Environmental Requirements for Supplier Deliverables to C&K

Approval:

Laurent Kubat Engineering Manager	Date Laurent Kubat 2015.03.27 18:45:39 +01'00'

Revision record:

Revision	Date	Comments
-	January 26th 2015	Creation

Contents

1.0 Scope

1.1 Objectives

This C&K Engineering Specification (PS-GREEN-001) defines baseline environmental requirements for all deliverables supplied to C&K. It specifies prohibitions and restrictions on certain substances and materials used in products and manufacturing processes in order to fulfil the following targets:

- To comply with legal and regulatory requirements
- To prevent the banned substances from being used and supplied to C&K
- To minimize the environmental impacts of our products and processes

The document will be updated as necessary to reflect new and/or additional environmental regulatory requirements regarding content restrictions.

1.2 Applicability

The supplier shall ensure that all deliverables supplied to C&K fully comply with the requirements of this document, it is the responsibility of all suppliers to assure compliance with the reporting requirements of PS-GREEN-001 for their own operations, for their subcontracted operations and for materials they procure for the manufacture of deliverables to C&K.

In the event of conflicting threshold limits amongst between PS-GREEN-001 and official regulations, the lowest limit value shall be used.

Any deviation from the requirements of PS-GREEN-001 must have prior written approval from C&K components' procurement representative.

In addition to PS-GREEN compliance the Supplier shall upon request provide information on the material composition. The information provided shall include details regarding the substance name, CAS number and amount of substance present, by weight and percent weight in each homogeneous material.

Any change in material content of an approved part has to be reported in written form to C&K Components, indicating new limit level of material concerned, the reason for change and the date of change.

1.3 Main regulations

RoHS (EU Directive 2002/95/EC & EU Directive 2011/65/EU-ROHS recast) – The Restriction on Hazardous Substances ("RoHS") Directive restricts the use of certain substances (Cd, CrVI, Pb, Hg, PBB, PBDE) in electrical and electronic equipment. From 1 July 2006 a Producer (as defined in the Regulations) may not place on the market new electronic equipment which contains any regulated material substance under RoHS in amounts exceeding the established maximum concentration value.

Regulation on substances that deplete the ozone layer (Directive 2002/95/EC) – This Regulation lays down rules on the production, import, export, placing on the market, use, recovery, recycling, reclamation and destruction of substances that deplete the ozone layer, on the reporting of information related to those substances and on the import, export, placing on the market and use of products and equipment containing or relying on those substances.

REACH (Regulation (EC) No 1907/2006 amending Directive 1999/45/EC) -- This Directive concerns the Registration, Evaluation, Authorization and Restriction of Chemicals ("REACH"). The purpose of REACH is to ensure a high level of protection of human health and the environment, including alternative methods for assessment of the hazards of substances. The list of SVHC's is updated on a regular basis under Article 33(1) of the REACH Regulation (EC) N0 1907/2006. Manufacturers and importers of articles (products) may be subject to reporting and / or registration requirements if any SVHCs exceeding 0.1% by weight are present in their products.
Annexe XIV: List of substances subject to authorisation
Article 67 - Annexe XVII: Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles. The substance restrictions are detailed in Annex XVII of the REACH Regulation.

China RoHS
Substances and limit values affected by the China RoHS which came into force on 1 March 2007 are identical with those in the EU RoHS. But in contrast to the EU RoHS, there are no exceptions to the rules.

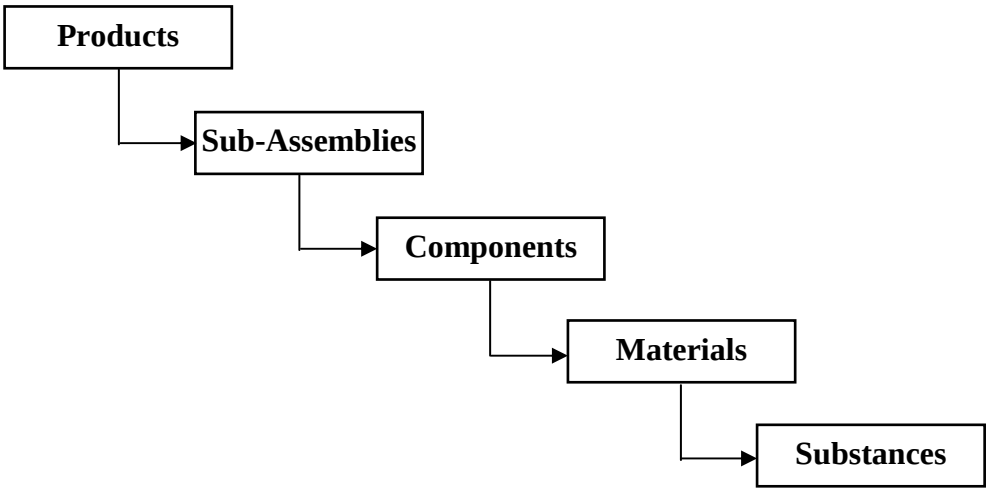
Global Automotive Declarable Substance List (GADSL)
The intent of GADSL is to become the global standard list for declaration of parts composition within the automotive industry. It provides a definitive list of substances requiring declaration in specific uses with the target to minimize individual requirements and ensure cost-effective management of declaration practice along the complex supply chain.

Joint Industry Guide (JIG)
This Guide applies to products that are supplied to manufacturers of electrotechnical products for incorporation (into their products). This Guide represents industry-wide consensus on the relevant materials and substances that shall be disclosed by suppliers when those materials and substances are present in products that are incorporated into electrotechnical products.

