | 7775-11-3 | | | |
| 63 | | Chromium trioxide | 1333-82-0 | 215-607-8 | | |
| 64 | | Ammonium dichromate | 7789-9-5 | 232-143-1 | | |
| 65 | | Chromic oxychloride Chromyldichloride | 14977-61-8 | 239-056-8 | | |
| 66 | | Chromium III chromate Chromic chromate | 24613-89-6 | 246-356-2 | | |
| 67 | | Potassium dichromate | 7778-50-9 | | | |
| 68 | | Potassium chromate | 7789-00-6 | | | |
| 69 | | Strontium chromate, pigment yellow 32 | 7789-6-2 | | | |
| 70 | Cadmium * and it compounds | Cadmium chloride | 10108-64-2 | | Pigment, corrosion-resistant surface treatment, electric/electronics material, optical material, stabilizer, plating material, pigment for resin, fluorescent agent for optical glass, electrode, soldering material | 60ppm (0,006%) by weight in homogeneous material. |
| 71 | | Cadmium sulfate | 10124-36-4 | | | |
| 72 | | Cadmium nitrate | 10325-94-7 | | | |
| 73 | | Cadmium oxide | 1306-19-0 | | | |
| 74 | | Cadmium sulfide | 1306-23-6 | | | |
| 75 | Cadmium * and it compounds | Cadmium fluoride | 7790-79-6 | 232-222-0 | | Not allowed |
| 76 | | Cadmium | 7440-43-9 | 231-152-8 | Pigment, corrosion-resistant surface treatment, electric/electronics material, optical material, stabilizer, plating material, pigment for resin, fluorescent agent for optical glass, electrode, soldering material | Not allowed |

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| 77 | Phthalate's | Bis(2-ethylhexyl) phthalate (DEHP) | 117-81-7 | - - - - | Widely used as a plasticizer in all kinds of polymers. | 1000 ppm's or 0,1% |
| 78 | | Butyl benzyl phthalate (BBP) | 85-68-7 | - - - - | Widely used as a plasticizer in all kinds of polymers. | 1000 ppm's or 0,1% |
| 79 | | Dibutyl phthalate (DBP) | 84-74-2 | 201-557-4 | Widely used as a plasticizer in all kinds of polymers. | 1000 ppm's or 0,1% |
| 80 | | Diisobutyl phthalate (DIBP) | 84-69-5 | 201-553-2 | Widely used as a plasticizer in all kinds of polymers. | 1000 ppm's or 0,1% |

## Annex 09 - Substance of high concern (SVHC-REACH)

| Nº | Substance Name | CAS Number | EC Number | Possible Uses | Limits | Date of Inclusion |
|---|---|---|---|---|---|---|
| 1 | Anthracene | 204-371-1 | 120-12-7 | Source of dyestuff | 1000ppm (0,1%) | 2008-10-28 |
| 2 | 4,4'- Diaminodiphenylmethane (MDA) | 202-974-4 | 101-77-9 | Curing agent for epoxy resin in PCB, preparation of PU, azo dyes in garments | 1000ppm (0,1%) | 2008-10-28 |
| 3 | Dibutyl phthalate (DBP) | 201-557-4 | 84-74-2 | Plasticizer, in adhesives and paper coatings; insect repellent for textiles | 1000ppm (0,1%) | 2008-10-28 |
| 4 | Bis (2-ethylhexyl)phthalate (DEHP) | 204-211-0 | 117-81-7 | Insecticides, weed killer, wood preservatives, colored glass, dyeing and printing | 1000ppm (0,1%) | 2008-10-28 |
| 5 | Benzyl butyl phthalate (BBP) | 201-622-7 | 85-68-7 | | 1000ppm (0,1%) | 2008-10-28 |
| 6 | Diarsenic pentaoxide | 21116-9 | 1303-28-2 | | 100ppm (0,01%) | 2008-10-28 |
| 7 | Diarsenic trioxide | 215-481-4 | 1327-53-3 | Weed killers, timber preservatives, manufacture of special glass | 100ppm (0,01%) | 2008-10-28 |
| 8 | Lead hydrogen arsenate | 232-064-2 | 7784-40-9 | Insectides | 600ppm (0,06%) | 2008-10-28 |
| 9 | Triethyl arsenate | 427-700-2 | 15606-95-8 | Intermediates for semi-conductor | 1000ppm (0,1%) | 2008-10-28 |
| 10 | Sodium dichromate | 234-190-3 | 7789-12-0, 10588-01-9 | Chrome-tanning of leather, corrosion inhibitor in paints, mordant in textile dyeing process | Not allowed | 2008-10-28 |
| 11 | 5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene) | 201-329-4 | 81-15-2 | Cosmetics and soap perfumes | 500ppm (0,05%) | 2008-10-28 |
| 12 | Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified: Alpha-hexabromocyclododecane Beta-hexabromocyclododecane Gamma-exabromocyclododecane | 247-148-4, 221-695-9 | 25637-99-4, 3194-55-6 (134237-50-6) (134237-51-7) (134237-52-8) | Flame retardant used in HIPS and textiles | Not allowed | 2008-10-28 |
| 13 | Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins) | 287-476-5 | 85535-84-8 | Leather coating, plasticizer in PVC and chlorinated rubber, flame retardant in plastic & textiles | Not allowed | 2008-10-28 |
| 14 | Bis(tributyltin)oxide (TBTO) | 200-268-0 | 56-35-9 | Pesticide, fungicide in paint | Not allowed | 2008-10-28 |
| 15 | Anthracene oil | 292-602-7 | 90640-80-5 | Paint, preservative oil, insecticide | 1000ppm (0,1%) | 2010-1-13 |
| 16 | Anthracene oil, anthracene paste,distn. lights | 295-278-5 | 91995-17-4 | Paint, moisture seal | 1000ppm (0,1%) | 2010-1-13 |
| 17 | Anthracene oil, anthracene paste, anthracene fraction | 295-275-9 | 91995-15-2 | | 1000ppm (0,1%) | 2010-1-13 |
| 18 | Anthracene oil, anthracene-low | 292-604-8 | 90640-82-7 | | 1000ppm (0,1%) | 2010-1-13 |
| 19 | Anthracene oil, anthracene paste | 292-603-2 | 90640-81-6 | | 1000ppm (0,1%) | 2010-1-13 |

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| 20 | Pitch, coal tar, high temp. | 266-028-2 | 65996-93-2 | | 1000ppm (0,1%) | 2010-1-13 |
| 21 | Diisobutyl phthalate | 201-553-2 | 84-69-5 | Plasticizer | 1000ppm (0,1%) | 2010-1-13 |
| 22 | 2,4-Dinitrotoluene | 204-450-0 | 121-14-2 | Manufacture of explosives, polyurethane plastics, organic synthesis, dyes | 1000ppm (0,1%) | 2010-1-13 |
| 23 | Lead chromate | 231-846-0 | 7758-97-6 | Used as colorant in painting, printing inks, rubber and plastic | 1000ppm (0,1%) | 2010-1-13 |
| 24 | Lead chromate molybdate sulphate red (C.I. Pigment Red 104) | 235-759-9 | 12656-85-8 | Used as additives for painting and coatings, printing inks and in plastics | See ROHS table | 2010-1-13 |
| 25 | Lead sulfochromate yellow (C.I. Pigment Yellow 34) | 215-693-7 | 1344-37-2 | | See ROHS table | 2010-1-13 |
| 26 | Tris(2-chloroethyl)phosphate | 204-118-5 | 115-96-8 | Flame retardant, plasticizer | See ROHS table | 2010-1-13 |
| 27 | Acrylamide | 201-173-7 | 1979-6-1 | Acrylamide is almost exclusively used for the synthesis of polyacrylamides | 1000ppm (0,1%) | 2010-3-30 |
| 28 | Trichloroethylene | 201-167-4 | 1979-1-6 | Cleaning and degreasing of metal parts, Solvent in adhesives, Intermediate in the manufacture of chlorinated and fluorinated organic compounds | 1000ppm (0,1%) | 2010-6-18 |
| 29 | Boric acid | 233-139-2, 234-343-4 | 10043-35-3, 11113-50-1 | In biocides and preservatives, personal care products, food additives, glass, ceramics, rubber, fertilisers, flame retardants, paints, industrial fluids, brake fluids, soldering products, film developers. | 1000ppm (0,1%) | 2010-6-18 |
| 30 | Disodium tetraborate, anhydrous | 215-540-4 | 1303-96-4, 1330-43-4, 12179-04-3 | In glass and glass fibres, ceramics, detergents and cleaners, personal care products, industrial fluids, metallurgy, adhesives, flame retardants, biocides, fertilizers | 1000ppm (0,1%) | 2010-6-18 |
| 31 | Tetraboron disodium heptaoxide, hydrate | 235-541-3 | 12267-73-1 | Manufacture of other chromium compounds | 1000ppm (0,1%) | 2010-6-18 |
| 32 | Sodium chromate | 231-889-5 | 7775-11-3 | | See ROHS table | 2010-6-18 |
| 33 | Potassium chromate | 232-140-5 | 7789-00-6 | Treatment and coating of metals, Manufacture of reagents and chemicals, Manufacture of textiles, Colouring agent in ceramics, Tanning and dressing of leather, Manufacture of pigments/inks, Pyrotechnics | See ROHS table | 2010-6-18 |
| 34 | Ammonium dichromate | 232-143-1 | 7789-9-5 | Oxidising agent, Tanning of leather, Manufacture of textiles, Manufacture of photosensitive screens (cathode ray tubes), Metal treatment | See ROHS table | 2010-6-18 |
| 35 | Potassium dichromate | 231-906-6 | 7778-50-9 | Chrome metal manufacturing, Treatment and coating of metals, Manufacture of reagents and chemicals, Cleaning of laboratory glassware, Tanning of leather, Manufacture of textiles, Photolithography, Wood treatment, Corrosion inhibitor in cooling systems | See ROHS table | 2010-6-18 |

