

Appendix B

RoHS Substances and Exemptions List

The EU RoHS Directive continues to be updated over time. As these changes are made, the most current exemption list will be added within the 1752A in a reasonable amount of time. Revision control will be based on the EU Directive document number. Declarations for products that have been previously declared will only be relative to the current EU Exemptions when the data was provided.

On 24 September 2010 the European Commission published Commission Decision 2010/571/EU which **replaced** all previous RoHS exemptions lists. This represents a significant departure from previous Commission Decisions. Prior to September 2010, when the Commission published a Decision on the RoHS exemptions list then (apart from a few well publicized exceptions such as exemptions 9a, 22, 28 and 35) the Decision added new exemptions to the existing list. The list of exemptions in Commission Decision 2010/571/EU is also included in Annex III of the new RoHS Directive 2011/65/EU published 1 July 2011.

Commission Decision 2010/571/EU applies to all equipment which is placed on the EU market for the first time after 24 September 2010, and implemented a major revision to the list of allowed RoHS exemptions: 13 exemptions were deleted; there were significant changes to the wording to 2 exemptions, and 38 new exemptions were introduced. Commission Decision 2010/571/EU also includes expiry dates for certain exemptions. The list of valid RoHS exemptions will change every 6 months as certain exemptions reach their expiry date. For example, some RoHS exemptions in the 2010/571/EU list expired in January 2011, some exemptions expired in June 2011, more exemptions expired in December 2011, and so on. The list of valid RoHS exemptions has now become a moving target and companies need to continually review which exemptions are still valid for parts which are used to manufacture new products for sale in the EU.

On 8 September 2011 the European Commission published Commission Decision 2011/534/EU which added two more exemptions to the RoHS exemptions list:

- 7(c)-IV: Lead in PZT based dielectric ceramic materials for capacitors being part of integrated circuits or discrete semiconductors
- 40: Cadmium in photoresistors for analogue optocouplers applied in professional audio equipment: Expires on 31 December 2013

Table B5 provides the RoHS exemptions which are included in Commission Decision 2010/571/EU and Commission Decision 2011/534/EU, and their expiry dates. Exemptions which have already expired (as at January 2012) are shown in **bold type** in Table B5.

Table B6 contains the list of RoHS exemptions that were valid before 24 September 2010, and their expiry dates where applicable. These exemptions can be used for spare parts which are used to repair or refurbish items of equipment that had already been placed on the EU market before 24 September 2010, or before the expiry date of the exemption where applicable. A component which relies on an exemption for RoHS compliance may require two separate declarations – one declaration for use in new equipment put on the market after 24 September 2010 which references the RoHS exemptions in Table B5, and a second declaration for use as a spare part to repair or refurbish equipment that had already been placed on the market before 24 September 2010 which references the RoHS exemptions in Table B6.

Table B7 contains the list of RoHS exemptions published in Annex IV of the new RoHS Directive 2011/65/EU which are specific to medical devices and monitoring and control instruments.

RoHS Substances

Unique ID Authority == IPC

Unique ID == EUROHS-0508

Substance Category Name	Threshold
Cadmium/cadmium compounds	0.01% by weight (100 ppm) of homogeneous materials
Polybrominated biphenyls (PBBs)	0.1% by weight (1 000 ppm) of homogeneous materials
Polybrominated diphenyl ethers (PBDEs)	0.1% by weight (1 000 ppm) of homogeneous materials
Chromium VI compounds	0.1% by weight (1 000 ppm) of homogeneous materials
Lead/lead compounds	0.1% by weight (1 000 ppm) of homogeneous materials
Mercury/mercury compounds	0.1% by weight (1 000 ppm) of homogeneous materials

B5 RoHS exemptions listed in Commission Decision 2010/571/EU published 24 September 2010 (also contained in Annex III of the new RoHS Directive 2011/65/EU published 1 July 2011) and in Commission Decision 2011/534/EU published 8 September 2011.