1.4 Definitions

Deliverable(s) is any tangible item(s) delivered by or for a Supplier to C&K in accordance with a purchase contract or other agreement with C&K. Deliverables include, but are not limited to, components, materials, parts and products.

Product contents:



- **Products** are standing alone, final assemblies. Sub-assemblies and components may be products themselves, or they may be used in higher-level assemblies that are products.

- **Sub-assemblies** are assembled units that are combined with other components or sub-assemblies to create finished products.

- **Components** are parts of a sub-assembly or product that are fabricated from material(s) or purchased from suppliers that fabricate them from materials. Components may also result from the combination of other components, materials, substances and/or compounds. (Ex: Plated, lubricated terminals).

- **Materials** are the items of which something is composed or can be made. Components may actually consist of several materials. A material may also be a coating that is applied during the construction of the product.
  For example, in terminals plated with both a nickel and a tin layer, the base metal (copper alloy) and each plating layer is considered as homogeneous material and therefore shall be considered separately.
  A material is made up of one or more substances (e.g., copper alloy is a material, which in turn is made up of a number of defined substances, copper, nickel, silver, etc.).

- **Substances** are chemical elements and their compounds as they occur in the natural state or as produced by industry.
  Registry Numbers (RN) of the Chemical Abstracts System of the American Chemical Society ("CAS" numbers) and/or European Chemical ("EC" numbers) are attributed to all chemical elements and most of their compounds and should be used for their identification.
  A collection of Substances that are chemically similar is a Substance group, for example lead compounds.

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

Declarable substances: For Substances that are not currently prohibited substances, there may still be a legal, industry, or customer requirement to report the weight percent or PPM level when it is above a threshold. These substances are classified as declarable substances, and are either included in legal requirements (for example, the REACH legislation), or may be included in future restrictions as prohibited substances.

Full Material Disclosure (FMD) contains the specific chemical substances that are intentionally used in the composition of the product or component. The FMD details the list of substances at the level of each homogeneous material.

Homogeneous Materials are materials that are of uniform composition throughout and that cannot be mechanically disjointed into different materials.
Examples of homogeneous materials are individual types of plastics, ceramics, glass, metals, alloys, resins and coatings. Mechanically disjointed means that the materials can, in principle, be separated by mechanical actions such as unscrewing, cutting, crushing, grinding, and abrasive processes.

Impurities or trace substances are substances that exist in natural materials or substances generated in the process of producing a material.

Intentionally-added substances are substances that are deliberately used in the formulation or fabrication of a product, sub-assembly, component, or material to provide specific characteristics, appearance, or quality.

Lead (Pb)-Free is a good that does not contain lead (Pb) above the material limit specified by ROHS.

PPM means parts per million, unit of measurement for weight percentage. 1 PPM = 1 mg/kg = 0.0001 % by weight. The parts per million thresholds listed in this specification refer to the weight of the homogeneous material in a specific part, not the weight of the material in an entire system.

Threshold level is the concentration level, which defines the limit at or above which the presence of a substance in homogeneous materials in a product or subpart is not allowed.

2. Requirements

2.1 Substances Prohibited From Use

Table 1, "Substances Prohibited from Use" lists restrictions for categories of substances which must not be contained in deliverables supplied to C&K Components.

Supplier may not use the listed substances as described in the "Details of Restriction" section of table 1.

Expanded listings of relevant substances in each of the categories are available in annex 1.

Table 1. Substances Prohibited From Use (REACH art 67 – Annex 17 & other legislations)

Chemical Substance Category	Details of Restriction	CAS #
Arsenic / Arsenic Compounds	Must not be used.	See annex 1-U
Asbestos	No intentionally added content	See annex 1-A
Azo colorants	Not permitted in parts which may come into direct and prolonged contact with skin	See annex 1-B
Benzene	< 0.1% w/w	71-43-2
Bisphenol A (BPA)	No intentionally added content	80-05-7
Brominated Flame Retardants (other than PBBs or PBDEs)	< 0.1% w/w	See annex 1-X
Chlorinated Solvents	< 0.1% w/w	See annex 1-C
Dimethyl fumarate	No intentionally added content	624-49-7
Formaldehyde	No intentionally added content	50-00-0
Halogenated aromatic substances	Banned from use above 50 ppm for polyhalogenated aromatic substances in materials of the component.	See annex 1-D
Halogenated diphenyl methanes	No content permitted	See annex 1-E
Hexachloroethane	Banned in manufacturing or processing of nonferrous metals	See annex 1-F
Nickel and compounds	Must not be used in applications with direct and prolonged skin contact	See annex 1-G
Nonylphenol (NP) and Nonylphenol Ethoxylates (NPE)	Must not be used.	25154-52-3, 84852-15-3, 9016-45-9
Organic tin compounds (Di- and triorganic tins) • Dibutyltin (DBT) compounds • Dioctyltin (DOT) compounds • Tributyltin (TBT) compounds • Tributyltin Oxide (TBTO) compounds • Triphenyl Tin (TPT) compounds	0.1 % by weight of tin in a material	See annexes 1-M & 1-Y
Ozone-Depleting Substances (ODS) (CFCs, Halons, Carbon tetrachloride, 1,1,1 trichloroethane, HCFCs, HBFCs, Methyl bromide, Bromochloromethane) & **Greenhouse Gases** (PFCs, SF6, HFCs)	Banned in deliverables and deliverables may not be manufactured with these substances.	See annex 1-H
Polycyclic Aromatic Hydrocarbons (PAHs)	Sum of all PAHs in contact with skin: 0.02% if short duration skin contact 0.001% if long duration skin contact	See annex 1-CC
Pentachlorophenol (PCP), PCP salts and compounds	< 0.1% w/w	87-86-5