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| 36 | Cobalt(II) sulphate | 233-334-2 | 10124-43-3 | Production of other chemicals. Manufacture of catalysts and driers, surface treatments (such as electroplating), corrosion prevention, production of pigments, decolourising (in glass, pottery), batteries, animal food supplement, soil fertilizer. | 1000ppm (0,1%) | 2010-12-15 |
| 37 | Cobalt(II) dinitrate | 233-402-1 | 10141-05-6 | Production of other chemicals and the manufacture of catalysts. Surface treatment and batteries. As pigment of in ceramic, Sympathetic (invisible) inks, Hair dyes | 1000ppm (0,1%) | 2010-12-15 |
| 38 | Cobalt(II) carbonate | 208-169-4 | 513-79-1 | Manufacture of catalysts, feed additive, production of other chemicals, production of pigments (ceramic, glass), and adhesion (in ground coat frit). | 1000ppm (0,1%) | 2010-12-15 |
| 39 | Cobalt(II) diacetate | 200-755-8 | 71-48-7 | manufacture of catalysts, production of other chemicals, surface treatment, alloys, production of pigments, dyes, rubber adhesion, and feed additive. | 1000ppm (0,1%) | 2010-12-15 |
| 40 | 2-Methoxyethanol | 203-713-7 | 109-86-4 | Mainly used as solvent, chemical intermediate and additive for fuels. | 1000ppm (0,1%) | 2010-12-15 |
| 41 | 2-Ethoxyethanol | 203-804-1 | 110-80-5 | Mainly used as solvent and chemical intermediate. | 1000ppm (0,1%) | 2010-12-15 |
| 42 | Chromium trioxide | 215-607-8 | 1333-82-0 | Used for metal finishing and as fixing agent in waterborne wood preservatives. | See ROHS table | 2010-12-15 |
| 43 | Acids generated from chromium trioxide and their oligomers. Names of the acids and their oligomers: Chromic acid, Dichromic acid, Oligomers of chromic acid and dichromic acid. | 231-801-5, 236-881-5 | 7738-94-5, 13530-68-2 | | 600ppm (0,06%) | 2010-12-15 |
| 44 | 1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich | 276-158-1 | 71888-89-6 | Plasticiser in PVC, sealants, printing inks and coatings | 1000ppm (0,1%) | 2011-6-20 |
| 45 | 1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters | 271-084-6 | 68515-42-4 | Used in adhesives and binding agents, paint, lacquers and varnishes, Widely used in construction materials, softeners, PVC, roof coatings, exterior trim, tarps, cement, caulk, and plasticization of electrical and communication wire insulation. | 1000ppm (0,1%) | 2011-6-20 |
| 46 | 1,2,3-Trichloropropane | 202-486-1 | 96-18-4 | Used in Pesticides and chlorinated solvents.Used as cross-linking agent in polysulfide elastomers and hexafluoropropylene | 1000ppm (0,1%) | 2011-6-20 |
| 47 | 1-Methyl-2-pyrrolidone | 212-828-1 | 872-50-4 | Used in High temperature coating, acrylic and styrene latexes, also used in industrial and consumer cleaners such as paint removers, industrial degreasing, photoresist stripping | 1000ppm (0,1%) | 2011-6-20 |

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| 48 | 2-Ethoxyethyl acetate | 203-839-2 | 111-15-9 | Chemical solvent, formulation of paints, lacquers and varnishes, intermediate in the chemical industry, used in construction material, products for rubber and plastics, industrial dyeing, glues | 1000ppm (0,1%) | 2011-6-20 |
| 49 | Hydrazine | 206-114-9 | 302-01-2, 7803-57-8 | Corrosion inhibitors, also used as intermediate for synthesis in pharmaceuticals, agrochemicals, paints, inks and organic dyes, Use as monomer in polymerizations | 1000ppm (0,1%) | 2011-6-20 |
| 50 | Strontium chromate | 232-142-6 | 7789-6-2 | Rust-inhibiting pigment to metal substrates, formulation of coatings such as paints, varnishes, adhesives, sealants, thinners, paint removes | 600ppm (0,06%) | 2011-6-20 |
| 51 | Cobalt dichloride | 231-589-4 | 7646-79-9 | Moisture indicator in silica gel, absorbent | Not allowed | 2011/06/20 - 2008/10/28 |
| 52 | 1,2-dichloroethane | 203-458-1 | 107-06-2 | Mainly used for manufacture of other substances. Minor uses as solvent in the chemical and pharmaceutical industry. | 1000ppm (0,1%) | 2011-12-19 |
| 53 | 2,2'-dichloro-4,4'-methylenedianiline | 202-918-9 | 101-14-4 | Mainly used as curing agent in resins and in the production of polymer articles and also for manufacture of other substances. The substance may further be used in construction and arts. | 1000ppm (0,1%) | 2011-12-19 |
| 54 | 2-Methoxyaniline; o-Anisidine | 201-963-1 | 90-04-0 | Mainly used in the manufacture of dyes for tattooing and coloration of paper, polymers and aluminium foil. | 1000ppm (0,1%) | 2011-12-19 |
| 55 | 4-(1,1,3,3-tetramethylbutyl)phenol | 205-426-2 | 140-66-9 | Mainly used in the manufacture of polymer preparations and of ethoxylates. Further used as a component in adhesives, coatings, inks and rubber articles. | 1000ppm (0,1%) | 2011-12-19 |
| 56 | Bis(2-methoxyethyl) ether | 203-924-4 | 111-96-6 | Used primarily as a reaction solvent or process chemical in a wide variety of applications. Used also as solvent for battery electrolytes, and possibly in other products such as sealants, adhesives, fuels and automotive care products. | 1000ppm (0,1%) | 2011-12-19 |
| 57 | Formaldehyde, oligomeric reaction products with aniline | 500-036-1 | 25214-70-4 | Mainly used for manufacture of other substances. Minor uses are as hardener for epoxy resins, e.g. for the production of rolls, pipes and moulds, and as well for adhesives. | 1000ppm (0,1%) | 2011-12-19 |
| 58 | Phenolphthalein | 201-004-7 | 1977-9-8 | Mainly used as laboratory agent (in pH indicator solutions), for the production of pH-indicator paper and in medicinal products. | 1000ppm (0,1%) | 2011-12-19 |

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| 59 | Bis(2-methoxyethyl) phthalate | 204-212-6 | 117-82-8 | No registration for this phthalate compound has been submitted to ECHA. Hence, the substance seems not to be manufactured in or imported to the EU in quantities above 1 t/y. Main uses in the past were as plasticiser in polymeric materials and paints, lacquers and varnishes, including printing inks. | 1000ppm (0,1%) | 2011-12-19 |
| 60 | N,N-dimethylacetamide | 204-826-4 | 127-19-5 | Used as solvent, mainly in the manufacture of various substances and in the production of fibres for clothing and other applications. Also used as reagent, and in products such as industrial coatings, polyimide films, paint strippers and ink removers. | 1000ppm (0,1%) | 2011-12-19 |
| 61 | Arsenic acid | 231-901-9 | 7778-39-4 | Mainly used to remove gas bubbles from ceramic glass melt and in the production of laminated printed circuit boards | 100ppm (0,01%) | 2011-12-19 |
| 62 | Trilead diarsenate | 222-979-5 | 3687-31-8 | Trilead diarsenate is present in complex raw materials imported for manufacture of copper, lead and a range of precious metals. The trilead diarsenate contained in the raw materials is in the metallurgical refinement process transformed to calcium arsenate and diarsenic trioxide. Whereas most of the calcium arsenate appears to be disposed of as waste the diarsenic trioxide is used further. | See ROHS table | 2011-12-19 |
| 63 | Calcium arsenate | 231-904-5 | 7778-44-1 | Calcium arsenate is present in complex raw materials imported for manufacture of copper, lead and a range of precious metals. It appears mainly to be used as precipitating agent in copper smelting and to manufacture diarsenic trioxide. However, most of the substance seems to be disposed of as waste. | 100ppm (0,01%) | 2011-12-19 |
| 64 | Lead diazide, Lead azide | 236-542-1 | 13424-46-9 | Mainly used as initiator or booster in detonators for both civilian and military uses and as initiator in pyrotechnic devices. | 600ppm (0,06%) | 2011-12-19 |
| 65 | Lead styphnate | 239-290-0 | 15245-44-0 | Mainly used as a primer for small calibre and rifle ammunition. Other common uses are in munition pyrotechnics, power actuated devices and detonators for civilian use. | 600ppm (0,06%) | 2011-12-19 |
| 66 | Lead dipicrate | 229-335-2 | 6477-64-1 | No registration for this substance has been submitted to ECHA. Lead | 600zppm (0,06%) | 2011-12-19 |

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| | | | | dipicrate is an explosive like lead diazide and lead styphnate. It may be used in low amounts in detonator mixtures together with the two other mentioned lead compounds. | | |
| 67 | Dichromium tris(chromate) | 246-356-2 | 24613-89-6 | Mainly used in mixtures for metal surface treatment in the aeronautic/aerospace, steel and aluminium coating sectors. | See ROHS table | 2011-12-19 |
| 68 | Pentazinc chromate octahydroxide | 256-418-0 | 49663-84-5 | Mainly used in coatings in the vehicle coating and aeronautic / aerospace sectors. | 600ppm (0,06%) | 2011-12-19 |
| 69 | Potassium hydroxyoctaoxodizincatedichromate | 234-329-8 | 11103-86-9 | Mainly used in coatings in the aeronautic/ aerospace, steel and aluminium coil coating and vehicle coating sectors. | 600ppm (0,06%) | 2011-12-19 |
| 70 | Zirconia Aluminosilicate Refractory Ceramic Fibres | - - - - | - - - - | Refractory ceramic fibres are used for high-temperature insulation, almost exclusively in industrial applications (insulation of industrial furnaces and equipment, equipment for the automotive and aircraft/aerospace industry) and in fire protection (buildings and industrial process equipment). | 1000ppm (0,1%) | 2011-12-19 |
| 71 | Aluminosilicate Refractory Ceramic Fibres | - - - - | - - - - | | 1000ppm (0,1%) | 2011-12-19 |
| 72 | 1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme) | 203-977-3 | 112-49-2 | Mainly used as a solvent or as a processing aid in the manufacture and formulation of industrial chemicals. Minor use in brake fluids and repair of motor vehicles. | 1000ppm (0,1%) | 2012-6-18 |
| 73 | 1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME) | 203-794-9 | 110-71-4 | Mainly used as a solvent or as a processing aid in the manufacture and formulation of industrial chemicals, including use as an electrolyte solvent in lithium batteries. | 1000ppm (0,1%) | 2012-6-18 |
| 74 | 4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)] | 209-218-2 | 561-41-1 | Used in the production of writing inks and potentially in the production of other inks, as well as for dyeing of a variety of materials. | 1000ppm (0,1%) | 2012-6-18 |
| 75 | 4,4'-bis(dimethylamino)benzophenone (Michler's ketone) | 202-027-5 | 90-94-8 | Intermediate in the manufacture of triphenylmethane dyes and other substances. Further potential uses include as additive (photosensitiser) in dyes and pigments, in dry film products, as a process chemical in the production of electronic circuit boards, in research and development applications. | 1000ppm (0,1%) | 2012-6-18 |
| 76 | [4-[4,4'-bis(dimethylamino) benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Violet 3) [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's | 208-953-6 | 548-62-9 | Used mainly for paper colouring and inks supplied in printer cartridges and ball pens. Further uses include staining of dried plants, marker for increasing the visibility of liquids, staining in | 1000ppm (0,1%) | 2012-6-18 |

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| | base (EC No. 202-959-2)] | | | microbial and clinical laboratories. | | |
| 77 | [4-[[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene]cyclohexa-2,5-dien-1-ylidene] dimethylammonium chloride (C.I. Basic Blue 26) [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)] | 219-943-6 | 2580-56-5 | Used in the production of inks, cleaners, and coatings, as well as for dyeing of paper, packaging, textiles, plastic products, and other types of articles. It is also used in diagnostic and analytical applications. | 1000ppm (0,1%) | 2012-6-18 |
| 78 | Diboron trioxide | 215-125-8 | 1303-86-2 | Used in a multitude of applications, e.g., in glass and glass fibres, frits, ceramics, flame retardants, catalysts, industrial fluids, metallurgy, adhesives, inks/paints, film developers solutions, detergents and cleaners, biocides and insecticides. | 1000ppm (0,1%) | 2012-6-18 |
| 79 | Formamide | 200-842-0 | 1975-12-7 | Mainly used as an intermediate. Minor uses as solvent, as reagent chemical (in the pharmaceutical industry) and as laboratory chemical. The substance seems further to be used in the agrochemical industry and as a plasticiser. | 1000ppm (0,1%) | 2012-6-18 |
| 80 | Lead(II) bis(methanesulfonate) | 401-750-5 | 17570-76-2 | Mainly used in plating (both electrolytic and electroless) processes for electronic components (such as printed circuit boards). | See ROHS table | 2012-6-18 |
| 81 | N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base) | 202-959-2 | 101-61-1 | Intermediate in the manufacture of dyes and other substances. Used also as chemical reagent in research and development. | 1000ppm (0,1%) | 2012-6-18 |
| 82 | 1,3,5-Tris(oxiran-2-ylmethyl)-1,3,5-triazinane-2,4,6-trione (TGIC) | 219-514-3 | 2451-62-9 | Mainly used as a hardener in resins and coatings; also used in inks for the printed circuit board industry, electrical insulation material, resin moulding systems, laminated sheeting, silk screen printing coatings, tools, adhesives, lining materials and stabilisers for plastics. | 1000ppm (0,1%) | 2012-6-18 |
| 83 | α,α-Bis[4-(dimethylamino)phenyl]-4-(phenylamino)naphthalene-1-methanol (C.I. Solvent Blue 4) [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)] | 229-851-8 | 6786-83-0 | Mainly used in the production of printing and writing inks, for dyeing of paper and in mixtures such as windscreen washing agents. | 1000ppm (0,1%) | 2012-6-18 |
| 84 | 1,3,5-tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione (β-TGIC) | 423-400-0 | 59653-74-6 | Mainly used as a hardener in resins and coatings; also used in inks for the printed circuit board industry, electrical insulation material, resin moulding systems, laminated sheeting, silk screen printing coatings, tools, adhesives, lining materials and stabilisers for plastics. | 1000ppm (0,1%) | 2012-6-18 |