Unique ID Authority == IPC

Unique ID == EL2011/534/EU

Identity	Description	Expiry date
1(a)	Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):For general lighting purposes less than 30 W: 5 mg	Expires on 31 December 2011; 3.5 mg may be used per burner after 31 December 2011 until 31 December 2012; 2.5 mg shall be used per burner after 31 December 2012
1(b)	Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):For general lighting purposes greater than or equal to 30 W and less than 50 W: 5 mg	Expires on 31 December 2011; 3.5 mg may be used per burner after 31 December 2011
1(c)	Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):For general lighting purposes greater than or equal to 50 W and less than 150 W: 5 mg	
1(d)	Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):For general lighting purposes greater than or equal to 150 W: 15 mg	
1(e)	Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):For general lighting purposes with circular or square structural shape and tube diameter less than or equal to 17 mm	No limitation of use until 31 December 2011; 7 mg may be used per burner after 31 December 2011
1(f)	Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):For special purposes: 5 mg	
2(a)(1)	Mercury in double-capped linear fluorescent lamps for generation lighting purposes not exceeding (per lamp):Tri-band phosphor with normal lifetime and a tube diameter less than 9 mm (e.g. T2): 5mg	Expires on 31 December 2011; 4 mg may be used per lamp after 31 December 2011
2(a)(2)	Mercury in double-capped linear fluorescent lamps for generation lighting purposes not exceeding (per lamp):Tri-band phosphor with normal lifetime and a tube diameter greater than or equal to 9 mm and less than or equal to 17 mm (e.g. T5): 5mg	Expires on 31 December 2011; 3 mg may be used per lamp after 31 December 2011
2(a)(3)	Mercury in double-capped linear fluorescent lamps for generation lighting purposes not exceeding (per lamp):Tri-band phosphor with normal lifetime and a tube diameter greater than 17 mm and less than or equal to 28 mm (e.g. T8): 5mg	Expires on 31 December 2011; 3.5 mg may be used per lamp after 31 December 2011
2(a)(4)	Mercury in double-capped linear fluorescent lamps for generation lighting purposes not exceeding (per lamp):Tri-band phosphor with normal lifetime and a tube diameter greater than 28 mm (e.g. T12): 5 mg	Expires on 31 December 2012; 3.5 mg may be used per lamp after 31 December 2012
2(a)(5)	Mercury in double-capped linear fluorescent lamps for generation lighting purposes not exceeding (per lamp):Tri-band phosphor with long lifetime (greater than or equal to 25,000 h): 8 mg	Expires on 31 December 2011; 5 mg may be used per lamp after 31 December 2011
2(b)(1)	Mercury in other fluorescent lamps not exceeding (per lamp):Linear halophosphate lamps with tube greater than 28 mm (e.g. T10 and T12): 10 mg	Expires on 13 April 2012
2(b)(2)	Mercury in other fluorescent lamps not exceeding (per lamp):Non-linear halophosphate lamps (all diameters): 15 mg	Expires on 13 April 2016
2(b)(3)	Mercury in other fluorescent lamps not exceeding (per lamp):Non-linear tri-band phosphor lamps with tube diameter greater than 17 mm (e.g. T9)	No limitation of use until 31 December 2011; 15 mg may be used per lamp after 31 December 2011
2(b)(4)	Mercury in other fluorescent lamps not exceeding (per lamp):Lamps for other general lighting and special purposes (e.g. induction lamps)	No limitation of use until 31 December 2011; 15 mg may be used per lamp after 31 December 2011
3(a)	Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes not exceeding (per lamp): Short length (less than or equal to 500 mm)	No limitation of use until 31 December 2011; 3.5 mg may be used per lamp after 31 December 2011
3(b)	Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes not exceeding (per lamp): Medium length (greater than 500 mm and less than or equal to 1,500 mm)	No limitation of use until 31 December 2011; 5 mg may be used per lamp after 31 December 2011
3(c)	Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes not exceeding (per lamp): Long length (greater than 1,500 mm)	No limitation of use until 31 December 2011; 13 mg may be used per lamp after 31 December 2011
4(a)	Mercury in other low pressure discharge lamps (per lamp)	No limitation of use until 31 December 2011; 15 mg may be used per lamp after 31 December 2011
4(b)-I	Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner) in lamps with improved colour rendering index Ra greater than 60: P less than or equal to 155 W	No limitation of use until 31 December 2011; 30 mg may be used per burner after 31 December 2011
4(b)-II	Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner) in lamps with improved colour rendering index Ra	No limitation of use until 31 December 2011; 40 mg may be used per burner after 31

	greater than 60: P greater than 155 W and less than or equal to 405 W	December 2011
4(b)-III	Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner) in lamps with improved colour rendering index Ra greater than 60: P greater than 405 W	No limitation of use until 31 December 2011; 40 mg may be used per burner after 31 December 2011
4(c)-I	Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner): P less than or equal to 155 W	No limitation of use until 31 December 2011; 25 mg may be used per burner after 31 December 2011
4(c)-II	Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner): P greater than 155 W and less than or equal to 405 W	No limitation of use until 31 December 2011; 30 mg may be used per burner after 31 December 2011
4(c)-III	Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner): P greater than 405 W	No limitation of use until 31 December 2011; 40 mg may be used per burner after 31 December 2011
4(d)	Mercury in High Pressure Mercury (vapour) lamps (HPMV)	Expires on 13 April 2015
4(e)	Mercury in metal halide lamps (MH)	
4(f)	Mercury in other discharge lamps for special purposes not specially mentioned in this Annex	
5(a)	Lead in glass of cathode ray tubes	
5(b)	Lead in glass of fluorescent tubes not exceeding 0.2% by weight	
6(a)	Lead as an alloying element in steel for machining purposes and in galvanized steel containing up to 0.35% lead by weight	
6(b)	Lead as an alloying element in aluminium containing up to 0.4% lead by weight	
6(c)	Copper alloy containing up to 4% lead by weight	
7(a)	Lead in high melting temperature type solders (i.e. lead-based alloys containing 85% by weight or more lead)	
7(b)	Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission, and network management for telecommunications	
7(c)-I	Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectric devices, or in a glass or ceramic matrix compound	
7(c)-II	Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher	
7(c)-III	Lead in dielectric ceramic in capacitors for a rated voltage of less than 125 V AC or 250 V DC	Expires on 1 January 2013
7(c)-IV	Lead in PZT based dielectric ceramic materials for capacitors being part of integrated circuits or discrete semiconductors	
8(a)	Cadmium and its compounds in one shot pellet type thermal cut-offs	Expired on 1 January 2012
8(b)	Cadmium and its compounds in electrical contacts	
9	Hexavalent chromium as an anticorrosion agent of the carbon steel cooling system in absorption refrigerators up to 0.75% by weight in the cooling solution	
9(b)	Lead in bearing shells and bushes for refrigerant-containing compressors for heating, ventilation, air conditioning and refrigeration (HVACR) applications	
11(a)	Lead used in C-press compliant pin connector systems	Expired 24 September 2010
11(b)	Lead used in other than C-press compliant pin connector systems	Expires on 1 January 2013
12	Lead as a coating material for the thermal conduction module C-ring	Expired 24 September 2010
13(a)	Lead in white glasses used for optical applications	
13(b)	Cadmium and lead in filter glasses and glasses used for reflectance standards	
14	Lead in solders consisting of more than two elements for the connection between the pins and the package of microprocessors with a lead content of more than 80% and less than 85% by weight	Expired on 1 January 2011
15	Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages	
16	Lead in linear incandescent lamps with silicate coated tubes	Expires on 1 September 2013
17	Lead halide as radiant agent in high intensity discharge (HID) lamps used for professional reprography applications	
18(a)	Lead as activator in the fluorescent powder (1% lead by weight or less) of discharge lamps when used as specialty lamps for diazoprinting reprography, lithography, insect traps, photochemical and curing processes containing phosphors such as SMS ((Sr,Ba)2MgSi2O7:Pb)	Expired on 1 January 2011
18(b)	Lead as activator in the fluorescent powder (1% lead by weight or less) of discharge lamps when used as sun tanning lamps containing phosphors such as BSP (BaSi2O5:Pb)	
19	Lead with PbBiSn-Hg and PbInSn-Hg in specific compositions as main amalgam and with PbSn-Hg as auxiliary amalgam in very compact energy	Expired on 1 June 2011