Perfluorocarbons (PFCs)	Must not be contained in products as a gas	See annex 1-I
Perfluorooctane sulfonates (PFOS) and salts, $C_8F_{17}SO_2X$ (X=OH, metal salt, halide, amide and other derivatives including polymers), or Compounds that contain $C_8F_{17}SO_2$, $C_8F_{17}SO_3$ or $C_8F_{17}SO_2N$	< 0.1% w/w	Refer to the EU Directive 2006/122/EC for more details on these requirements and exemptions.
Phthalates	< 0.1% w/w	See annex 1-Z
Polychlorinated and polybrominated dioxins and furans	Must not be used.	
Polychlorinated biphenyls (PCBs)	Must not be used.	See annex 1-J
Polychlorinated terphenyls (PCTs)	Must not be used.	61788-33-8
Polychlorinated naphthalenes (PCNs) (more than 3 chlorine atoms)	No intentionally added content	See annex 1-K
Radioactive substances	No intentionally added content	See annex 1-BB
Short-chained Chlorinated Paraffins (SCCPs)	No intentionally added content	See annex 1-L

2.2 Substances of Very High Concern (SVHC) in articles

REACH Article 33 requires all suppliers to inform their customers if the article they supply contains any of the substances in the Candidate List at or above 0.1% weight by weight (w/w) concentration and report the name and CAS number of the SVHC candidate and the quantity on the Product Content Declaration for the deliverable.

The European Chemicals Agency will increase the number of substances on the Candidate List every six months. C&K Components requires its suppliers to stay abreast of all changes to the EU REACH Regulation and adapt their compliance systems accordingly.

Table 2. Substances of Very High Concern

#	Substance Name	CAS #	SVHC Published Date
The current candidate list of REACH SVHC as published by the European Chemicals Agency is located at: Http://echa.europa.eu/chem_data/candidate_list_table_en.asp.			

2.3 Restrictions of Certain Hazardous Substances (ROHS)

The ROHS substance restrictions apply to every individual homogenous material in the part.

If the Supplier determines that substances in table 3 are present above their respective specified thresholds then the absolute weight in grams of the substance (e.g., cadmium) present in the deliverable shall be reported to C&K.

Table 3. Restrictions on RoHS Substances (Directive 2011/65/EU)		
Chemical / Substance Category	**CAS #**	**Details of Restriction**
Cadmium (Cd) / Cadmium Compounds	See annex 1-N	Prohibited in concentration above 100ppm or 0.01% by weight in homogeneous materials. All cadmium use in plating or in a surface coating containing cadmium is prohibited.
Hexavalent Chromium (Cr^{6+}) / Hexavalent Chromium Compounds	See annex 1-O	Prohibited in concentration above 1000ppm or 0,1% by weight in homogeneous materials.
Lead (Pb) / Lead Compounds	See annex 1-P	
Mercury (Hg) / Mercury compounds	See annex 1-Q	
Polybrominated Biphenyls (PBBs)	See annex 1-R	
Polybrominated Diphenyl ethers (PBDEs); also known as Polybrominated Biphenyl ethers (PBBEs)	See annex 1-S	

2.4 Banned substances in Product Packaging

The EU Directive on Packaging and Packaging Waste (94/62/EC) restricts the presence of certain heavy metals in packaging (Mercury, (Hg), Lead, (Pb), Chromium (Cr6+) and Cadmium (Cd). The supplier shall provide information and data to show the total of these metals does not exceed 100 ppm for the whole package.

REACH Article 33 requires all suppliers to inform their customers if the article they supply contains any of the substances in the Candidate List in concentrations > 0.1% w/w of the article.

Moreover C&K Components requires suppliers to declare the following restricted substances (REACH art 67) which can be present in packaging articles.

Table 4. Banned Substances in Product Packaging		
Substance	**Details of Restriction**	**Reference**
Cadmium, **Mercury,** **Lead,** **Chromium VI**	For packaging, the sum of the concentrations of the listed substances on component level may not exceed 100 ppm.	94/62/EEC
Arsenic compounds	No content permitted	REACH article 67
Formaldehyde	No content permitted	REACH article 67
Dimethyl Fumarate	No content permitted	REACH article 67
Polyvinyl chloride (PVC) and PVC copolymers	No content permitted	Other legislation
Substances of very high concern (SVHC substances of the "candidate list")	All SVHC substances with a weight-by –weight (w/w) concentration exceeding 0.1 must be avoided as far as possible and C&K must be informed accordingly	REACH regulation 1907/2006/EC

2.5 Conflict Metals (Au, Ta, W & Sn)

An area of recent and current industry focus is mining of minerals in areas identified as conflict regions of the world that directly or indirectly finance or benefit armed groups. These conflict regions include the Democratic Republic of Congo (DRC) and Central Africa.

Metals that have been identified of interest from these regions include gold (Au) 7440-57-5, tantalum (Ta) 7440-25-7, tungsten (W) 7440-33-7 and tin (Sn) 7440-31-5. These metals that are mined in conflict areas are termed “Conflict Metals”.