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| 85 | Pyrochlore, antimony lead yellow | 232-382-1 | 8012-00-8 | | 1000ppm (0,1%) | 19/12/2012 |
| 86 | 6-methoxy-m-toluidine (p-cresidine) | 204-419-1 | 120-71-8 | | 1000ppm (0,1%) | 19/12/2012 |
| 87 | Henicosafluoroundecanoic acid | 218-165-4 | 2058-94-8 | | 1000ppm (0,1%) | 19/12/2012 |
| 88 | Hexahydromethylphthalic anhydride [1], Hexahydro-4-methylphthalic anhydride [2], Hexahydro-1-methylphthalic anhydride [3], Hexahydro-3-methylphthalic anhydride [4] | 247-094-1, 243-072-0, 256-356-4, 260-566-1 | 25550-51-0, 19438-60-9, 48122-14-1, 57110-29-9 | | 1000ppm (0,1%) | 19/12/2012 |
| 89 | Cyclohexane-1,2-dicarboxylic anhydride [1], cis-cyclohexane-1,2-dicarboxylic anhydride [2], trans-cyclohexane-1,2-dicarboxylic anhydride [3] | 201-604-9, 236-086-3, 238-009-9 | 85-42-7, 13149-00-3, 14166-21-3 | | 1000ppm (0,1%) | 19/12/2012 |
| 90 | Dibutyltin dichloride (DBTC) | 211-670-0 | 683-18-1 | | 1000ppm (0,1%) | 19/12/2012 |
| 91 | Lead bis(tetrafluoroborate) | 237-486-0 | 13814-96-5 | | 1000ppm (0,1%) | 19/12/2012 |
| 92 | Lead dinitrate | 233-245-9 | 10099-74-8 | | 1000ppm (0,1%) | 19/12/2012 |
| 93 | Silicic acid, lead salt | 234-363-3 | 11120-22-2 | | 1000ppm (0,1%) | 19/12/2012 |
| 94 | 4-Aminoazobenzene | 200-453-6 | 60-09-3 | | 1000ppm (0,1%) | 19/12/2012 |
| 95 | Lead titanium zirconium oxide | 235-727-4 | 12626-81-2 | | 1000ppm (0,1%) | 19/12/2012 |
| 96 | Lead monoxide (lead oxide) | 215-267-0 | 1317-36-8 | | 1000ppm (0,1%) | 19/12/2012 |
| 97 | o-Toluidine | 202-429-0 | 95-53-4 | | 1000ppm (0,1%) | 19/12/2012 |
| 98 | 3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine | 421-150-7 | 143860-04-2 | | 1000ppm (0,1%) | 19/12/2012 |
| 99 | Silicic acid ($H_2Si_2O_5$), barium salt (1:1), lead-doped | 272-271-5 | 68784-75-8 | | 1000ppm (0,1%) | 19/12/2012 |
| 100 | Trilead bis(carbonate)dihydroxide | 215-290-6 | 1319-46-6 | | 1000ppm (0,1%) | 19/12/2012 |
| 101 | Furan | 203-727-3 | 110-00-9 | | 1000ppm (0,1%) | 19/12/2012 |
| 102 | N,N-dimethylformamide | 200-679-5 | 68-12-2 | | 1000ppm (0,1%) | 19/12/2012 |
| 103 | 4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated | - - - - | - - - - | | 1000ppm (0,1%) | 19/12/2012 |
| 104 | 4-Nonylphenol, branched and linear | - - - - | - - - - | | 1000ppm (0,1%) | 19/12/2012 |
| 105 | 4,4'-methylenedi-o-toluidine | 212-658-8 | 838-88-0 | | 1000ppm (0,1%) | 19/12/2012 |
| 106 | Diethyl sulphate | 200-589-6 | 64-67-5 | | 1000ppm (0,1%) | 19/12/2012 |
| 107 | Dimethyl sulphate | 201-058-1 | 77-78-1 | | 1000ppm (0,1%) | 19/12/2012 |
| 108 | Lead oxide sulfate | 234-853-7 | 12036-76-9 | | 1000ppm (0,1%) | 19/12/2012 |
| 109 | Lead titanium trioxide | 235-038-9 | 12060-00-3 | | 1000ppm (0,1%) | 19/12/2012 |
| 110 | Acetic acid, lead salt, basic | 257-175-3 | 51404-69-4 | | 1000ppm (0,1%) | 19/12/2012 |
| 111 | [Phthalato(2-)]dioxotrilead | 273-688-5 | 69011-06-9 | | 1000ppm (0,1%) | 19/12/2012 |
| 112 | Bis(pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE) | 214-604-9 | 1163-19-5 | | 1000ppm (0,1%) | 19/12/2012 |
| 113 | N-methylacetamide | 201-182-6 | 79-16-3 | | 1000ppm (0,1%) | 19/12/2012 |

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|---|---|---|---|---|---|---|
| 114 | Dinoseb (6-sec-butyl-2,4-dinitrophenol) | 201-861-7 | 88-85-7 | | 1000ppm (0,1%) | 19/12/2012 |
| 115 | 1,2-Diethoxyethane | 211-076-1 | 629-14-1 | | 1000ppm (0,1%) | 19/12/2012 |
| 116 | Tetralead trioxide sulphate | 235-380-9 | 12202-17-4 | | 1000ppm (0,1%) | 19/12/2012 |
| 117 | N-pentyl-isopentylphthalate | - - - - | 776297-69-9 | | 1000ppm (0,1%) | 19/12/2012 |
| 118 | Dioxobis(stearato)trilead | 235-702-8 | 12578-12-0 | | 1000ppm (0,1%) | 19/12/2012 |
| 119 | Tetraethyllead | 201-075-4 | 78-00-2 | | 1000ppm (0,1%) | 19/12/2012 |
| 120 | Pentalead tetraoxide sulphate | 235-067-7 | 12065-90-6 | | 1000ppm (0,1%) | 19/12/2012 |
| 121 | Pentacosafluorotridecanoic acid | 276-745-2 | 72629-94-8 | | 1000ppm (0,1%) | 19/12/2012 |
| 122 | Tricosafluorododecanoic acid | 206-203-2 | 307-55-1 | | 1000ppm (0,1%) | 19/12/2012 |
| 123 | Heptacosafluorotetradecanoic acid | 206-803-4 | 376-06-7 | | 1000ppm (0,1%) | 19/12/2012 |
| 124 | 1-bromopropane (n-propyl bromide) | 203-445-0 | 106-94-5 | | 1000ppm (0,1%) | 19/12/2012 |
| 125 | Methoxyacetic acid | 210-894-6 | 625-45-6 | | 1000ppm (0,1%) | 19/12/2012 |
| 126 | 4-methyl-m-phenylenediamine (toluene-2,4-diamine) | 202-453-1 | 95-80-7 | | 1000ppm (0,1%) | 19/12/2012 |
| 127 | Methyloxirane (Propylene oxide) | 200-879-2 | 75-56-9 | | 1000ppm (0,1%) | 19/12/2012 |
| 128 | Trilead dioxide phosphonate | 235-252-2 | 12141-20-7 | | 1000ppm (0,1%) | 19/12/2012 |
| 129 | o-aminoazotoluene | 202-591-2 | 97-56-3 | | 1000ppm (0,1%) | 19/12/2012 |
| 130 | 1,2-Benzenedicarboxylic acid, dipentylester, branched and linear | 284-032-2 | 84777-06-0 | | 1000ppm (0,1%) | 19/12/2012 |
| 131 | 4,4'-oxydianiline and its salts | 202-977-0 | 101-80-4 | | 1000ppm (0,1%) | 19/12/2012 |
| 132 | Orange lead (lead tetroxide) | 215-235-6 | 1314-41-6 | | 1000ppm (0,1%) | 19/12/2012 |
| 133 | Biphenyl-4-ylamine | 202-177-1 | 92-67-1 | | 1000ppm (0,1%) | 19/12/2012 |
| 134 | Diisopentylphthalate | 210-088-4 | 605-50-5 | | 1000ppm (0,1%) | 19/12/2012 |
| 135 | Fatty acids, C16-18, lead salts | 292-966-7 | 91031-62-8 | | 1000ppm (0,1%) | 19/12/2012 |
| 136 | Diazene-1,2-dicarboxamide (C,C'-azodi(formamide)) | 204-650-8 | 123-77-3 | | 1000ppm (0,1%) | 19/12/2012 |
| 137 | Sulfurous acid, lead salt, dibasic | 263-467-1 | 62229-08-7 | | 1000ppm (0,1%) | 19/12/2012 |
| 138 | Lead cyanamidate | 244-073-9 | 20837-86-9 | | 1000ppm (0,1%) | 19/12/2012 |
| 139 | Cadmium | 231-152-8 | 7440-43-9 | battery electrodes; anti-corrosion coating; catalyst alloy and the solar cell; pigments; plastics and polymer stabilizer | See ROHS table | 2012-12-19 |
| 140 | Cadmium oxide | 215-146-2 | 1306-19-0 | Battery electrode; production of anti-corrosion coating; catalysts, pigments and ceramic glazes; glass, alloy and optoelectronic devices; reinforced polymer heat resistance | See ROHS table | 2012-12-19 |
| 141 | Ammonium pentadecafluorooctanoate (APFO) | 223-320-4 | 3825-26-1 | Fluoropolymer and a fluorine rubber production; non-stick cookware production emulsifier | 1000ppm (0,1%) | 2012-12-19 |