	saving lamps (ESL)	
20	Lead oxide in glass used for bonding front and rear substrates of flat fluorescent lamps used for Liquid Crystal Displays (LCDs)	Expired on 1 June 2011
21	Lead and cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses	
23	Lead in finishes of fine pitch components other than connectors with a pitch of 0.65 mm and less	Expired 24 September 2010
24	Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors	
25	Lead oxide in surface conduction electron emitter displays (SED) used in structural elements, notably in the seal frit and frit ring	
26	Lead oxide in the glass envelope of black light blue lamps	Expired on 1 June 2011
27	Lead alloys as solder for transducers used in high-powered (designated to operate for several hours at acoustic power levels of 125 dB SPL and above) loudspeakers	Expired on 24 September 2010
29	Lead bound in crystal glass as defined in Annex I (Categories 1, 2, 3 and 4) of Council Directive 69/493/EEC	
30	Cadmium alloys as electrical/mechanical solder joints to electrical conductors located directly on the voice coil in transducers used in high-powered loudspeakers with sound pressure levels of 100 dB (A) and more	
31	Lead in soldering materials in mercury free flat fluorescent lamps (which e.g. are used for liquid crystal displays, design or industrial lighting)	
32	Lead oxide in seal frit used for making window assemblies for Argon and Krypton laser tubes	
33	Lead in solders for the soldering of thin copper wires of 100 micrometer diameter and less in power transformers	
34	Lead in cermet-based trimmer potentiometer elements	
36	Mercury used as a cathode sputtering inhibitor in DC plasma displays with a content up to 30 mg per display	Expired 1 July 2010
37	Lead in the plating layer of high voltage diodes on the basis of a zinc borate glass body	
38	Cadmium and cadmium oxide in thick film pastes used on aluminium bonded beryllium oxide	
39	Cadmium in colour converting II-VI LEDs (less than 10 microgram Cd per mm ² of light-emitting area) for use in solid state illumination or display systems	Expires on 1 July 2014
40	Cadmium in photoresistors for analogue optocouplers applied in professional audio equipment	Expires on 31 December 2013

B6 RoHS exemptions that were valid before 24 September 2010

Unique ID Authority == IPC

Unique ID == EL2010/122/EU

Identity	Description	Expiry date
1	Mercury in compact fluorescent lamps not exceeding 5 mg per lamp.	
2a	Mercury in straight fluorescent lamps for general purposes not exceeding 10 mg in halophosphate lamps.	
2b	Mercury in straight fluorescent lamps for general purposes not exceeding 5 mg in triphosphate lamps with a normal lifetime.	
2c	Mercury in straight fluorescent lamps for general purposes not exceeding 8 mg in triphosphate lamps with long lifetime.	
3	Mercury in straight fluorescent lamps for special purposes.	
4	Mercury in other lamps not specifically mentioned in this Annex.	
5	Lead in glass of cathode ray tubes, electronic components and fluorescent tubes.	
6	Lead as an alloying element in steel containing up to 0,35 % lead by weight, aluminium containing up to 0,4 % lead by weight and as a copper alloy containing up to 4 % lead by weight.	
7a	Lead in high melting temperature type solders (i.e. lead based solder alloys containing 85 % by weight or more lead)	
7b	Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signaling, transmission as well as network management for telecommunications	
7c	Lead in electronic ceramic parts (e.g. piezoelectronic devices)	