As required by the Conflict Minerals provisions of the Dodd-Frank Wall Street Reform and Consumer Protection Act, HR 4173, Section 1502 (« Conflict Minerals Act ») signed into law on July 21st 2010, Suppliers must take all necessary and appropriate actions to ensure that they products do not contain “Conflict Metals”.

2.6 Halogen Free requirements

In certain markets the use of bromine (Br) and chlorine (Cl) must be limited.

All homogeneous materials within a component or product must meet the criteria in Table 6 in order to be classified as halogen-free.

C&K requires suppliers to declare if any substances listed in table 6 are present in an article at or above the threshold limit.

Table 6. Halogen Free requirements

Chemical / Substance Category	Details of Restriction
Bromine (Br)	Prohibited in concentration equal to or greater than 900 ppm by weight in substances and preparations.
Chlorine (Cl)	Prohibited in concentration equal to or greater than 900 ppm by weight in substances and preparations.
Bromine (Br) + Chlorine (Cl)	Addition of concentration of both substances must not exceed 1500 ppm.

2.7 Other Reportable Substances

Substances in Table 7 are included in standardized product content declarations for electronic products. These substances should be avoided wherever possible or at least reduced.

If the supplier determines that substances in table 7 are present in any part above their respective specified thresholds, then the absolute weight in grams of the substance present in each part supplied to C&K shall be reported to C&K.

Table 7. Other Reportable Substances		
Reportable Substance	**CAS #**	**Details of Restriction**
Antimony / Antimony Compounds	(Annex 1-T)	1000 ppm (0.1% w/w)
Beryllium / Beryllium Compounds	(Annex1-V)	1000 ppm (0.1% w/w)
Bismuth / Bismuth Compounds (also alloys)	(Annex 1-W)	1000 ppm (0.1% w/w)
Polyvinyl chloride (PVC) and PVC copolymers	(Annex 1-AA)	1000 ppm (0.1% w/w) Banned in packaging material
Selenium / Selenium compounds	(Annex 1-DD)	1000 ppm (0.1% w/w)

3.0 Environmental compliance documents

Supplier must certify that parts comply with the requirements of this specification and shall upon request provide the following documents:

1.1 Certificates of Compliance

- C&K Environmental specification COC
- ROHS COC
- REACH COC
- Halogen Free COC

Standard Certificate Of Compliance formats are available in annex 2.

1.2 Material Declaration

The Material Declaration shall provide the complete material composition for each part and shall include details regarding the substance names, CAS numbers and amount of substances present, by weight and percent weight in each homogeneous material.
It shall be submitted into our IMDS site.

We can accept this information in other format, including an IPC 1752-2 Class 5 or 6.

1.3 SGS reports

SGS is a multinational company which provides accredited laboratory analyses (for example: ROHS and/or HF analyses) to provide the necessary evidence for environmental regulatory compliance.

1.4 EEICC Template

The Conflict Minerals Reporting Template (created by EICC & GeSI for the collection of sourcing information related to "Conflict Metals") can be found at http://www.conflictfreesmelter.org

It shall be used to determine the sources of Tin and Gold in the raw materials or piece parts supplied to C&K Components.

Supplier need to:

1. Send the Conflict Minerals Reporting Template to their sub suppliers and down to the supply chain until information about the smelter is available
2. Collect all Conflict Minerals Reporting Templates received from sub-suppliers
3. Fill in the Conflict Minerals Reporting Template for products and send it over to C&K Components

ANNEX 1: Detailed Chemical Lists with CAS Numbers

These lists are not comprehensive; they represent examples of chemicals with known CAS numbers.

Annex A. Asbestos	
Asbestos	1332-21-4
Actinolite	77536-66-4
Amosite (Grunerite)	12172-73-5
Anthophyllite	77536-67-5
Chrysotile	12001-29-5
Crocidolite	12001-28-4
Tremolite	77536-68-6, 14567-73-8

.

Annex B. Azo colorants	
Note: The EC azo dyes ban applies to 1.) certain azo colorants that by reductive cleavage of azo groups may release one of the following 22 aromatic amines and 2.) the Azodye compound listed in the second table of this annex	
List of regulated aromatic amines	
biphenyl-4-ylamine	92-67-1
benzidine	92-87-5
4-chloro-o-toluidine	95-69-2
2-naphthylamine	91-59-8
o-aminoazotoluene	97-56-3
5-nitro-o-toluidine	99-55-8
4-chloroaniline	106-47-8
4-methoxy-m-phenylenediamine	615-05-4
4,4'-methylenedianiline	101-77-9
3,3'-dichlorobenzidine	91-94-1
3,3'-dimethoxybenzidine	119-90-4
3,3'-dimethylbenzidine	119-93-7
4,4'-methylenedi-o-toluidine	838-88-0
6-methoxy-m-toluidine	120-71-8
4,4'-methylene-bis(2-chloroaniline)	101-14-4
4,4'-oxydianiline	101-80-4
4,4'-thiodianiline	139-65-1
o-toluidine	95-53-4
4-methyl-m-phenylenediamine	95-80-7
2,4,5-trimethylaniline	137-17-7
o-anisidine	90-04-0
4-amino azobenzene	60-09-3
List of regulated azodyes	
A mixture of: disodium (6- (4- anisidino) -3- sulfonato -2- (3,5-dinitro-2-oxidopheny-lazo) -1-naphtholato) (1- (5-chloro -2-oxidophenylazo)-2-naphtholato) chromate (1-); tridosium bis (6-(4-anisidino) -3-sulfonato -2- (3,5- dinitro-2- oxidopheny-lazo) -1-naphtholato)chromate(1-)	Component 1 - 118685-33-9