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|---|---|---|---|---|---|---|
| 142 | Pentadecafluorooctanoic acid (PFOA) | 206-397-9 | 335-67-1 | Fluoropolymer and a fluorine rubber production; non-stick cookware production emulsifier | 1000ppm (0,1%) | 2012-12-19 |
| 143 | Dipentyl phthalate (DPP) | 205-017-9 | 131-18-0 | Plasticizers in PVC | 1000ppm (0,1%) | 2013-6-20 |
| 144 | 4-Nonylphenol, branched and linear, ethoxylated [substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, ethoxylated covering UVCB- and well-defined substances, polymers and homologues, which include any of the individual isomers and/or combinations thereof] | - - - - | - - - - | Mining; detergent; paints, coatings and varnishes; leather and textile processing | 1000ppm (0,1%) | 2013-6-20 |
| 145 | Cadmium sulphide | 215-147-8 | 1306-23-6 | Pigment, used as colorant for enamel, ceramics, glass, plastic and ink. | See ROHS table | 2013-6-20 |
| 146 | Disodium 4-amino-3-[[4'-[(2,4-diaminophenyl)azo][1,1'-biphenyl]-4-yl]azo] -5-hydroxy-6-(phenylazo)naphthalene-2,7-disulphonate (C.I. Direct Black 38) | 217-710-3 | 1937-37-7 | Mainly used for cotton, linen, rayon and other cellulose fiber dyeing and weaving and printing. | 1000ppm (0,1%) | 2013-6-20 |
| 147 | Dihexyl phthalate | 201-559-5 | 84-75-3 | Plasticizer | 1000ppm (0,1%) | 2013-6-20 |
| 148 | Imidazolidine-2-thione; (2-imidazoline-2-thiol) | 202-506-9 | 96-45-7 | Accelerators for rubber synthetic. | 1000ppm (0,1%) | 2013-6-20 |
| 149 | Trixylyl phosphate | 246-677-8 | 25155-23-1 | Fire retardant and plasticizer | 1000ppm (0,1%) | 2013-12-16 |
| 150 | Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate) (C.I. Direct Red 28) | 209-358-4 | 573-58-0 | Dyes for viscose, cotton, linen, silk and other textile dyeing and paper products; and laboratory indicators | 1000ppm (0,1%) | 2013-12-16 |
| 151 | Lead di (acetate) | 206-104-4 | 301-04-2 | Preparation of various solvents lead salt, paint, water repellant, paint filler, paint desiccant, fiber stains and heavy metals cyanide process. | See ROHS table | 2013-12-16 |
| 152 | 2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328) | 25973-55-1 | 247-384-8 | | 1000ppm (0,1%) | 2014-12-17 |
| 153 | 2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320) | 3846-71-7 | 223-346-6 | | 1000ppm (0,1%) | 2014-12-17 |
| 154 | 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE) | 15571-58-1 | 239-622-4 | | 1000ppm (0,1%) | 2014-12-17 |
| 155 | Cadmium fluoride | 7790-79-6 | 232-222-0 | | See ROHS table | 2014-12-17 |
| 156 | Cadmium sulphate | 10124-36-4 / 31119-53-6 | 233-331-6 | | See ROHS table | 2014-12-17 |
| 157 | reaction mass of 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate and 2-ethylhexyl 10-ethyl-4-[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]-4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (reaction mass of DOTE and MOTE) | - - - - | - - - - | | 1000ppm (0,1%) | 2014-12-17 |
| 158 | 1,2-Benzenedicarboxylic acid, dihexylester, branched and linear | 68515-50-4 | 271-093-5 | | 1000ppm (0,1%) | 2014-12-17 |
| 159 | Cadmium chloride | 10108-64-2 | 233-296-7 | | See ROHS table | 2014-12-17 |

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|---|---|---|---|---|---|---|
| 160 | Sodium perborate,perboric acid, sodium salt | - - - - | 239-172-9 / 234-390-0 | | 1000ppm (0,1%) | 2014-12-17 |
| 161 | Sodium peroxometaborate | 7632-04-4 | 231-556-4 | | 1000ppm (0,1%) | 2014-12-17 |
| 162 | Benzo[def]chrysene | 50-32-8 | 200-028-5 | | 1000ppm (0,1%) | 20/06/2016 |
| 163 | 1,3-propanesultone | 1120-71-4 | 214-317-9 | | 1000ppm (0,1%) | 17/12/2015 |
| 164 | 2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327) | 3864-99-1 | 223-383-8 | | 1000ppm (0,1%) | 17/12/2015 |
| 165 | 2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350) | 36437-37-3 | 253-037-1 | | 1000ppm (0,1%) | 17/12/2015 |
| 166 | Nitrobenzene | 202-716-0 | 98-95-3 | | 1000ppm (0,1%) | 17/12/2015 |
| 167 | Perfluorononan-1-oic-acid and its sodium and ammonium salts | 375-95-1 , 21049-39-8 , 4149-60-4 | 206-801-3 | | 1000ppm (0,1%) | 17/12/2015 |
| 168 | 1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters or mixed decyl and hexyl and octyl diesters | 68648-93-1 , 68515-51-5 | 272-013-1 , 271-094-0 | | 1000ppm (0,1%) | 15/06/2015 |
| 169 | 5-sec-butyl-2-(2,4-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [1], 5-sec-butyl-2-(4,6-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [2] | - - - - | - - - - | | 1000ppm (0,1%) | 15/06/2015 |
| 170 | 4,4'-isopropylidenediphenol | 80-05-7 | 201-245-8 | | 1000ppm (0,1%) | 12/01/2017 |
| 171 | 4-heptylphenol, branched and linear | - - - - | - - - - | | 1000ppm (0,1%) | 12/01/2017 |
| 172 | Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts | 3830-45-3 , 3108-42-7 , 335-76-2 | 221-470-5 | | 1000ppm (0,1%) | 12/01/2017 |
| 173 | p-(1,1-dimethylpropyl)phenol | 80-46-6 | 201-280-9 | | 1000ppm (0,1%) | 12/01/2017 |

Remark: List of Substance Very High Concern (SVHC-REACH) comply with officially released by the European Chemicals Agency (ECHA), see http://echa.europa.eu/web/guest/candidate-list-table ;

## Annex 10 - Banned Hazardous Substances

| N° | Group | Name | CAS Number | EC Number | Poosible Uses | Under | Limit Value |
|---|---|---|---|---|---|---|---|
| 1 | Abestos | Crocidolite | 12001-28-4 | | Brake lining and pad, insulator, filler, friction material, pigment, paint, talc, adiabatic material | 5 | Not allowed in contact with food |
| 2 | | Chrysotile | 12001-29-5 | | | 5 | |
| 3 | | Amosite (Grunerite) | 12172-73-5 | | | 5 | |
| 4 | | Asbestos | 1332-21-4 | | | 5 | |
| 5 | | Actinolite | 77536-66-4 | | | 5 | |
| 6 | | Anthophyllite | 77536-67-5 | | | 5 | |
| 7 | | Tremolite | 77536-68-6 | | | 5 | |
| 8 | Antimony/Antimony Compounds | Antimony trichloride | 10025-91-9 | | Pigment, paint, catalyst, lead-free soldering material, stabilizer, n-type dopant, flame retardant | 5 | 1000ppm (0,1%) |
| 09 | | Antimony pentoxide | 1314-60-9 | | | 5 | |
| 10 | | Sodium antimonate | 15432-85-6 | | | 5 | |
| 11 | | Antimony (metallic) | 7440-36-0 | | | 5 | |
| 12 | Arsenic and it compounds. | Potassium arsenite | 10124-50-2 | | | 4 | 0,01% |
| 13 | | Gallium arsenide | 1303-00-0 | | | 4 | |
| 14 | | Calcium arsenite | 27152-57-4 | | | 4 | |
| 15 | | 10,10 Oxybisphenoxarsine | 58-36-6 | | | 4 | |
| 16 | | Arsenic | 7440-38-2 | 231-148-6 | | 4 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 17 | | Calcium arsenate | 7778-44-1 | | | 4 | |
| 18 | | Potassium arsenate | 7784-41-0 | | | 4 | |
| 19 | Barium compounds (organic or water soluble), selected | Barium-nitrate | 10022-31-8 | | | | 1000ppm (0,1%) |
| 20 | | Barium 4-(1,1-dimethylethyl)benzoate | 10196-68-6 | | | | |
| 21 | | Barium-chloride | 10361-37-2 | | | | |
| 22 | | Barium-dodecairon-nonadecaoxide | 12047-11-9 | | | | |
| 23 | | Barium-hydroxide-octahydrate | 12230-71-6 | | | | |
| 24 | | Barium oxide, obtained by calcining witherite | 1304-28-5 | | | | |
| 25 | Barium compounds (organic or water soluble), selected | Barium-peroxide | 1304-29-6 | | | | 1000ppm (0,1%) |
| 26 | | Barium(2+) hydrogen 2-(2-hydroxy-3,6-disulphonato-1-naphthyl)azo benzoate | 1325-16-2 | | | | |
| 27 | | Barium-perchlorate | 13465-95-7 | | | | |
| 28 | | Barium-chlorate | 13477-00-4 | | | | |
| 29 | | Barium 2-(2-hydroxy-3,6-disulphonato-1-naphthyl)azo benzoate (3:2) | 15782-06-6 | | | | |
| 30 | | Barium-hydroxide | 17194-00-2 | | | | |
| 31 | | Barium-sebacate | 19856-32-7 | | | | |
| 32 | Barium compounds (organic or water soluble), selected | Barium bis(2-ethylhexanoate) | 4/1/2457 | | | | 1000ppm (0,1%) |
| 33 | | Barium bis (dinonylnaphthalenesulphonate) | 25619-56-1 | | | | |
| 34 | | Barium bis(nonylphenolate) | 28987-17-9 | | | | |
| 35 | | Barium-dilaurate | 4696-57-5 | | | | |
| 36 | | Barium-neodecanoate | 55172-98-0 | | | | |
| 37 | | Barium-dioleate | 591-65-1 | | | | |
| 38 | Barium compounds (organic or water soluble), selected | Barium bis 5-chloro-4-ethyl-2- (2-hydroxy-1-naphthyl)azo benzenesulp... | 67801-01-8 | | | | 1000ppm (0,1%) |
| 39 | | Barium distearate | 6865-35-6 | | | | |
| 40 | | Barium | 7440-39-3 | | | | |
| 41 | | Barium 4- (5-chloro-4-methyl-2-sulphonatophenyl)azo -3-hydroxy-2-naphthoate | 7585-41-3 | | | | |
| 42 | | Barium-fluoride | 7787-32-8 | | | | |
| 43 | | Barium-permanganate | 7787-36-2 | | | | |
| 44 | Benzene | Benzene | 71-43-2 | | Solvents | 5 | |
| 45 | Beryllium/Berylliu m Compounds | Beryllium-aluminum alloy | 12770-50-2 | | Ceramics raw material, alloy, catalyst, age-hardened alloy material, alloy material for springs, solder | 5 | 1000ppm (0,1%) |
| 46 | | Beryl ore | 1302-52-9 | | | 5 | |
| 47 | | Beryllium oxide | 1304-56-9 | | | 5 | |
| 48 | | Beryllium hydroxide | 13327-32-7 | | | 5 | |
| 49 | | Beryllium sulfate | 13510-49-1 | | | 5 | |
| 50 | | Beryllium phosphate | 13598-15-7 | | | 5 | |
| 51 | | Beryllium | 7440-41-7 | | | 5 | |
| 52 | | Beryllium chloride | 7787-47-5 | | | 5 | |
| 53 | | Beryllium fluoride | 7787-49-7 | | | 5 | |
| 54 | | Beryllium sulfate tetrahydrate | 7787-56-6 | | | 5 | |
| 55 | Biocides | Polychlorinated dibenzo-p-dioxins and (PCDD) | - - - - | | Biocides, herbecides and funjicides. | 18 | 0,005% (total) = limit value refers to the sum of all substances in this class |
| 56 | | Polychlorinated dibenzofurans (PCDF) | - - - - | | | 18 | |
| 57 | | Hexachlorobenzene | 118-74-1 | | | 18 | |