8	Cadmium and its compounds in electrical contacts and cadmium plating except for applications banned under Directive 91/338/EEC (1) amending Directive 76/769/EEC (2) relating to restrictions on the marketing and use of certain dangerous substances and preparations.	
9	Hexavalent chromium as an anti-corrosion of the carbon steel cooling system in absorption refrigerators.	
9a	DecaBDE in polymeric applications	Expired 30 June 2008
9b	Lead in lead-bronze bearing shells and bushes.	
11	Lead used in compliant pin connector systems.	
12	Lead as a coating material for the thermal conduction module c-ring.	
13	Lead and cadmium in optical and filter glass.	
14	Lead in solders consisting of more than two elements for the connection between the pins and the package of microprocessors with a lead content of more than 80 % and less than 85 % by weight.	
15	Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.	
16	Lead in linear incandescent lamps with silicate coated tubes.	
17	Lead halide as radiant agent in High Intensity Discharge (HID) lamps used for professional reprography applications.	
18	Lead as activator in the fluorescent powder (1 % lead by weight or less) of discharge lamps when used as sun tanning lamps containing phosphors such as BSP (BaSi2O5:Pb) as well as when used as specialty lamps for diazoprinting reprography, lithography, insect traps, photochemical and curing processes containing phosphors such as SMS ((Sr,Ba)2MgSi2O7:Pb).	
19	Lead with PbBiSn-Hg and PbInSn-Hg in specific compositions as main amalgam and with PbSn-Hg as auxiliary amalgam in very compact Energy Saving Lamps (ESL).	
20	Lead oxide in glass used for bonding front and rear substrates of flat fluorescent lamps used for Liquid Crystal Displays (LCD).	
21	Lead and cadmium in printing inks for the application of enamels on borosilicate glass.	
22	Lead as impurity in RIG (rare earth iron garnet) Faraday rotators used for fibre optic communication systems until 31 December 2009.	Expired 31 December 2009
23	Lead in finishes of fine pitch components other than connectors with a pitch of 0.65 mm or less with NiFe lead frames and lead in finishes of fine pitch components other than connectors with a pitch of 0.65 mm or less with copper lead frames.	
24	Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors.	
25	Lead oxide in plasma display panels (PDP) and surface conduction electron emitter displays (SED) used in structural elements; notably in the front and rear glass dielectric layer, the bus electrode, the black stripe, the address electrode, the barrier ribs, the seal frit and frit ring as well as in print pastes.	
26	Lead oxide in the glass envelope of Black Light Blue (BLB) lamps.	
27	Lead alloys as solder for transducers used in high-powered (designated to operate for several hours at acoustic power levels of 125 dB SPL and above) loudspeakers.	Expired 24 September 2010
28	Hexavalent chromium in corrosion preventive coatings of unpainted metal sheetings and fasteners used for corrosion protection and Electromagnetic Interference Shielding in equipment falling under category three of Directive 2002/96/EC (IT and telecommunications equipment)	Expired 1 July 2007
29	Lead bound in crystal glass as defined in Annex I (Categories 1, 2, 3 and 4) of Council Directive 69/493/EEC.	
30	Cadmium alloys as electrical/mechanical solder joints to electrical conductors located directly on the voice coil in transducers used in high-powered loudspeakers with sound pressure levels of 100 dB (A) and more.	
31	Lead in soldering materials in mercury free flat fluorescent lamps (which e.g. are used for liquid crystal displays, design or industrial lighting).	
32	Lead oxide in seal frit used for making window assemblies for Argon and Krypton laser tubes.	
33	Lead in solders for the soldering of thin copper wires of 100 µm diameter and less in power transformers.	
34	Lead in cermet-based trimmer potentiometer elements.	
35	Cadmium in photoresistors for optocouplers applied in professional audio equipment until 31 December 2009.	Expired 31 December 2009
36	Mercury used as a cathode sputtering inhibitor in DC plasma displays with a content up to 30 mg per display until 1 July 2010.	Expired 1 July 2010

37	Lead in the plating layer of high voltage diodes on the basis of a zinc borate glass body.	
38	Cadmium and cadmium oxide in thick film pastes used on aluminium bonded beryllium oxide.	
39	Cadmium in colour-converting II-VI LEDs (< 10 µg Cd per mm ² of light-emitting area) for use in solid state illumination or display systems	

B7 RoHS exemptions published in Annex IV of the new RoHS Directive 2011/65/EU which are specific to medical devices and monitoring and control instruments

Unique ID Authority == IPC

Unique ID == EL2011/65/EU_ANNEX_IV

Identity	IPC Attribute
1	Lead, cadmium and mercury in detectors for ionising radiation
1a	Lead and cadmium in ion selective electrodes including glass of pH electrodes.
1b	Lead anodes in electrochemical oxygen sensors.
1c	Lead, cadmium and mercury in infra-red light detectors.
1d	Mercury in reference electrodes: low chloride mercury chloride, mercury sulphate and mercury oxide.
2	Lead bearings in X-ray tubes.
3	Lead in electromagnetic radiation amplification devices: micro-channel plate and capillary plate.
4	Lead in glass frit of X-ray tubes and image intensifiers and lead in glass frit binder for assembly of gas lasers and for vacuum tubes that convert electromagnetic radiation into electrons.
5	Lead in shielding for ionising radiation.
6	Lead in X-ray test objects.
7	Lead stearate X-ray diffraction crystals.
8	Radioactive cadmium isotope source for portable X-ray fluorescence spectrometers.
9	Cadmium in helium-cadmium lasers.
10	Lead and cadmium in atomic absorption spectroscopy lamps.
11	Lead in alloys as a superconductor and thermal conductor in MRI.
12	Lead and cadmium in metallic bonds to superconducting materials in MRI and SQUID detectors.
13	Lead in counterweights.
14	Lead in single crystal piezoelectric materials for ultrasonic transducers.
15	Lead in solders for bonding to ultrasonic transducers.
16	Mercury in very high accuracy capacitance and loss measurement bridges and in high frequency RF switches and relays in monitoring and control instruments not exceeding 20 mg of mercury per switch or relay.
17	Lead in solders in portable emergency defibrillators.
18	Lead in solders of high performance infrared imaging modules to detect in the range 8-14 micrometer.
19	Lead in Liquid crystal on silicon (LCoS) displays.
20	Cadmium in X-ray measurement filters.