Annex C. Chlorinated Solvents	
Chloroform	67-66-3
1,1,2-trichloroethane	79-00-5
1,1,2,2-tetrachloroethane	79-34-5
1,1,1,2-tetrachloroethane	630-20-6
Pentachloroethane	76-01-7
1,1-dichloroethylene	75-35-4
1,1,1 Trichloroethane (note - this substance is also included in the Annex for ozone depleting substances)	71-55-6
Carbon tetrachloride (note - this substance is also included in the Annexfor ozone depleting substances)	56-23-5

Annex D. Halogenated aromatic substances	
Polychlorinated biphenyls (PCBs)	
Polychlorinated Biphenyls	1336-36-3
Aroclor	12767-79-2
Chlorodiphenyl (Aroclor 1260)	11096-82-5
Kanechlor	500 27323-18-8
Aroclor	1254 11097-69-1
Terphenyls	26140-60-3
Halogenated diarylalcanes	
Halogenated benzenes	
Chlorobenzene (Monochlorobenzene, MCB)	108-90-7
Dichlorobenzene, 1,2- (ortho-DCB)	95-50-1
Dichlorobenzene, 1,4- (para-DCB)	106-46-7
Pentachlorobenzene	608-93-5
Tetrachlorobenzene, 1, 2, 4, 5-	95-94-3
Tetrachlorobenzene, 1, 2, 3, 5-	634-90-2
Tetrachlorobenzene, 1, 2, 3, 4-	634-66-2
Trichlorobenzene, 1, 2,4 -	120-82-1
Trichlorobenzene, 1, 2, 3-	87-61-6
Hexachlorobenzene	118-74-1

Annex E. Halogenated diphenyl methanes	
Monomethyl tetrachloro diphenyl methane Trade name: Ugilec 141	76253-60-6
Monomethyl dichloro diphenyl methane Trade name: Ugilec 121, Ugilec 21	81161-70-8
Monomethyl dibromo diphenyl methane Trade name: DBBT	99688-47-8

Annex F. Hexachloroethane	
Hexachloroethane	67-72-1

Annex G. Nickel and its compounds	
Nickel	7440-02-0
Nickel carbonate	3333-67-3
Nickel dioxide	12035-36-8
Nickel hydroxide	11113-74-9
Nickel monoxide	1313-99-1
Nickel subsulphide, trinickel disulphide	12035-72-2
Nickel sulphate	7786-81-4
Nickel sulphide	11113-75-0, 12137-12-1
Nickel tetracarbonyl	13463-39-3
Nickel (II) hydroxyde	12054-48-7
Other nickel compounds	-

Annex H. Ozone Depleting Substances	
see list of substances Annex I to EU 1005/2009 (Montreal Protocol, US Clean Air Act)	
Greenhouse Gases	
see list of substances Annex I to EU 842/2006 (Kyoto Protocol, US Clean Air Act)	

Annex I. Perfluorocarbons (PFCs)	
Carbon tetrafluoride	75-73-0
Perfluoroethane	76-16-4
Perfluoropropane (Octafluoropropane)	76-19-7
Perfluorobutane (Decafluorobutane)	355-25-9
Perfluoropentane (Dodecafluoropentane)	678-26-2
Perfluorohexane (Tetradecafluorohexane)	355-42-0
Perfluorocyclobutane (Octafluorocyclobutane)	115-25-3
Perfluoroheptane	335-57-9
Perfluorooctane	307-34-6

Annex J. Polychlorinated biphenyls (PCBs)	
Polychlorinated Biphenyls	1336-36-3
Aroclor	12767-79-2
Chlorodiphenyl (Aroclor 1260)	11096-82-5
Kanechlor 500	27323-18-8
Aroclor 1254	11097-69-1
Terphenyls	26140-60-3

Annex K. Polychlorinated naphthalenes (PCNs)	
Polychlorinated Naphthalenes (PCNs)	70776-03-3
Dichloronaphthalene	28699-88-9
Trichloronaphthalene	1321-65-9
Tetrachloronaphthalene	1335-88-2
Pentachloronaphthalene	1321-64-8
Hexachloronaphthalene	1335-87-1
Heptachloronaphthalene	32241-08-0
Octachloronaphthalene	2234-13-1
Other polychlorinated naphthalenes	-

Annex L. Shortchain Chlorinated Paraffins (SCCPs)	
Chlorinated paraffins	63449-39-8
Chlorinated paraffins (C10-13)	85535-84-8
Other Short Chain Chlorinated Paraffins	-

Annex M. Tributyl Tin oxide (TBTO), Tributyl Tin (TBT), Triphenyl Tin (TPT)	
Bis(tri-n-butyltin) oxide	56-35-9
Triphenyltin N,N'-dimethyldithiocarbamate	1803-12-9
Triphenyltin fluoride	379-52-2
Triphenyltin acetate	900-95-8
Triphenyltin chloride	639-58-7
Triphenyltin hydroxide	76-87-9
Triphenyltin fatty acid salts (C=9-11)	18380-71-7, 18380-72-8, 47672-31-1, 94850-90-5
Triphenyltin chloroacetate	7094-94-2
Tributyltin methacrylate	2155-70-6
Bis(tributyltin) fumalate	6454-35-9
Tributyltin fluoride	1983-10-4
Bis(tributyltin) 2,3-dibromosuccinate	31732-71-5
Tributyltin acetate	56-36-0
Tributyltin laurate	3090-36-6
Bis(tributyltin) phthalate	4782-29-0
Copolymer of alkyl acrylate, methyl methacrylate and tributyltin methacrylate(alkyl; C=8)	67772-01-4
Tributyltin sulfamate	6517-25-5
Bis(tributyltin) maleate	14275-57-1
Tributyltin chloride	1461-22-9, 7342-38-3
Mixture of tributyltin cyclopentanecarboxylate and its analogs (Tributyltin -naphthenate)	-
Mixture of tributyltin 1,2,3,4,4a,4b,5,6,10,10a-decahydro-7-isopropyl-1,4a-dimethyl-1-phenanthlenecarboxylate and its analogs (Tributyltin rosin salt)	26239-64-5
Other Tributyl Tins & Triphenyl Tins	-