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|---|---|---|---|---|---|---|---|
| 58 | | Perchloropentacyclododecane / hexachloropentadiene dimer Mirex | 2385-85-5 | | | 18 | |
| 59 | Biocides | Aldrin | 309-00-2 | | | 18 | 0,005% (total) = limit value refers to the sum of all substances in this class |
| 60 | | DDT (1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane) | 50-29-3 | | | 18 | |
| 61 | | Chlordane | 57-74-9 | | | 18 | |
| 62 | | Dieldrin | 60-57-1 | | | 18 | |
| 63 | | Endrin | 72-20-8 | | | 18 | |
| 64 | | Heptachlor | 76-44-8 | | | 18 | |
| 65 | | Octachlorocamphene Toxaphene | 8001-35-2 | | | 18 | |
| 66 | Bismuth Compounds | Bismuth nitrate | 10361-44-1 | | Lead-free soldering material, soldering material | 5 | 1000ppm (0,1%) |
| 67 | | Bismuth trioxide | 1304-76-3 | | | 5 | 1000ppm (0,1%) |
| 68 | | Bismuth | 7440-69-9 | | | 5 | 1000ppm (0,1%) |
| 69 | Brominated Flame Retardants (other than PBBs or PBDEs | 2,4,6-tribromo-phenol | 118-79-6 | | Flame retardant, package molding, PVC plasticizer | 5 | 600ppm (0,06%) |
| 70 | | Chlorinated and brominated phosphate ester | 125997-20-8 | | | 5 | |
| 71 | | Brominated epoxy resin end-capped with tribromophenol | 135229-48-0 | | | 5 | |
| 72 | | Brominated epoxy resin end-capped with tribromophenol | 139638-58-7 | | | 5 | |
| 73 | | Dibromo-styrene grafted PP | 171091-06-8 | | | 5 | |
| 74 | | Tris(tribromo-neopentyl) phosphate | 19186-97-1 | | | 5 | |
| 75 | | 2-Hydroxy-propyl-2-(2-hydroxy-ethoxy)-ethyl-TBP | 20566-35-2 | | | 5 | |
| 76 | | TBBA-(2,3-dibromo-propyl-ether) | 21850-44-2 | | | 5 | |
| 77 | | TBBA-bis-(allyl-ether) | 25327-89-3 | | | 5 | |
| 78 | | TBPA Na salt | 25357-79-3 | | | 5 | |
| 79 | | Bis(2-ethylhexyl)tetrabromo-phtalate | 26040-51-7 | | | 5 | |
| 80 | | Tribromo-phenyl-allyl-ether, unspecified | 26762-91-4 | | | 5 | |
| 81 | | TBBA carbonate oligomer | 28906-13-0 | | | 5 | |
| 82 | | TBBA, unspecified | 30496-13-0 | | | 5 | |
| 83 | | Tetrabromo-chyclo-octane | 31454-48-5 | | | 5 | |
| 84 | | Poly-dibromo-styrene | 31780-26-4 | | | 5 | |
| 85 | | 2,3-Dibromo-2-butene-1,4-diol | 4/2/3234 | | | 5 | |
| 86 | | N,N'-Ethylene –bis-(tetrabromo-phthalimide) | 32588-76-4 | | | 5 | |
| 87 | | 2,4,6-Tribromo-phenyl-allyl-ether | 3278-89-5 | | | 5 | |
| 88 | | TBBA-bisphenol A-phosgene polymer | 32844-27-2 | | | 5 | 600ppm (0,06%) |
| 89 | | Dibromo-neopentyl-glycol | 3296-90-0 | | | 5 | |
| 90 | | 1,2-Dibromo-4-(1,2 dibromo-methyl)-cyclo-hexane | 3322-93-8 | | | 5 | |
| 91 | | Tribromo-neopentyl-alcohol | 36483-57-5 | | Flame retardant, package molding, PVC plasticizer | 5 | 600ppm (0,06%) |
| 92 | | 1,2-Bis(2,4,6-tribromo-phenoxy) ethane | 37853-59-1 | | | 5 | |
| 93 | | TBBA-dimethyl-ether | 37853-61-5 | | | 5 | |
| 94 | | Pentabromo-benzyl bromide | 38521-51-6 | | | 5 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 95 | | Tetrabromo-bisphenol S | 39635-79-5 | | | 5 | |
| 96 | | TBBA-epichlorhydrin oligomer | 40039-93-8 | | | 5 | |
| 97 | | TBBA bis-(2-hydroxy-ethyl-ether) | 4162-45-2 | | | 5 | |
| 98 | | TBBS-bis-(2,3-dibromo-propyl-ether) | 42757-55-1 | | | 5 | |
| 99 | | Tris(2,4-Dibromo-phenyl) phosphate | 49690-63-3 | | | 5 | |
| 100 | | Tris-(2,3-dibromo-propyl)-isocyanurate | 52434-90-9 | | | 5 | |
| 101 | | Ethylene-bis(5,6-dibromo-norbornane-2,3-dicarboximide) | 52907-07-0 | | | 5 | |
| 102 | | Bis(methyl)tetrabromo-phtalate | 55481-60-2 | | | 5 | |
| 103 | | Poly tribromo-styrene | 57137-10-7 | | Flame retardant, package molding, PVC plasticizer | 5 | 600ppm (0,06%) |
| 104 | | Tetra-decabromo-diphenoxy-benzene | 58965-66-5 | | | 5 | |
| 105 | | Vinylbromide | 593-60-2 | | | 5 | |
| 106 | | Pentabromo-benzyl-acrylate, monomer | 59447-55-1 | | | 5 | |
| 107 | | Pentabromo-benzyl-acrylate, polymer | 59447-57-3 | | | 5 | |
| 108 | | Tribromo-bisphenyl-maleinimide | 59789-51-4 | | | 5 | |
| 109 | | Pentabromo-phenol | 608-71-9 | | | 5 | |
| 110 | | Tribromo-styrene | 61368-34-1 | | | 5 | |
| 111 | | 2,4-Dibromo-phenol | 615-58-7 | | | 5 | |
| 112 | | Tetrabromo phthalic anhydride/1,3-Isobenzofurandione, 4,5,6,7-tetrabromo | 632-79-1 | | | 5;20 | 600ppm (0,06%) ou 0.0005% (total) = limit value refers to the sum of all substances in this class |
| 113 | | 1,3-Butadiene homopolymer,brominated | 68441-46-3 | | | 5 | 600ppm (0,06%) |
| 114 | | Bromo-/Chloro-paraffins | 68955-41-9 | | | 5 | |
| 115 | | Poly(2,6-dibromo-phenylene oxide) | 69882-11-7 | | Flame retardant, package molding, PVC plasticizer | 5 | Not allowed to TBBA. |
| 116 | | TBBA-TBBA-diglycidyl-ether oligomer | 70682-74-5 | | | 5 | To the Others 600ppm (0,06%) |
| 117 | | TBBA carbonate oligomer, 2,4,6-tribromo-phenol terminated | 71342-77-3 | | | 5 | |
| 118 | | TBPA, glycol-and propylene-oxide esters | 75790-69-1 | | | 5 | |
| 119 | | 3,5,3',5'-Tetrabromo-bisphenol A (TBBA) | 79-94-7 | 201-236-09 | | 5;4 | |
| 120 | | Bromo-/Chloro-alpha-olefin | 82600-56-4 | | | 5 | |
| 121 | | Decabromo-diphenyl-ethane | 84852-53-9 | | | 5 | |
| 122 | | Pentabromo-toluene | 87-83-2 | | | 5 | |
| 123 | | TBBA carbonate oligomer, phenoxy end capped | 94334-64-2 | | | 5 | |
| 124 | | Dibromo-propanol | 96-13-9 | | | 5 | |
| 125 | Certain Azocolourants and Azodyes | 4,4'-methylene-bis(2-chloroaniline) | 101-14-4 | | Pigment, dye, colorant | 5 | 30ppm (0,003%) |
| 126 | | 4,4'-oxydianiline | 101-80-4 | | | 5 | |
| 127 | | 4-chloroaniline | 106-47-8 | | | 5 | |
| 128 | | 3,3'-dimethoxybenzidine | 119-90-4 | | | 5 | |
| 129 | | 3,3'-dimethylbenzidine | 119-93-7 | | | 5 | |
| 130 | | 6-methoxy-m-toluidine | 120-71-8 | | | 5 | |
| 131 | | 2,4,5-trimethylaniline | 137-17-7 | | | 5 | |
| 132 | | 4,4'-thiodianiline | 139-65-1 | | | 5 | |

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|---|---|---|---|---|---|---|---|
| 133 | | 4-aminoazobenzene; 4-phenylazoaniline | 3/9/1960 | | | 5 | |
| 134 | | 4-methoxy-m-phenylenediamine | 615-05-4 | | | 5 | |
| 135 | | 4,4'-methylenedi-o-toluidine | 838-88-0 | | Pigment, dye, colorant | 5 | 30ppm (0,003%) |
| 136 | | o-anisidine | 90-04-0 | | | 5 | |
| 137 | | 2-naphthylamine | 91-59-8 | | | 5 | |
| 138 | | 3,3'-dichlorobenzidine | 91-94-1 | | | 5 | |
| 139 | | biphenyl-4-ylamine; 4-aminodiphenyl | 92-67-1 | | | 5 | |
| 140 | | Benzidine | 92-87-5 | | | 5 | |
| 141 | | o-toluidine | 95-53-4 | | | 5 | 1000ppm (0,1%) |
| 142 | | 4-chloro-o-toluidine | 95-69-2 | | Solvents, cleaning agents, bleaching of packaging cardboard | 5 | |
| 143 | | 4-methyl-m-phenylenediamine | 95-80-7 | | | 5 | |
| 144 | | o-aminoazotoluene | 97-56-3 | | | 5 | |
| 145 | | 5-nitro-o-toluidine | 99-55-8 | | | 5 | |
| 146 | | 1,2-Dichloroethane | 107-06-2 | | | 5 | |
| 147 | | Tetrachloroethylene | 127-18-4 | | | 5 | |
| 148 | | cis-1, 2-Dichloroethylene | 156-59-2 | | | 5 | |
| 149 | | 1,2-dichloroethylene | 540-59-0 | | | 5 | |
| 150 | | 1,3-Dichloropropene | 542-75-6 | | | 5 | |
| 151 | | Bis (chloromethyl) ether | 542-88-1 | | | 5 | |
| 152 | | 1,1,1,2 Tetrachloroethane | 630-20-6 | | | 5 | |
| 153 | | Trichloromethane (Chloroform) | 67-66-3 | | | 5 | |
| 154 | | 1,1,1-Trichloroethane | 71-55-6 | | Solvents, cleaning agents, bleaching of packaging cardboard | 5 | |
| 155 | | Dichloromethane (methylene chloride) | 2/9/1975 | | | 5 | |
| 156 | | 1,1-Dichloroethane | 75-34-3 | | | 5 | |
| 157 | | 1,1-Dichloroethylene; Vinylidene chloride | 75-35-4 | | | 5 | |
| 158 | | Pentachloroethane | 7/1/1976 | | | 5 | |
| 159 | | Trichloroethylene | 6/1/1979 | | | 5 | |
| 160 | | 1,1,2,2 Tetrachloroethane | 79-34-5 | | | 5 | |
| 161 | Chlorinated or brominated Dioxins or Furans, all members | Mercury, (2',7'-dibromo-3',6'-dihydroxy-3-oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen ]-4'-yl)hydroxy-, disodium salt | 129-16-8 | | | 20 | 0.0005% (total) = limit value refers to the sum of all substances in this class |
| 162 | | Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one, 2',4',5',7'-tetrabromo-3',6'-dihydroxy-, lead salt | 1326-05-2 | | | 20 | |
| 163 | | 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) | 1746-01-6 | | | 20 | |
| 164 | | 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin | 19408-74-3 | | | 20 | |
| 165 | | Octachlorodibenzo-p-dioxin | 3268-87-9 | | | 20 | |
| 166 | | 2,7-Dichlorodibenzo-p-dioxin | 33857-26-0 | | | 20 | |
| 167 | | Hexachlorodibenzodioxin | 34465-46-8 | | | 20 | 0.0005% (total) = limit value refers to the sum of all substances |
| 168 | | 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin | 35822-46-9 | | | 20 | |

