

RoHS Directive Exemptions – Table 1

Applications exempted from the restriction in Directive 2011/65/EU Article 4 (1).

Refer to Official Journal of the European Union for correct exemption from regulatory requirements.

No.	Substance	Exemption	Scope and dates of applicability
1	Hg	Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):	
1(a)		For general lighting purposes < 30 W: 2.5 mg	5mg may be used per burner until 31 December 2011; 3.5mg may be used per burner until 31 December 2012
1(b)		For general lighting purposes \geq 30 W and < 50 W: 3.5 mg	5mg may be used per burner until 31 December 2011
1(c)		For general lighting purposes \geq 50 W and < 150 W: 5 mg	
1(d)		For general lighting purposes \geq 150 W: 15 mg	
1(e)		For general lighting purposes with circular or square structural shape and tube diameter \leq 17 mm: 7 mg	No limitation of use until 31 December 2011
1(f)		For special purposes: 5 mg	
1(g)		For general lighting purposes < 30 W with a lifetime equal or above 20 000 h: 3,5 mg	Expires on 31 December 2017
2(a)	Hg	Mercury in double-capped linear fluorescent lamps for general lighting purposes not exceeding (per lamp):	
2(a)(1)		Tri-band phosphor with normal lifetime and a tube diameter < 9 mm (e.g. T2): 4mg	5mg may be used per burner until 31 December 2011
2(a)(2)		Tri-band phosphor with normal lifetime and a tube diameter \geq 9 mm and \leq 17 mm (e.g. T5): 3 mg	5mg may be used per burner until 31 December 2011
2(a)(3)		Tri-band phosphor with normal lifetime and a tube diameter > 17 mm and \leq 28 mm (e.g. T8): 3.5 mg	5mg may be used per burner until 31 December 2011
2(a)(4)		Tri-band phosphor with normal lifetime and a tube diameter > 28 mm (e.g. T12): 3.5 mg	5mg may be used per burner until 31 December 2011
2(a)(5)		Tri-band phosphor with long lifetime (\geq 25 000 h): 5 mg	8mg may be used per burner until 31 December 2011
2(b)	Hg	Mercury in other fluorescent lamps not exceeding (per lamp):	
2(b)(1)		Linear halophosphate lamps with tube > 28mm (e.g. T10 and T12):10mg	Expires on 13 April 2012
2(b)(2)		Non-linear halophosphate lamps (all diameters): 15 mg	Expires on 13 April 2016
2(b)(3)		Non-linear tri-band phosphor lamps with tube diameter > 17 mm (e.g. T9): 15 mg	No limitation of use until 31 December 2011
2(b)(4)		Lamps for other general lighting and special purposes (e.g. induction lamps): 15 mg	No limitation of use until 31 December 2011

No.	Substance	Exemption	Scope and dates of applicability
3		Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes not exceeding (per lamp):	
3(a)	Hg	Short length (≤ 500 mm): 3.5 mg	No limitation of use until 31 December 2011
3(b)		Medium length (> 500 mm and $\leq 1\ 500$ mm): 5 mg	No limitation of use until 31 December 2011
3(c)		Long length ($> 1\ 500$ mm): 13 mg	No limitation of use until 31 December 2011
4(a)	Hg	Mercury in other low pressure discharge lamps (per lamp): 15 mg	No limitation of use until 31 December 2011
4(b)		Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner) in lamps with improved colour rendering index $R_a > 60$:	
4(b)- I	Hg	$P \leq 155$ W: 30 mg	No limitation of use until 31 December 2011
4(b)- II		155 W $< P \leq 405$ W: 40 mg	No limitation of use until 31 December 2011
4(b)- III		$P > 405$ W: 40 mg	No limitation of use until 31 December 2011
4(c)		Mercury in other High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner):	
4(c)- I	Hg	$P \leq 155$ W: 25 mg	No limitation of use until 31 December 2011
4(c)- II		155 W $< P \leq 405$ W: 30 mg	No limitation of use until 31 December 2011
4(c)- III		$P > 405$ W: 40 mg	No limitation of use until 31 December 2011
4(d)	Hg	Mercury in High Pressure Mercury (vapour) lamps (HPMV)	Expires on 13 April 2015
4(e)	Hg	Mercury in metal halide lamps (MH)	
4(f)	Hg	Mercury in other discharge lamps for special purposes not specifically mentioned in this Annex	