Annex N. Cadmium/Cadmium Compounds	
Cadmium	7440-43-9
Cadmium oxide	1306-19-0
Cadmium sulfide	1306-23-6
Cadmium chloride	10108-64-2
Cadmium sulfate	10124-36-4
Cadmium chromate	14312-00-6
Other cadmium compounds	-

Annex O. Hexavalent Chromium/Hexavalent Chromium Compounds	
Chromium VI (Cr^{6+})	18540-29-9
Chromium (VI) oxide	1333-82-0
Chromium dichloride dioxide	14977-61-8
Barium chromate	10294-40-3
Calcium chromate	13765-19-0
Chromic acetate	1066-30-4
Chromium trioxide	1333-82-0
Lead (II) chromate	7758-97-6
Sodium chromate	7775-11-3
Sodium dichromate	10588-01-9
Sodium dichromate dihydraté	7789-12-0
Strontium chromate	7789-06-2
Potassium dichromate	7778-50-9
Potassium chromate	7789-00-6
Zinc chromate	13530-65-9
Other hexavalent chromium compounds	-

Annex P. Lead/Lead Compounds	
Lead	7439-92-1
Lead (II) sulfate	7446-14-2
Lead (II) carbonate	598-63-0
Lead hydrocarbonate	1319-46-6
Lead acetate	301-04-2
Lead (II) acetate, trihydrate	6080-56-4
Lead phosphate	7446-27-7
Lead selenide	12069-00-0
Lead (IV) oxide	1309-60-0
Lead (II,IV) oxide	1314-41-6
Lead (II) sulfide	1314-87-0
Lead (II) oxide	1317-36-8
Lead (II) carbonate basic	1319-46-6
Lead hydroxidcarbonate	1344-36-1
Lead (II) phosphate	7446-27-7
Lead (II) chromate	7758-97-6

Lead (II) titanate	12060-00-3
Lead sulfate, sulphuric acid, lead salt	15739-80-7
Lead sulphate, tribasic	12202-17-4
Lead stearate	1072-35-1
Lead chromate molybdate sulphate red	12656-85-8
Lead sulfochromate yellow	1344-37-2
Other lead compounds	-

Annex Q. Mercury /Mercury Compounds	
Mercury	7439-97-6
Mercuric chloride	33631-63-9
Mercury (II) chloride	7487-94-7
Mercuric sulfate	7783-35-9
Mercuric nitrate	10045-94-0
Mercuric (II) oxide	21908-53-2
Mercuric sulfide	1344-48-5
Other mercury compounds	-

Annex R. Polybrominated biphenyls (PBBs) including all congeners and isomers	
Bromobiphenyl	2052-07-05, 2113-57-7, 92-66-0
Decabromobiphenyl	13654-09-06
Dibromobiphenyl	92-86-4
Heptabromobiphenyl	35194-78-6
Hexabromobiphenyl	59080-40-9, 36355-01-8, 67774-32-7
Nonabromobiphenyl	27753-52-2
Octabromobiphenyl	61288-13-9
Pentabromobiphenyl	56307-79-0
Polybrominated Biphenyl	59536-65-1
Tetrabromobiphenyl	40088-45-7
Tribromobiphenyl	59080-34-1

Annex S. Polybrominated diphenyl ethers (PBDEs) including all congeners and isomers	
Bromodiphenyl Ether	101-55-3
Decabromodiphenyl Ether	1163-19-5
Dibromodiphenyl Ether	2050-47-7
Heptabromodiphenyl Ether	68928-80-3
Hexabromodiphenyl Ether	36483-60-0
Nonabromodiphenyl Ether	63936-56-1
Octabromodiphenyl Ether	32536-52-0
Pentabromodiphenyl Ether	32534-81-9
Tetrabromodiphenyl Ether	40088-47-9
Tribromodiphenyl Ether	49690-94-0

Annex T. Antimony/Antimony Compounds	
Antimony (metallic)	7440-36-0
Antimony trioxide	1309-64-4
Antimony pentoxide	1314-60-9
Antimony trichloride	10025-91-9
Sodium antimonate	15432-85-6
Other antimony compounds	-

Annex U. Arsenic/Arsenic Compounds	
Arsenic	7440-38-2
Gallium arsenide	1303-00-0
Calcium arsenate	7778-44-1
Calcium arsenite	27152-57-4
Arsenic pentoxide	1303-28-2
Diarsenic trioxide	1327-53-3
Potassium arsenite	10124-50-2
Potassium arsenate	7784-41-0
Lead arsenate	3687-31-8
Sodium arsenate	10048-95-0
Copper arsenate	10103-61-4
Arsenic acid, magnesium salt	10103-50-1
Ammonium arsenate	7784-44-3
Lead arsenate	7784-40-9
Arsenic trichloride	7784-34-1
Arsine	7784-42-1
Copper arsenite	10290-12-7
Arsenic acid	7778-39-4
Other arsenic compounds	-