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|---|---|---|---|---|---|---|---|
| 169 | | Octachlorodibenzofuran | 39001-02-0 | | | 20 | in this class |
| 170 | | 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin | 39227-28-6 | | | 20 | |
| 171 | | 1,2,3,7,8-Pentachlorodibenzo-p-dioxin | 40321-76-4 | | | 20 | |
| 172 | | 2,3,7,8-Tetrachloro dibenzofurans | 51207-31-9 | | | 20 | |
| 173 | | 1,2,3,4,7,8,9-Hexachlorodibenzofuran | 55673-89-7 | | | 20 | |
| 174 | | (2',7'-Dibromo-3',6'-dihydroxy-3-oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-4'-yl)hydroxymercury | 55728-51-3 | | | 20 | |
| 175 | | 2,3,4,7,8-Pentachloro dibenzofurans | 57117-31-4 | | | 20 | |
| 176 | | 1,2,3,7,8-Pentachloro dibenzofuran | 57117-41-6 | | | 20 | |
| 177 | | 1,2,3,6,7,8-Hexachloro dibenzofuran | 57117-44-9 | | | 20 | |
| 178 | | 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin | 57653-85-7 | | | 20 | 0.0005% (total) = limit value refers to the sum of all substances in this class |
| 179 | | 2,3,4,6,7,8-Hexachloro dibenzofurans | 60851-34-5 | | | 20 | |
| 180 | | 1,2,3,4,6,7,8-Heptachlorodibenzofuran | 67562-39-4 | | | 20 | |
| 181 | | 1,2,3,4,7,8-Hexachloro dibenzofuran | 70648-26-9 | | | 20 | |
| 182 | | 1,2,3,7,8,9-Hexachloro dibenzofuran | 72918-21-9 | | | 20 | |
| 183 | | Nickel,[6,8,16,18-tetrachloro-1,11-bis(2-furanylmethyl)-1,10,11,20-tetrahydrodibenzo[c,j]dipyrazolo[3,4-f:3',4'-m][1,2,5,8,9,12]hexaazacyclotetradecinato(2-)-N5,N10,N15,N20]- | 79745-01-0 | | | 20 | |
| 184 | Chlorinated Paraffins | Chlorinated Paraffin waxes | 63449-39-8 | | Vinyl chloride plasticizer, flame retardant | 5 | Intentionally added |
| 185 | | Mediumchain Chlorinated Paraffins (C14 – C17) MCCP | 85535-85-9 / 85535-84-8 | | | 4;5 | 0,1% and Intentionally added |
| 186 | | Silica, crystalline tridymite | 15468-32-3 | | | | |
| 187 | Cyanides and compounds | Mercuric oxycyanide | 1335-31-5 | | Manufacture of plastics | | 600ppm (0,06%) |
| 188 | | Nickel potassium cyanide | 14220-17-8 | | | | 1000ppm (0,1%) |
| 189 | | Sodium cyanide | 143-33-9 | | | | 1000ppm (0,1%) |
| 190 | | Cobalt cyanide | 14965-99-2 | | | | 1000ppm (0,1%) |
| 191 | | Potassium cyanide | 151-50-8 | | | | 1000ppm (0,1%) |
| 192 | | Barium-cyanide | 542-62-1 | | | | 1000ppm (0,1%) |
| 193 | | Cadmium cyanide | 542-83-6 | | | | 60ppm (0,006%) |
| 194 | | Cobalt cyanide | 542-84-7 | | Manufacture of plastics | | 1000ppm (0,1%) |
| 195 | | Nickel cyanide | 557-19-7 | | | | |
| 196 | | Mercuric potassium cyanide | 591-89-9 | | | | 600ppm (0,06%) |
| 197 | | Mercuric cyanide | 592-04-1 | | | | |

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|---|---|---|---|---|---|---|---|
| 198 | | Lead cyanide | 592-05-2 | | | | |
| 199 | | Hydrogen cyanide | 74-90-8 | | | | 1000ppm (0,1%) |
| 200 | | Ethylene glycol monomethyl ether | 109-86-4 | | | 19 | 1000ppm (0,1%) |
| 201 | | Ethylene glycol monomethyl ether acetate | 110-49-6 | | | 19 | 1000ppm (0,1%) |
| 202 | | Ethylene glycol dimethyl ether | 110-71-4 | | | 19 | 1000ppm (0,1%) |
| 203 | | Ethylene glycol monoethyl ether | 110-80-5 | | | 19 | 1000ppm (0,1%) |
| 204 | | Ethylene glycol monoethyl ether acetate | 111-15-9 | | | 19 | 1000ppm (0,1%) |
| 205 | Formaldehyde | Formaldehyde | 50-00-0 | | Residues and degradation products of plastics (aminoplasts, urea- and melamine resins, foam plastics, vulcanization accelerators, basis for synthetic tannins, biocides, adhesives, formed woods | 18 | 0,1ppm (0,00001%) |
| 206 | Isocyanates | Methylene Bisphenyl Isocyanate (Mdi) | 101-68-8 | | Constituent of polyurethanes foams, rubber, epoxy, (hardener, catalyst,activator in paints) | 20 | 1000ppm (0,1%) |
| 207 | | 2,4-/2,6-Toluene Di-Isocyanate | 26471-62-5 | | | 20 | |
| 208 | | 1,5 -Naphtalene Di-Isocyanate (Ndi) | 3173-72-6 | | | 20 | |
| 209 | | Isophorone Di-Isocyanate (Ipdi) | 4098-71-9 | | | 20 | |
| 210 | | Methylene Bis-(4-Cyclohexylisocyanate) | 5124-30-1 | | | 20 | |
| 211 | | 2,4-Toluene Di-Isocyanate (Tdi) | 584-84-9 | | | 20 | |
| 212 | | Hexamethylene Di-Isocyanate (Hdi) | 822-06-0 | | | 20 | |
| 213 | Nickel/Nickel Compounds | Nickel hydroxide | 11113-74-9 | | Surface treatment agent, nickel plating | 15 | 1000ppm (0,1%) |
| 214 | | Nickel subsulfide | 12035-72-2 | | | 15 | |
| 215 | | Nickel dihydroxide | 12054-48-7 | | | 15 | |
| 216 | | Nickelocene | 1271-28-9 | | | 15 | |
| 217 | | Nickel oxide | 1313-99-1 | | | 15 | |
| 218 | | Nickel carbonyl | 13463-39-3 | | Surface treatment agent, nickel plating | 15 | 1000ppm (0,1%) |
| 219 | | Nickel carbonate | 3333-67-3 | | | 15 | |
| 220 | | Nickel acetate | 373-02-4 | | | 15 | |
| 221 | | Nickel | 7440-02-0 | | | 15 | |
| 222 | N-Nitrosamines | N-Nitrosopiperidine | 100-75-4 | | | | 1000ppm (0,1%) |
| 223 | | N-Nitroso methyl ethyl amine | 10595-95-6 | | | | |
| 224 | | N-Nitroso diethanol amine | 1116-54-7 | | | | 1000ppm (0,1%) |
| 225 | | N-Nitroso diethyl amine | 55-18-5 | | | | |
| 226 | | N-Nitroso morpholine | 59-89-2 | | | | |
| 227 | | N-Nitrosodi-i-propyl amine | 601-77-4 | | | | |
| 228 | | N-Nitroso ethyl phenyl amine | 612-64-6 | | | | |
| 229 | | N-Nitroso methyl phenyl amine | 614-00-6 | | | | |
| 230 | | N-Nitrosodi-n-propyl amine | 621-64-7 | | | | |
| 231 | | N-Nitroso dimethyl amine | 62-75-9 | | | | |
| 232 | | N-Nitrosodi-n-butylamine | 924-16-3 | | | | |

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|---|---|---|---|---|---|---|---|
| 233 | | N-Nitroso pyrrolidine | 930-55-2 | | | | |
| 234 | Nonylphenols (NP) & Nonylphenol Ethoxylates (NPE) | 2-(P-Nonylphenoxy) Ethanol | 104-35-8 | | Pigment carriers | 5;22 | 1000ppm (0,1%) |
| 235 | | Nonylphenol | 104-40-5 | | in plastics | 5;22 | |
| 236 | | Poly(Oxy-1,2-Ethanediyl), Alpha(Nonylphenyl) Omega-Hydroxy, Branched | 127087-87-0 | | | 5;22 | |
| 237 | | 2-(2-(P-Nonylphenoxy) Ethoxy) Ethanol | 20427-84-3 | | | 5;22 | |
| 238 | | N-Nonylphenol (Mixed Isomers) | 25154-52-3 | | | 5;22 | |
| 239 | | P-Nonylphenol Polyethylene Glycol Ether | 26027-38-3 | | | 5;22 | |
| 240 | | Phenol, Nonyl-,Phosphite | 26523-78-4 | | | 5;22 | |
| 241 | | Ethanol, 2-[2-(Nonylphenoxy)Ethoxy]- | 27176-93-8 | | | 5;22 | |
| 242 | | Nonylphenol Hepta(Oxyethylene)Ethanol | 27177-05-5 | | | 5;22 | |
| 243 | | Nonylphenol Nona(Oxyethylene)Ethanol | 27177-08-8 | | | 5;22 | |
| 244 | | Nonylphenoxy Ethanol | 27986-36-3 | | | 5;22 | |
| 245 | | Ethoxynonyl-Benzene | 28679-13-2 | | | 5;22 | |
| 246 | | Poly(Oxy-1,2-Ethanediyl), Alpha(Isononylphenyl) Omega-Hydroxy | 37205-87-1 | | | 5;22 | |
| 247 | | Oxirane, Methyl-, Polymer With Oxirane, Mono(Nonylphenyl) Ether | 37251-69-7 | | | 5;22 | |
| 248 | | Nonylphenol Ethoxylate | 37340-60-6 | | Pigment carriers | 5;22 | 1000ppm (0,1%) |
| 249 | | Poly(Oxy-1,2-Ethanediyl), Alpha-(2-Nonylphenyl)-Omega-Hydroxy- | 51938-25-1 | | in plastics | 5;22 | |
| 250 | | Nonylphenol Ethoxylate | 68412-53-3 | | | 5;22 | |
| 251 | | Poly(Oxy-1,2-Ethanediyl), Alpha(Nonylphenyl) Omega-Hydroxy, Branched | 68412-54-4 | | | 5;22 | |
| 252 | | 2-(2-(2-(2-(P-Nonylphenoxy)Ethoxy) Ethoxy)Ethoxy) Ethanol | 7311-27-5 | | | 5;22 | |
| 253 | | Nonylphenol, Industrial | 84852-15-3 | | | 5;22 | |
| 254 | | Nonylphenol Polyethylene Glycol Ether | 9016-45-9 | | | 5;22 | |
| 255 | Other Chemicals | Bitumens, extract of steam or air refined | - - - - | | | 21 | 1000ppm (0,1%) |
| 256 | | Methyl Isobutyl Ketone | 108-10-1 | | | | |
| 257 | | 1,4 Dioxane | 123-91-1 | | | | |
| 258 | | Triceryl phosphates, orto isomer prohibited | 1330-78-5 | | | | |
| 259 | | Carbon monoxide | 630-08-0 | | | | |
| 260 | | Isopropyl alcohol | 67-63-0 | | | | |
| 261 | | Carbon disulfide | 75-15-0 | | | | |
| 262 | | Methyl Ethyl Ketone | 78-93-3 | | | | |
| 263 | Pentachlorophenol (PCP) Pentachlorophenol, sodium salt Other PCP salts and compounds | Sodium pentachlorophenol | 131-52-2 | | | | 1000ppm (0,1%) |
| 264 | | Heptadecafluoro-1-octanesulfonic acid, compd. with diethanolamine | 70225-14-8 | | | | 1000ppm (0,1%) |
| 265 | | Pentachlorophenol | 87-86-5 | | | 6 | 5ppm (0,0005%) |