Appendix C

JIG-101 Material Composition Declaration for Electronic Products List

NOTE 1: For Class C and Class D reporting, the latest Joint Industry Guide list of substances / categories will be provided. This will be periodically updated as changes are made to this standard. As per the JIG-101 Edition 4.1 in Section 4:

“This Guide establishes three criteria that determine whether substances shall be declared. The resulting declarable substance list is based on these criteria which the industry has determined justify disclosure when these material/substances are present in electrotechnical products in amounts that exceed their specified threshold levels.

Criteria 1 – R (Regulated)

Substances that are subject to enacted legislation that (a) prohibits their use; or (b) restricts their use; or (c) requires reporting or results in other regulatory effects (e.g. labeling) and where the substance-specific effective date is currently in effect or scheduled to go into effect within the next 24 months.

Criteria 2 – A (For Assessment Only)

Substances that are likely to be subject to enacted legislation where the substance-specific effective dates of the regulatory requirements are uncertain.

Criteria 3 – I (For Information Only)

Substances that are not regulated but where there is a recognized market requirement for reporting their content in electrotechnical products. Reporting is used to facilitate company assessment regarding widely adopted industry environmental agreements or standards.

The criteria are listed in their order of priority. Substances that might be covered by more than one of these criteria will enter the declarable substance list only once, referring to the criteria with the highest order of priority and its requirements. The requirement to declare a substance in Annex A does not necessarily indicate a ban or restriction of that substance.”

Further information on the JIG-101 can be found at <http://www.ce.org/Standards/listings.asp>.

In most cases, the import/export of IPC 1752A Class C and Class D XML files between different software systems (e.g. which may be in use at different companies, different divisions within the same company etc) relies on being able to match the alphanumeric string for the Substance Category Name which is used to identify the substances / categories listed in JIG-101 Edition 4.1. Wherever possible, the Substance Category Names in Table C2 are reproduced exactly as they are written in JIG-101 Edition 4.1. Where the same substance / category is listed multiple times in JIG-101, the substance category has been extended in Table C2 to produce unique Substance Category Names. For example, ‘Cadmium/cadmium compounds’ is listed twice in JIG-101 Edition 4.1 and in Table C2 this substance category is extended to produce the unique Substance Category Names ‘Cadmium/cadmium compounds- All, except batteries’ and ‘Cadmium/cadmium compounds- Batteries’.

NOTE 2: In addition to including new substance groups (for example, new SVHCs added to the REACH Candidate List in December 2011), the JIG 4.1 published May 2012 also includes changes to the name and/or threshold for the following Substance/Category entries:

JIG 4.0 Substance/Category	JIG 4.1 Substance/Category	JIG 4.0 Threshold Level (Reporting level)	JIG 4.1 Threshold Level (Reporting level)
Polyvinyl chloride (PVC)	Polyvinyl chloride (PVC) and PVC Copolymers	0.1% by weight (1 000 ppm) of the product	0.1% total chlorine content by weight (1 000 ppm) in the plastic material
Brominated flame retardants (other than PBBs,PBDEs, or HBCDD)	Brominated flame retardants (other than PBBs,PBDEs, or HBCDD)	0.1% by weight (1 000 ppm) of plastic material	0.1% total bromine content by weight (1 000 ppm) in the plastic material

The JIG 4.1 name and/or threshold for these Substance/Category entries are included in Table C2 below.