Annex V. Beryllium/Beryllium Compounds	
Beryllium	7440-41-7
Beryllium-aluminum alloy	12770-50-2
Beryllium chloride	7787-47-5
Beryllium fluoride	7787-49-7
Beryllium hydroxide	13327-32-7
Beryllium oxide	1304-56-9
Beryllium phosphate	13598-15-7
Beryllium sulfate	13510-49-1
Beryllium sulfate tetrahydrate	7787-56-6
Beryl ore	1302-52-9
Beryllium carbonate	66104-24-3
Beryllium copper and other metal alloys containing greater amounts of beryllium	-
Beryllium nitrate	13597-99-4
Other beryllium compounds	-

Annex W. Bismuth/Bismuth Compounds and Alloys	
Bismuth	7440-69-9
Bismuth trioxide	1304-76-3
Bismuth nitrate	10361-44-1
Other bismuth compounds	-

Annex X. Brominated Flame Retardants (other than PBB or PBDE)	
Poly(2,6-dibromo-phenylene oxide)	69882-11-7
Tetra-decabromo-diphenoxy-benzene	58965-66-5
1,2-Bis(2,4,6-tribromo-phenoxy) ethane	37853-59-1
3,5,3',5'-Tetrabromo-bisphenol A (TBBPA)	79-94-7
TBBA, unspecified	30496-13-0
TBBA-epichlorhydrin oligomer	40039-93-8
TBBA-TBBA-diglycidyl-ether oligomer	70682-74-5
TBBA carbonate oligomer	28906-13-0
TBBA carbonate oligomer, phenoxy end capped	94334-64-2
TBBA carbonate oligomer, 2,4,6-tribromo-phenol terminated	71342-77-3
Brominated epoxy resin end-capped with tribromophenol	139638-58-7, 135229-48-0
TBBA-(2,3-dibromo-propyl-ether)	21850-44-2
TBBA bis-(2-hydroxy-ethyl-ether)	4162-45-2
TBBA-bis-(allyl-ether)	25327-89-3
TBBA-dimethyl-ether	37853-61-5
Tetrabromo-bisphenol S	39635-79-5
TBBS-bis-(2,3-dibromo-propyl-ether)	42757-55-1
2,4-Dibromo-phenol	615-58-7
2,4,6-tribromo-phenol	118-79-6
Pentabromo-phenol	608-71-9
2,4,6-Tribromo-phenyl-alltl-ether	3278-89-5
Tribromo-phenyl-allyl-ether, unspecified	26762-91-4
Bis(methyl)tetrabromo-phtalate	55481-60-2
Bis(2-ethlhexyl)tetrabromo-phtalate	26040-51-7
2-Hydroxy-propyl-2-(2-hydroxy-ethoxy)-ethyl-TBP	20566-35-2
TBPA, glycol-and propylene-oxide esters	75790-69-1
N,N'-Ethylene –bis-(tetrabromo-phthalimide)	32588-76-4
Ethylene-bis(5,6-dibromo-norbornane-2,3-dicarboximide)	52907-07-0
2,3-Dibromo-2-butene-1,4-diol	3234-02-4
Dibromo-neopentyl-glycol	3296-90-0
Dibromo-propanol	96-13-9
Tribromo-neopentyl-alcohol	36483-57-5
Poly tribromo-styrene	57137-10-7
Tribromo-styrene	61368-34-1
Dibromo-styrene grafted PP	171091-06-8
Poly-dibromo-styrene	31780-26-4
Bromo-/Chloro-paraffins	68955-41-9

Bromo-/Chloro-alpha-olefin	82600-56-4
Vinylbromide	593-60-2
Tris-(2,3-dibromo-propyl)-isocyanurate	52434-90-9
Tris(2,4-Dibromo-phenyl) phosphate	49690-63-3
Tris(tribromo-neopentyl) phosphate	19186-97-1
Chlorinated and brominated phosphate esther	125997-20-8
Pentabromo-toluene	87-83-2
Pentabromo-benzyl bromide	38521-51-6
1,3-Butadiene homopolymer,brominated	68441-46-3
Pentabromo-benzyl-acrylate, monomer	59447-55-1
Pentabromo-benzyl-acrylate, polymer	59447-57-3
Decabromo-diphenyl-ethane	84852-53-9
Tribromo-bisphenyl-maleinimide	59789-51-4
Brominated trimethylphenyl-lindane	-
Other Brominated Flame Retardants	-
Hexabromo-cyclo-dodecane (HBCD), unspecified	3194-55-6, 25637-99-4
Tetrabromo-chyclo-octane	31454-48-5
1,2-Dibromo-4-(1,2 dibromo-methyl)-cyclo-hexane	3322-93-8
TBPA Na salt	25357-79-3
Tetrabromo phthalic anhydride	632-79-1

Annex Y. Dibutyltin compounds (DBT) – Dioctyltin Compounds (DOT)	
Dibutyltin oxide	818-08-6
Dibutyltin chloride	683-18-1
Dibutyltin diacetate	1067-33-0
Dibutyltin dilaurate	77-58-7
Dibutyltin hydrogen borate	75113-37-0
Dibutyltin maleate	78-04-6
Other dibutyltin compounds	-
Dioctyl Tin Oxide	870-08-6
Dioctyltin dilaurate	3648-18-8
Other Dioctyltin compounds	-