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|---|---|---|---|---|---|---|---|
| 266 | | Perfluorooctane sulfonate ammonium salt | 17202-41-4 | | Surface active agent, wetting agent, galvanic processes, metal plating | 5;17 | 1000ppm (0,1%) |
| 267 | | Perfluoroctane sulfonate acid | 1763-23-1 | | | 5;17 | |
| 268 | | Perfluorooctane sulfonate potasium salt | 2795-39-3 | | | 5;17 | |
| 269 | | Perfluorooctane sulfonate ammonium salt | 29081-56-9 | | | 5;17 | |
| 270 | | Perfluorooctane sulfonate lithium salt | 29457-72-5 | | | 5;17 | |
| 271 | | Glycine, N-ethyl-N-[(heptadecafluorooctyl)sulfonyl]-, potassium salt | 2991-51-7 | | | 5;17 | |
| 272 | | 2-Propenoic acid, 2-methyl-, dodecyl ester, polymers with 2-[methyl[(perfluoro-C4-8-alkyl)-sulfonyl]amino]ethyl acrylate and vinylidene chloride | 306975-62-2 | | | 5;17 | |
| 273 | | Perfluoroctane sulfonate anion | 45298-90-6 | | | 5;17 | |
| 274 | | Tetraethylammoniumheptadecafluoroctansulfonate | 56773-42-3 | | | 5;17 | |
| 275 | | Perfluorooctane sulfonate diethanolamino salt | 70225-39-5 | | | 5;17 | |
| 276 | Perfluorooctanoic Acid and its salts (PFOA) | Potassium salt of PFOA | 2395-00-8 | | Soil repellents, cleaning agents | 5;17 | 1000ppm (0,1%) |
| 277 | | PFOA - perfluorooctanoic acid | 335-67-1 | | Soil repellents, cleaning agents | 5;17 | 1000ppm (0,1%) |
| 278 | | Silver salt of PFOA and individual salts and esters of PFOA | 335-66-0 | | Soil repellents, cleaning agents | 5;17 | 1000ppm (0,1%) |
| 279 | | Sodium salt of PFOA and individual salts and esters of PFOA | 2395-00-8 | | Soil repellents, cleaning agents | 5;17 | 1000ppm (0,1%) |
| 280 | | Ammonium salt of PFOA | 3825-26-1 | | Soil repellents, cleaning agents | 5;17 | 1000ppm (0,1%) |
| 281 | Phthalates | Di-n-octyl phthalate (DNOP) | 117-84-0 | | Plasticizer, dye, pigment, paint, ink, adhesive agent, lubricant | 5 | 1000ppm (0,1%) |
| 282 | | Di-"isodecyl" phthalate (DIDP) | 26761-40-0 | | Plasticizer, dye, pigment, paint, ink, adhesive agent, lubricant | 5 | 1000ppm (0,1%) |
| 283 | | Di-n-hexyl phthalate (DNHP) | 84-75-3 | | Plasticizer, dye, pigment, paint, ink, adhesive agent, lubricant | 5 | 1000ppm (0,1%) |
| 284 | Polychlorinated Naphthalenes (more than 3 chlorine atoms) | Pentachloronaphthalene | 1321-64-8 | | Lubricating oil, paint, plastic stabilizer (electrical characteristics, flame resistance, water resistance), flame retardant | 11 | Not Allowed in contact with foods |
| 285 | | Trichloronaphthalene | 1321-65-9 | | | 11 | Not Allowed in contact with foods |
| 285 | | Tetrachloronaphthalene | 1335-88-2 | | | 11 | |
| 286 | | Octachloronaphthalene | 2234-13-1 | | | 11 | |
| 287 | | Polychlorinated Naphthalenes | 70776-03-3 | | | 11 | |
| 288 | Polychlorinated Biphenyls (PCBs) and Terphenyls (PCTs) | Monomethyl-dichloro-diphenyl methane (Ugilec 121, Ugilec 21) | - - - - | | Insulating oil, lubricating oil, electric insulating medium, solvent, electrolyte | 5;11 | Not Allowed in contact with foods |
| 289 | | Chlorodiphenyl (Aroclor 1260) | 11096-82-5 | | | 5;11 | Not Allowed in contact with |

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|---|---|---|---|---|---|---|---|
| | | | | | | | foods |
| 290 | | Aroclor 1254 | 11097-69-1 | | | 5;11 | Not Allowed in contact with foods |
| 291 | | Aroclor | 12767-79-2 | | | 5;11 | Not Allowed in contact with foods |
| 292 | | Polychlorinated Biphenyls | 1336-36-3 | | | 5;11 | Not Allowed in contact with foods |
| 293 | | Kanechlor 500 | 27323-18-8 | | | 5;11 | Not Allowed in contact with foods |
| 294 | | Polychlorinated Terphenyls | 61788-33-8 | | | 5;11 | Not Allowed in contact with foods |
| 295 | | Monomethyl-dibromo-diphenyl methane (DBBT) | 99688-47-8 | | | 5;11 | Not Allowed in contact with foods |
| 296 | Polycyclic Aromatic Hydrocarbons (PAHs) | Benzo[a]pyrene (BaP) | 50-32-8 | | Tires, carbon black, extender oils | 5,21 | 1ppm |
| 297 | | Benzo[a]anthracene | 56-55-3 | | | 5,21 | 1ppm |
| 298 | | Chrysene | 218-01-9 | | | 5,21 | 1ppm |
| 299 | | Benzo[b]fluoranthene | 205-99-2 | | | 5,21 | 1ppm |
| 300 | | Benzo[k]fluoranthene | 207-08-9 | | | 5,21 | 1ppm |
| 301 | | Dibenzo[a,h]anthracene | 53-70-3 | | | 5,21 | 1ppm |
| 302 | | Benzo[j]fluoranthene | 205-82-3 | | | 5,21 | 1ppm |
| 303 | | Benzo[e]pyrene | 192-97-2 | | | 5,21 | 1ppm |
| 304 | | Indeno(1,2,3-c,d)pyrene | 193-39-5 | | | 5,21 | 1ppm |
| 305 | | Sum Of Naphthaline + Benzo(g,h,i)perylene + Acenapthylene + Acenaphthene + Fluorene + Phenanthrene + Anthracene + Fluoranthene + Pyrene | 91-20-3 | | | 5,21 | 50ppm's |
| 306 | | | 191-24-2 | | | 5,21 | |
| 307 | | | 208-96-8 | | | 5,21 | |
| 308 | | | 83-32-9 | | | 5,21 | |
| 309 | | | 86-73-7 | | | 5,21 | |
| 310 | | | 8/1/1985 | | | 5,21 | |
| 311 | | | 120-12-7 | | | 5,21 | |
| 312 | | | 206-44-0 | | | 5,21 | |
| 313 | | | 129-00-0 | | | 5,21 | |
| 314 | | Sum of 18 PAHS | | | | | 50ppm |
| 315 | Polyvinyl chloride (PVC) | Polyvinyl chloride (PVC) | 9002-86-2 | | Insulator, antichemical transparent covering material | 5 | 1000ppm (0,1%) |
| 316 | Radioactive Substances | Radon | 10043-92-2 | | Optical characteristics (thorium) | 12;13 | Not Allowed in contact with foods |
| 317 | | Plutonium | 5/7/7440 | | | 12;13 | |
| 318 | | Strontium (Radioactive Isotopes only) | 7440-24-6 | | | 12;13 | |
| 319 | | Thorium | 7440-29-1 | | | 12;13 | |
| 320 | | Americium | 7440-35-9 | | | 12;13 | |
| 321 | | Cesium (Radioactive Isotopes only) | 7440-46-2 | | | 12;13 | |
| 322 | | Uranium | 7440-61-1 | | | 12;13 | |
| 323 | Selenium/Selenium Compounds | Sodium selenate | 10112-94-4 | | Photoreceptor, pigment, ink, catalyst, oxidant, semiconductor material, light receiving element, photocell | 5 | 1000ppm (0,1%) |
| 324 | | Selenium oxide | 12640-89-0 | | | 5 | |
| 325 | | Sodium selenide | 1313-85-5 | | | 5 | |
| 326 | | Dimethyl selenide | 593-79-3 | | Photoreceptor, pigment, ink, catalyst, oxidant, semiconductor material, light receiving element, photocell | 5 | 100ppm (0,1%) |
| 327 | | Selenium dioxide | 4/8/7446 | | | 5 | |
| 328 | | Selenium | 7782-49-2 | | | 5 | |
| 329 | | Hydrogen selenide | 5/7/7783 | | | 5 | |
| 330 | Tellurium / Tellurium Compounds | Tellurium tetrachloride | 10026-07-0 | | Additive in alloys, brazing | | 1000ppm (0,1%) |
| 331 | | Dihydrogen trioxotellurate | 10049-23-7 | | | | |
| 332 | | Disodium tetraoxotellurate | 10101-83-4 | | | | |