C2 JIG-101 Edition 4.1, May, 2012

Unique ID Authority == IPC

Unique ID == JIG-101_Ed_4.1-R

Substance Category Name	Threshold
Asbestos	Intentionally added
Azocolourants and azodyes which form certain aromatic amines	0.003% by weight (30 ppm) of the finished textile/leather product
1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP)	0.1% by weight (1 000 ppm) of the product
1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)	0.1% by weight (1 000 ppm) of the product
Bis(2-methoxyethyl) ether	0.1% by weight (1 000 ppm) of the product
Bis(2-methoxyethyl) phthalate	0.1% by weight (1 000 ppm) of the product
Boric acid	0.1% by weight (1 000 ppm) of the product
Cadmium/cadmium compounds- All, except batteries	0.01% by weight (100 ppm) of homogeneous materials
Cadmium/cadmium compounds- Batteries	0.0005 % by weight (5 ppm) of battery
Chromium VI compounds	0.1% by weight (1 000 ppm) of homogeneous materials
Cobalt dichloride (CoCl ₂)	0.1% by weight (1 000 ppm) of the product
Diarsenic pentoxide	0.1% by weight (1 000 ppm) of the product
Diarsenic trioxide	0.1% by weight (1 000 ppm) of the product
Dibutyltin (DBT) compounds	0.1% by weight (1 000 ppm) of tin in a material
Diocetyl tin (DOT) compounds	0.1% by weight (1 000 ppm) of tin in a material
2,2'-dichloro-4,4'-methylenedianiline (MOCA)	0.1% by weight (1 000 ppm) of the product
N,N-dimethylacetamide (DMAC)	0.1% by weight (1 000 ppm) of the product
Dimethyl fumarate	0.00001% by weight (0.1 ppm) in a material
Disodium tetraborate, anhydrous	0.1% by weight (1 000 ppm) of the product
Fluorinated greenhouse gases (PFC, SF ₆ , HFC)	Intentionally added
Formaldehyde- Composite wood	Intentionally added
Formaldehyde- Textiles	0.0075% by weight (75 ppm) of textile product
Hexabromocyclododecane (HBCDD) and all major diastereoisomers	0.1% by weight (1 000 ppm) of the product
Lead/lead compounds- All, except batteries	0.1% by weight (1 000 ppm) of homogeneous materials
Lead/lead compounds in consumer products designed or intended primarily for children 12 years of age or younger	0.01% by weight (300 ppm) of children's product
Lead/lead compounds in paint and similar surface coatings of toys and other articles intended for use by children	0.009% by weight (90 ppm) of surface coating
Lead/lead compounds in cables/cords with thermoset or thermoplastic coatings	0.03% by weight (300 ppm) of surface coating
Lead/lead compounds- Batteries	0.004% by weight (40 ppm) of battery
Lead chromate	0.1% by weight (1 000 ppm) of the product
Lead chromate molybdate sulfate red (C.I. Pigment Red 104)	0.1% by weight (1 000 ppm) of the product
Lead sulfochromate yellow (C.I. Pigment Yellow 34)	0.1% by weight (1 000 ppm) of the product
Mercury/mercury compounds- All, except batteries	Intentionally added or 0.1 % (1000 ppm) of homogeneous material
Mercury/mercury compounds- Batteries	0.0001% by weight (1 ppm) of battery
Nickel, where prolonged skin contact is expected	Intentionally added
Ozone depleting substances	Intentionally added
Pentazinc chromate octahydroxide	0.1% by weight (1 000 ppm) of the product
Perchlorates	0.0000006% by weight (0.006 ppm) of the product
Perfluorooctane sulfonate (PFOS)	Intentionally added
Phenol,2-(2H-benzotriazol-2-yl)-4,6-bis(1,1-dimethylethyl)	Intentionally added

Substance Category Name	Threshold
Bis (2-ethylhexyl) phthalate (DEHP)	0.1% by weight (1 000 ppm) of the product
Dibutyl phthalate (DBP)	0.1% by weight (1 000 ppm) of the product
Benzyl butyl phthalate (BBP)	0.1% by weight (1 000 ppm) of the product
Diisobutyl phthalate (DIBP)	0.1% by weight (1 000 ppm) of the product
Selected Phthalates Group 1 (BBP, DBP, DEHP)	0.1% by weight (1 000 ppm) in plasticized material
Selected Phthalates Group 2 (DIDP, DINP, DNOP)	0.1% by weight (1 000 ppm) in plasticized material
Polybrominated biphenyls (PBBs)	0.1% by weight (1 000 ppm) in homogeneous material
Polybrominated diphenylethers (PBDEs)	0.1% by weight (1 000 ppm) in homogeneous material
Polychlorinated biphenyls (PCBs) and specific substitutes	Intentionally added
Polychlorinated terphenyls (PCTs)	Intentionally added
Polychlorinated naphthalenes (more than 3 chlorine atoms)	Intentionally added
Potassium hydroxyoctaoxodizincate dichromate	0.1% by weight (1 000 ppm) of the product
Radioactive substances	Intentionally added
Refractory Ceramic Fibres, Aluminosilicate	0.1% by weight (1 000 ppm) of the product
Refractory Ceramic Fibres, Zirconia Aluminosilicate	0.1% by weight (1 000 ppm) of the product
Shortchain chlorinated paraffins (C10 – C13)	0.1% by weight (1 000 ppm) of the product
Strontium chromate	0.1% by weight (1 000 ppm) of the product
Tetraboron disodium heptaoxide, hydrate	0.1% by weight (1 000 ppm) of the product
4-(1,1,3,3-tetramethylbutyl)phenol, (4-tert-Octylphenol)	0.1% by weight (1 000 ppm) of the product
Tri-substituted organostannic compounds	0.1% by weight (1 000 ppm) of tin in a material
Tributyl tin oxide (TBTO)	Intentionally added or 0.1 % by weight (1 000 ppm) of the product
Tris (2-chloroethyl) phosphate (TCEP)	0.1% by weight (1 000 ppm) of the product

Unique ID Authority == IPC

Unique ID == JIG-101_Ed_4.1-A

Substance Category Name	Threshold
4-[4,4'-bis(dimethylamino) benzhydrylidene] cyclohexa-2,5-dien-1-ylidene] dimethylammonium chloride (C.I. Basic Violet 3)	0.1% by weight (1 000 ppm) of the product

Unique ID Authority == IPC

Unique ID == JIG-101_Ed_4.1-I

Substance Category Name	Threshold
Beryllium oxide (BeO)	0.1% by weight (1 000 ppm) of the product
Brominated flame retardants (other than PBBs, PBDEs or HBCDD)	0.1% total bromine content by weight (1 000 ppm) in the plastic material
Brominated flame retardants (other than PBBs, PBDEs or HBCDD) - PWB	0.09% total bromine content by weight (900 ppm) in the laminate
Chlorinated flame retardants	0.1% total chlorine content by weight (1 000 ppm) in the plastic material
Chlorinated flame retardants – PWB	0.09% total chlorine content by weight (900 ppm) in the laminate
Polyvinyl chloride (PVC) and PVC Copolymers	0.1% total chlorine content by weight (1 000 ppm) in the plastic material

Appendix D

REACH Candidate List Substances

D2 REACH Candidate List Substances, 18 June 2012

Unique ID Authority == IPC

The Unique ID for each date issue of the REACH Candidate List is provided in the table below and includes all substance category names that were included in the Candidate List up to that date. For example, Unique ID == EUREACH-0310 includes the 30 substance category names that were included in the REACH Candidate List as at 30 March 2010.