Annex Z. Phthalates	
Di(2-ethylhexyl) phthalate (DEHP)	117-81-7
Dibutyl phthalate (DBP)	84-74-2
Bis(2-methoxyethyl) phthalate (BBP)	117-82-8
Butyl benzyl phthalate (BBP)	85-68-7
Diisobutyl phthalate (DIBP)	84-69-5
Diisodecyl phthalate (DIDP)	26761-40-0 & 68515-49-1
Diisononyl phthalate (DINP)	28553-12-0 & 68515-48-0
Di-n-pentyl phthalate	131-18-0
Di-isopentyl phthalate	605-50-5
Di-n-octyl phthalate (DNOP)	117-84-0

N-pentyl-isopentylphthalate	84777-06-0
Di-n-hexyl phthalate (DNHP)	84-75-3

Annex AA. Polyvinyl Chloride	
Polyvinyl chloride (PVC)	9002-86-2

Annex BB. Radioactive Substances	
Uranium	7440-61-6
Plutonium	7440-07-5
Radon	10043-92-2
Americium	7440-35-9
Thorium	7440-29-1
Cesium	7440-46-2
Strontium	7440-24-6
Other radioactive substances	-

Annex CC. Polycyclic Aromatic Hydrocarbons (PAHs)	
Tetracene Benzo[*a*]anthracene	56-55-3
Chrysene	218-01-9
Benzo[*b*]fluoranthene	205-99-2
Benzo[*j*]fluoranthene	205-82-3
Benzo[k]fluoranthene	207-08-9
Benzo[*a*]pyrene	50-32-8
Benzo[*ghi*]perylene	191-24-2
Coronene Superbenzene	191-07-1
Dibenz(a,h)anthracene(C20H14),	53-70-3
Indeno(1,2,3-cd)pyrene	193-39-5
Ovalene	190-26-1

Annex DD. Selenium and its compounds	
Selenium	7782-49-2
Selenium dioxide; selenium oxide; selenious anhydride	7446-08-4
Selenious acid	7783-00-8
Seleninyl chloride; selenium oxychloride; selenium oxichloric	7791-23-3
disodium selenite	10102-18-8
disodium selenate	13410-01-0
selenium sulfide; sulfur selenide	7446-34-6
Other selenium compounds	-

ANNEX 2: Certificate of Compliance formats

Company Stamp:

Company Name:
Address:

CERTIFICATE OF COMPLIANCE

Date:

C&K Environmental Specification Compliance:

We certify that all references supplied to C&K components SAS comply with requirements of the C&K Environmental Specification (PS-GREEN-001).

Parts/ Products covered by this declaration:

Product designation	C&K PN

Approved by:

Name:

Signature:

Company Stamp:

Company Name:
Address:

ROHS PRODUCTS
CERTIFICATE OF COMPLIANCE

Date:

RoHS Compliance:

We certify that all references supplied to C&K Components SAS comply with the EU directive 2011/65/EC, dated June 8th 2011, said RoHS2 directive.

Restrictions on Hazardeous Substances (RoHS Directive 2011/65/EU)	
Chemical / Substance Category	**Details of Restriction**
Cadmium (Cd)	Prohibited in concentration above 100ppm or 0.01% by weight in homogeneous materials.
Hexavalent Chromium (Cr^{6+})	Prohibited in concentration above 1000ppm or 0,1% by weight in homogeneous materials.
Lead (Pb)	
Mercury (Hg)	
Polybrominated Biphenyls (PBBs)	
Polybrominated Diphenyl ethers (PBDEs); also known as Polybrominated Biphenyl ethers (PBBEs)	

Parts/ Products covered by this declaration:

Product designation	C&K PN	RoHS exemption (Yes/No)[1]

(1) If exemptions are applicable then specify exemption numbers

Approved by:

Name: *Signature:*

Company Stamp

Company Name:
Address:

Declaration on REACH regulation (EC) N° 1907/2006

Date:

REACH Compliance:

We certify that all references supplied to C&K components SAS comply with the REACH directive (Registration, Evaluation, Authorization and Restriction of Chemicals):

- Supplied parts do not contain more than 0.1wt% of "Substances of Very High Concern" listed on the current SVHC candidate list dated on *Date*.
  (The current candidate list of REACH SVHC is published by the European Chemicals Agency and located at: Http://echa.europa.eu/chem_data/candidate_list_table_en.asp)
- Supplied parts do not contain substances that belong to the annex XIV of REACH.
- Substances contained in supplied parts comply with the conditions of restriction defined in the Annex XVII of REACH.

Parts/ Products covered by this declaration:

Product designation	C&K PN

Approved by:

Name: *Signature:*

Company Stamp:

Company Name:
Address:

HALOGEN-FREE PRODUCTS
CERTIFICATE OF COMPLIANCE

Date:

HALOGEN-FREE Compliance:

We certify that all references supplied to C&K Components SAS comply with the requirements for Halogen-Free products.

Halogen Free requirements	
Chemical / Substance Category	**Details of Restriction**
Bromine (Br)	Prohibited in concentration equal to or greater than 900 ppm by weight in substances and preparations.
Chlorine (Cl)	
Bromine (Br) + Chlorine (Cl)	Addition of concentration of both substances must not exceed 1500 ppm.

Parts/ Products covered by this declaration:

Product designation	C&K PN

Approved by:

Name: *Signature:*