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|---|---|---|---|---|---|---|---|
| 333 | | Disodium trioxotellurate | 10102-20-2 | | | | |
| 334 | | Disilver telluride | 12002-99-2 | | | | |
| 335 | | Barium telluride | 12009-36-8 | | | | |
| 336 | | Dilithium telluride | 12136-59-3 | | | | |
| 337 | | Dibismuth tritelluride | 1304-82-1 | | | | |
| 338 | | Zinc telluride | 1315-11-3 | | | | |
| 339 | | Tellurium | 13494-80-9 | | | | |
| 340 | | Dilithium tellurium trioxide | 14929-69-2 | | | | |
| 341 | | Dilithium tellurium tetraoxide | 15851-53-3 | | | | 1000ppm (0,1%) |
| 342 | | Tetrakis(diethyldithiocarbamato-S,S')tellurium | 20941-65-5 | | | | |
| 343 | | Gold telluride | 37043-71-3 | | | | |
| 344 | | Hafnium ditelluride | 39082-23-0 | | | | |
| 345 | | Tellurium dioxide | 3/7/7446 | | | | |
| 346 | | Dihydrogen telluride | 7/9/7783 | | | | |
| 347 | | Tellurium hexafluoride | 7783-80-4 | | | | |
| 348 | | Dipotassium trioxotellurate | 7790-58-1 | | | | |
| 3549 | | Orthotelluric acid | 7803-68-1 | | | | |
| 350 | Tin Organic Compounds | Dibutyltin hydride | 1002-53-5 | | Stabilizer, antioxidant/ antioxidant, antimicrobial and antifungal agents, antifouling agent | 14,24 | |
| 351 | | Trimethyltin chloride | 1066-45-1 | | | 14,24 | 0,1%, 1000ppm |
| 352 | | Monobutyltin trichloride | 1118-46-3 | | | 14,24 | |
| 353 | | Tri(cyclohexyl)tin hydroxide | 13121-70-5 | | | 14,24 | |
| 354 | | Bis(tributyltin)maleate | 14275-57-1 | | | 14,24 | |
| 355 | | Tributyltinchloride | 1461-22-9 | | | 14,24 | |
| 356 | | Tetrabutyltin | 1461-25-2 | | Stabilizer, antioxidant/ antioxidant, antimicrobial and antifungal agents, antifouling agent | 14,24 | |
| 357 | | Dioctyltin bis(2-ethylhexylmercaptoacetate) | 15571-58-1 | | | 14,24 | |
| 358 | | Triphenyltin=N; N-dimethyldithiocarbamate | 1803-12-9 | | | 14,24 | |
| 359 | | Triphenyltin fattyacid ((9-11)salt) | 18380-71-7 | | | 14,24 | 0,1%, 1000ppm |
| 360 | | Triphenyltin fattyacid ((9-11)salt) | 18380-72-8 | | | 14,24 | |
| 361 | | Tributyltinfluoride | 4/10/1983 | | | 14,24 | |
| 362 | | Tributyltinmethacrylate; Tributyl(methacryloyloxy) stannane | 2155-70-6 | | | 14,24 | |
| 363 | | Tri-n-propyltin TPrT | 2279-76-7 | | Stabilizer, antioxidant/ antioxidant, antimicrobial and antifungal agents, antifouling agent | 14,24 | |
| 364 | | Monobutyltin hydride | 2406-65-7 | | | 14,24 | |
| 365 | | Tributyltin linoleate | 24124-25-2 | | | 14,24 | |
| 366 | | Tributyltin-1, 2,3,4,4a, 4b, 5,6,10,10a-decahydro-7-isoplopyl-1, 4a-dimethyl-1-phenanthrencarboxylatemix | 26239-64-5 | | | 14,24 | |
| 367 | | Tributyltin methyl methacrylate polymer | 26354-18-7 | | | 14,24 | 0,1%, 1000ppm |
| 368 | | Diisooctyl 2,2'-[(dioctylstannylene)bis(thio)]diacetate | 26401-97-8 | | | 14,24 | |
| 369 | | Tributyltinnaphthalate | 26636-32-8 | | | 14,24 | |
| 370 | | Triethyltinbromide | 2767-54-6 | | | 14,24 | |
| 371 | | Tri-n-octyltin chloride | 2887-76-0 | | | 14,24 | |
| 372 | | Tributyltin oleate | 3090-35-5 | | | 14,24 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 373 | | Tributyltinlaurate; Tributyl(lauroyloxy)stannane; Tributyltin dodecanoate | 3090-36-6 | | | 14,24 | |
| 374 | | N-octyltin trichloride | 3091-25-6 | | Stabilizer, antioxidant/ antioxidant, antimicrobial and antifungal agents, antifouling agent | 14,24 | 0,1%, 1000ppm |
| 375 | | Bis (tributyltin)2,3-dibromosuccinate | 31732-71-5 | | | 14,24 | |
| 376 | | Di-n-octyltindichloride | 3542-36-7 | | | 14,24 | |
| 377 | | Tetraoctyltin | 3590-84-9 | | | 14,24 | |
| 378 | | Tributyltin naphthenate | 36631-23-9 | | | 14,24 | |
| 379 | | Methyl methacrylate-tributyltin methacrylate copolymer | 36643-28-4 | | | 14,24 | |
| 380 | | Triphenyltinfluoride; Fentin fluoride | 379-52-2 | | | 14,24 | |
| 381 | | Tributyltin salicylate | 4342-30-7 | | | 14,24 | |
| 382 | | Tributyltin benzoate | 4342-36-3 | | | 14,24 | |
| 383 | | Triphenyltin fattyacid ((9-11)salt) | 47672-31-1 | | | 14,24 | |
| 384 | | Bis(tributyltin)phthalate; [(phthaloylbis(oxy)]bis(tributylstannane) | 4782-29-0 | | | 14,24 | |
| 385 | | Tributyltin cyclopentane carbonate=mixture | 5409-17-2 | | | 14,24 | |
| 386 | | Tributyltinacetate | 56-36-0 | | | 14,24 | |
| 387 | | Triphenyltinchloride; Fentin chloride | 639-58-7 | | | 14,24 | |
| 388 | | Bis(tributyltin)fumalate | 6454-35-9 | | | 14,24 | 0,1%, 1000ppm |
| 389 | | Tributyltinsulfamate | 6517-25-5 | | | 14,24 | |
| 390 | | Triphenyltin | 668-34-8 | | | 14,24 | |
| 391 | | Coplymer of alkyl(c=8) acrylate,methyl methacrylate and tributyltin methacrylate | 67772-01-4 | | | 14,24 | |
| 392 | | Dibutyltin dichloride | 683-18-1 | | Stabilizer, antioxidant/ antioxidant, antimicrobial and antifungal agents, antifouling agent | 14,24 | |
| 393 | | Tributyltin hydride | 688-73-3 | | | 14,24 | |
| 394 | | Triphenyltinchloroacetate; (chloroacetoxy)triphenylstannane | 7094-94-2 | | | 14,24 | |
| 395 | | Di-µ-oxo-di-n-butylstanniohydroxyborane dibutyltin hydrogen borate C8H19BO3Sn (DBB) | 75113-37-0 | | | 14,24 | |
| 396 | | Dimethyltin dichloride | 753-73-1 | | | 14,24 | |
| 397 | | Triphenyltinhydroxide; Fentin hydroxide | 76-87-9 | | | 14,24 | |
| 398 | | Monobutyltin ion | 78763-54-9 | | | 14,24 | 0,1%, 1000ppm |
| 399 | | Tributyltin mono(naphthenoyloxy* | 85409-17-2 | | | 14,24 | |
| 400 | | Trioctyltin stannane | 869-59-0 | | | 14,24 | |
| 401 | | Triphenyltinacetate; Fentin acetate | 900-95-8 | | | 14,24 | |
| 402 | | Triphenyltin fattyacid ((9-11)salt) | 94850-90-5 | | | 14,24 | |
| 403 | | Monomethyltin trichloride | 993-16-8 | | Stabilizer, antioxidant/ antioxidant, antimicrobial and antifungal agents, antifouling agent | 14,24 | |
| 404 | | Triphenyl Tin (TPT) | 892-20-6 | | | 14,24 | |
| 405 | | Tributyl Tin (TBT) | 56573-85-4 | | | 14,24 | |
| 406 | | Tributyltincarboxylate | | | | 14,24 | |
| 407 | | Tributyltinpolyethoxylate | | | | 14,24 | |
| 408 | | Tributyl Tin Oxide (TBTO) | | | | 14,24 | |
| 409 | | Monobutyl Tin Compounds MBT | | | | 14,24 | |
| 410 | | Dibutyl Tin Compounds DBT | | | | 14,24 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 411 | | Monooctyl Tin Compounds MOT | | | | 14,24 | |
| 412 | | Dioctyl Tin Compounds DOT | | | | 14,24 | 1000ppm (0,1%) |
| 413 | | Tetrabutyl Tin Compouns TeBT | | | | 14,24 | |
| 414 | Toluene | Toluene | 108-88-3 | | Solvents, residues in adhesives and paints. | 7 | 1000ppm (0,1%) |
| 415 | | DODMAC/DSDMAC | 107-64-2 | | | 6 | in total 0,2% |
| 416 | | Cyclododecane | 294-62-2 | 206-33-9 | | 1 | 0,10% |
| 417 | | individual salts and esters of PFOA | 3825-26-1 | | | 6 | 0,005 For textiles and other coated materials: 1 µg/m$^2$ |
| 418 | | Perfluorooctyl acid (PFOA) | 335-93-3 | | | 6 | |
| 419 | | Perfluorooctyl acid (PFOA) | 335-95-5 | | | 6 | |
| 420 | | Triclosan | 3380-34-5 | | | 6 | 0,01 |
| 421 | | Perfluorooctyl acid (PFOA) and individual salts and esters of PFOA | 376-27-2, 3108-24-5 | | | 6 | 0,005 For textiles and other coated materials: 1 µg/m$^2$ |
| 422 | Miscellaneous | DHTDMAC | 61789-80-8 | | | 6 | in total 0,3% |
| 423 | | DTDMAC | 68783-78-8 | | | 6 | in total 0,1% |
| 424 | | Cobalt dichloride | 7646-79-9 | 231-589-4 | Cobalt plating and to make cobalt based pigments and ink driers | 1 | 0,10% |
| 425 | Adhesives | Bisphenol A * | 80-05-7 * | | | 6 * | 0,0025% * |
| 426 | | Musk ketone | 81-14-1 | | | 6 | 0,05% |
| 427 | | Tributyltin compounds (TBT) | | | | 6 | 0,001 in articles |
| 428 | | Triphenyltin compounds (TPT) | | | | 6 | 0,001 in articles |
| 429 | | Diethyl fumarate, dimethyl maleate, dimethyl malonate, dimethyl adipate | 624-49-7 | 210-849-0 | It used as dryer agent | 22 | 0,1ppm |

## Annex 11 - Hazardous Substances treated as an exception

| N° | Group | Name | CAS Number | Passibles Uses | Maximum Limit |
|---|---|---|---|---|---|
| 1 | Lead Compounds | Steel alloy | | Solders and electrical components, hybrid circuits, stabilizers in plastics. | 0,35% or 3,500ppm |
| 2 | | Aluminum (Al)-lead alloy | | | 0,40% or 4,000ppm |
| 3 | | Copper (Cu) - Lead alloy | | | 4,00 % or 40,000ppm |
| 4 | | Tin(Sn) Alloy | | | 0,10% or 1,000ppm |
| 5 | | PVC | | | 0,03 or 300ppm |
| 6 | | Lead - based alloy | | in high melting temperature type solders | 85% or more |
| 7 | | A glass or ceramic matrix compound | | Electrical and electronic components matrix compound other than dielectrical ceramic in capacitors | Use free |
| 8 | Adhesive | Bisphenol A; 4,4' - isopropyllidenediphenol | 80-05-7 / 79-94-7 / 32844-27-2 | Structural adhesive | Allowed to use inside compressor |
| 9 | Nickel | Weld Nickel-Iron | 7440-02-0 | NIckel - Iron Devices/ Electronic contacts | 60% in homogeneous materials |

| | | | | | |
|---|---|---|---|---|---|
| 10 | Electronic Contacts | Antimony / Antimony compounds | 7440-36-0 | Electrical and electronically interfaces | 4% or 0,4% |
| 11 | | Cadmium Compounds | | | Use free |
| 12 | Cables in General** | PVC** | 9002-86-2 | Electronic cables | Use free |

* Exception could be acceptable when negotiated through the Embraco with the Supplier.
** Just in case of unavailability of alternatives to electrical cables uses. It will be allowed the PVC uses in electrical cables or electrical application. Always respecting electrical starter devices requirements (halogen free for PTC start device).

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**Changes:**

Updated Reach list – now 173 substances.