NOTE 1: In the June 2012 update to the REACH Candidate List the European Chemicals Agency (ECHA) consolidated the entries for Aluminosilicate Refractory Ceramic Fibres and Zirconia Aluminosilicate Refractory Ceramic Fibres which were included in the List in January 2010 and also in December 2011. The ECHA Press Release¹ notes that the scope of the more recent Aluminosilicate Refractory Ceramic Fibres and Zirconia Aluminosilicate Refractory Ceramic Fibres entries in the December 2011 List fully covers the earlier entries in the January 2010 List, and so these earlier entries are now consolidated into the December 2011 List. The REACH Candidate List published by ECHA now has only one entry for Aluminosilicate Refractory Ceramic Fibres and only one entry for Zirconia Aluminosilicate Refractory Ceramic Fibres, and these entries are included in the December 2011 List. The January 2010 List no longer includes Refractory Ceramic Fibres, Zirconia Aluminosilicate and Refractory Ceramic Fibres, Aluminosilicate.

Substance Category Name	Threshold
Included in REACH Candidate List on 28 October 2008: Unique ID == EUREACH-1008	
Triethyl arsenate	0.1 % by weight (1 000 ppm) of the product
Sodium dichromate, dihydrate	0.1 % by weight (1 000 ppm) of the product
Lead hydrogen arsenate	0.1% by weight (1 000 ppm) of the product
Hexabromocyclododecane (HBCDD) and all major diastereoisomers	0.1% by weight (1 000 ppm) of the product
Dibutyl phthalate (DBP)	0.1% by weight (1 000 ppm) of the product
Diarsenic trioxide	0.1% by weight (1 000 ppm) of the product
Diarsenic pentoxide	0.1% by weight (1 000 ppm) of the product
Tributyl tin oxide (TBTO)	0.1% by weight (1 000 ppm) of the product
Bis (2-ethylhexyl) phthalate (DEHP)	0.1% by weight (1 000 ppm) of the product
Benzyl butyl phthalate (BBP)	0.1% by weight (1 000 ppm) of the product
Anthracene	0.1% by weight (1 000 ppm) of the product
Shortchain Chlorinated Paraffins (C10 – C13)	0.1% by weight (1 000 ppm) of the product
5-tert-butyl-2,4,6-trinitro-m-xylene	0.1% by weight (1 000 ppm) of the product
4,4'- Diaminodiphenylmethane	0.1% by weight (1 000 ppm) of the product
Cobalt dichloride (CoCl ₂)	0.1% by weight (1 000 ppm) of the product
Included in REACH Candidate List on 13 January 2010: Unique ID == EUREACH-0110	
Refractory Ceramic Fibres, Zirconia Aluminosilicate see NOTE 1	0.1% by weight (1 000 ppm) of the product
Refractory Ceramic Fibres, Aluminosilicate see NOTE 1	0.1% by weight (1 000 ppm) of the product
Tris (2-chloroethyl) phosphate (TCEP)	0.1% by weight (1 000 ppm) of the product
coal tar pitch, high temperature	0.1% by weight (1 000 ppm) of the product
Lead sulfochromate yellow (C.I. Pigment Yellow 34)	0.1% by weight (1 000 ppm) of the product
Lead chromate molybdate sulfate red (C.I. Pigment Red 104)	0.1% by weight (1 000 ppm) of the product

¹ http://echa.europa.eu/web/guest/view-article/-/journal_content/6fd1bfe8-8618-4b9b-b0ef-30234108c7f4

Substance Category Name	Threshold
Lead chromate	0.1% by weight (1 000 ppm) of the product
Diisobutyl phthalate (DIBP)	0.1% by weight (1 000 ppm) of the product
Anthracene oil,anthracene paste,distn. Lights	0.1% by weight (1 000 ppm) of the product
Anthracene oil,anthracene paste,anthracene fraction	0.1% by weight (1 000 ppm) of the product
Anthracene oil,anthracene paste	0.1% by weight (1 000 ppm) of the product
Anthracene oil,anthracene-low	0.1% by weight (1 000 ppm) of the product
Anthracene oil	0.1% by weight (1 000 ppm) of the product
2,4-Dinitrotoluene	0.1% by weight (1 000 ppm) of the product
Included in REACH Candidate List on 30 March 2010: Unique ID == EUREACH-0310	
Acrylamide	0.1% by weight (1 000 ppm) of the product
Included in REACH Candidate List on 18 June 2010: Unique ID == EUREACH-0610	
Sodium chromate	0.1% by weight (1 000 ppm) of the product
Potassium chromate	0.1% by weight (1 000 ppm) of the product
Ammonium dichromate	0.1% by weight (1 000 ppm) of the product
Potassium dichromate	0.1% by weight (1 000 ppm) of the product
Tetraboron disodium heptaoxide, hydrate	0.1% by weight (1 000 ppm) of the product
Disodium tetraborate, anhydrous	0.1% by weight (1 000 ppm) of the product
Boric acid	0.1% by weight (1 000 ppm) of the product
Trichloroethylene	0.1% by weight (1 000 ppm) of the product
Included in REACH Candidate List on 15 December 2010: Unique ID == EUREACH-1210	
Chromium Trioxide	0.1% by weight (1 000 ppm) of the product
Acids generated from chromium trioxide and their oligomers	0.1% by weight (1 000 ppm) of the product
2-Ethoxyethanol	0.1% by weight (1 000 ppm) of the product
2-Methoxyethanol	0.1% by weight (1 000 ppm) of the product
Cobalt(II) Diacetate	0.1% by weight (1 000 ppm) of the product
Cobalt(II) Carbonate	0.1% by weight (1 000 ppm) of the product
Cobalt(II) Dinitrate	0.1% by weight (1 000 ppm) of the product
Cobalt(II) Sulphate	0.1% by weight (1 000 ppm) of the product
Included in REACH Candidate List on 20 June 2011: Unique ID == EUREACH-0611	
1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)	0.1% by weight (1 000 ppm) of the product
1,2,3-Trichloropropane	0.1% by weight (1 000 ppm) of the product
1-Methyl-2-pyrrolidone	0.1% by weight (1 000 ppm) of the product
Hydrazine	0.1% by weight (1 000 ppm) of the product
1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP)	0.1% by weight (1 000 ppm) of the product
Strontium chromate	0.1% by weight (1 000 ppm) of the product
2-Ethoxyethyl acetate	0.1% by weight (1 000 ppm) of the product
Included in REACH Candidate List on 19 December 2011: Unique ID == EUREACH-1211	
2,2'-dichloro-4,4'-methylenedianiline	0.1% by weight (1 000 ppm) of the product
Bis(2-methoxyethyl) phthalate	0.1% by weight (1 000 ppm) of the product
Bis(2-methoxyethyl) ether	0.1% by weight (1 000 ppm) of the product
Calcium arsenate	0.1% by weight (1 000 ppm) of the product
Potassium hydroxyoctaoxodizincatedichromate	0.1% by weight (1 000 ppm) of the product
Lead dipicrate	0.1% by weight (1 000 ppm) of the product
N,N-dimethylacetamide	0.1% by weight (1 000 ppm) of the product
Arsenic acid	0.1% by weight (1 000 ppm) of the product
2-Methoxyaniline; o-Anisidine	0.1% by weight (1 000 ppm) of the product
Trilead diarsenate	0.1% by weight (1 000 ppm) of the product

Substance Category Name	Threshold
1,2-dichloroethane	0.1% by weight (1 000 ppm) of the product
Pentazinc chromate octahydroxide	0.1% by weight (1 000 ppm) of the product
Formaldehyde, oligomeric reaction products with aniline	0.1% by weight (1 000 ppm) of the product
4-(1,1,3,3-tetramethylbutyl)phenol	0.1% by weight (1 000 ppm) of the product
Lead diazide, Lead azide	0.1% by weight (1 000 ppm) of the product
Phenolphthalein	0.1% by weight (1 000 ppm) of the product
Dichromium tris(chromate)	0.1% by weight (1 000 ppm) of the product
Lead styphnate	0.1% by weight (1 000 ppm) of the product
Zirconia Aluminosilicate Refractory Ceramic Fibres	0.1% by weight (1 000 ppm) of the product
Aluminosilicate Refractory Ceramic Fibres	0.1% by weight (1 000 ppm) of the product
Included in REACH Candidate List on 18 June 2012: Unique ID = EUREACH-0612	
Diboron trioxide	0.1% by weight (1 000 ppm) of the product
Lead(II) bis(methanesulfonate)	0.1% by weight (1 000 ppm) of the product
1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	0.1% by weight (1 000 ppm) of the product
1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	0.1% by weight (1 000 ppm) of the product
Formamide	0.1% by weight (1 000 ppm) of the product
1,3,5-tris(oxiran-2-ylmethyl)-1,3,5-triazinane-2,4,6-trione (TGIC)	0.1% by weight (1 000 ppm) of the product
1,3,5-tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione (B-TGIC)	0.1% by weight (1 000 ppm) of the product
4,4'-bis(dimethylamino)benzophenone (Michler's ketone)	0.1% by weight (1 000 ppm) of the product
N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	0.1% by weight (1 000 ppm) of the product
[4-[[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene]cyclohexa-2,5-dien-1-ylidene] dimethylammonium chloride (C.I. Basic Blue 26) [with greater than or equal to 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	0.1% by weight (1 000 ppm) of the product
a,a-Bis[4-(dimethylamino)phenyl]-4 (phenylamino)naphthalene-1-methanol (C.I. Solvent Blue 4) [with greater than or equal to 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	0.1% by weight (1 000 ppm) of the product
[4-[4,4'-bis(dimethylamino) benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Violet 3) [with greater than or equal to 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	0.1% by weight (1 000 ppm) of the product
4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol [with greater than or equal to 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	0.1% by weight (1 000 ppm) of the product