No.	Substance	Exemption	Scope and dates of applicability
4(g)	Hg	Mercury in hand crafted luminous discharge tubes used for signs, decorative or architectural and specialist lighting and light-artwork, where the mercury content shall be limited as follows: (a) 20 mg per electrode pair + 0,3 mg per tube length in cm, but not more than 80 mg, for outdoor applications and indoor applications exposed to temperatures below 20 °C; (b) 15 mg per electrode pair + 0,24 mg per tube length in cm, but not more than 80 mg, for all other indoor applications.	Expires on 31 December 2018.
5(a)	Pb	Lead in glass of cathode ray tubes	
5(b)	Pb	Lead in glass of fluorescent tubes not exceeding 0,2 % by weight	
6(a)	Pb	Lead as an alloying element in steel for machining purposes and in galvanised steel containing up to 0,35 % lead by weight	
6(b)	Pb	Lead as an alloying element in aluminium containing up to 0,4 % lead by weight	
6(c)	Pb	Copper alloy containing up to 4 % lead by weight	
7(a)	Pb	Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead)	
7(b)	Pb	Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signaling, transmission, and network management for telecommunications	
7(c)- I	Pb	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	Pb	Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher	
7(c)- III	Pb	Lead in dielectric ceramic in capacitors for a rated voltage of less than 125 V AC or 250 V DC	May be used in spare parts for EEE placed on the market before 1 January 2013.
7(c)-IV	Pb	Lead in PZT based dielectric ceramic materials for capacitors being part of integrated circuits or discrete semiconductors'	Scheduled to expire on 21 July 2016. Effective; under discussion
8(a)	Cd	Cadmium and its compounds in one shot pellet type thermal cut-offs	May be used in spare parts for EEE placed on the market before 1 January 2012.
8(b)	Cd	Cadmium and its compounds in electrical contacts	

No.	Substance	Exemption	Scope and dates of applicability
9	Cr ⁶⁺	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)	Pb	Lead in bearing shells and bushes for refrigerant-containing compressors for heating, ventilation, air conditioning and refrigeration (HVACR) applications	
11(a)	Pb	Lead used in C-press compliant pin connector systems	May be used in spare parts for EEE placed on the market before 24 September 2010
11(b)	Pb	Lead used in other than C-press compliant pin connector systems	May be used in spare parts for EEE placed on the market before 1 January 2013.
12	Pb	Lead as a coating material for the thermal conduction module C-ring	May be used in spare parts for EEE placed on the market before 24 September 2010
13(a)	Pb	Lead in white glasses used for optical applications	
13(b)	Cd, Pb	Cadmium and lead in filter glasses and glasses used for reflectance standards	
14	Pb	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	May be used in spare parts for EEE placed on the market before 1 January 2011
15	Pb	Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages	
16	Pb	Lead in linear incandescent lamps with silicate coated tubes	Expires on 1 September 2013
17	Pb	Lead halide as radiant agent in high intensity discharge (HID) lamps used for professional reprography applications	
18(a)	Pb	Lead as activator in the fluorescent powder (1% lead by weight or less) of discharge lamps when used as specialty lamps for Diaz printing reprography, lithography, insect traps, photochemical and curing processes containing phosphors such as SMS ((Sr, Ba) ₂ MgSi ₂ O ₇ :Pb)	Expires on 1 January 2011
18(b)	Pb	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 (BaSi ₂ O ₅ :Pb)	
19	Pb	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)	Expires on 1 June 2011

No.	Substance	Exemption	Scope and dates of applicability
20	Pb	Lead oxide in glass used for bonding front and rear substrates of flat fluorescent lamps used for Liquid Crystal Displays (LCDs)	Expires on 1 June 2011
21	Pb, Cd	Lead and cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses	
23	Pb	Lead in finishes of fine pitch components other than connectors with a pitch of 0,65 mm and less	May be used in spare parts for EEE placed on the market before 24 September 2010
24	Pb	Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors	
25	Pb	Lead oxide in surface conduction electron emitter displays (SED) used in structural elements, notably in the seal frit and frit ring	
26	Pb	Lead oxide in the glass envelope of black light blue lamps	Expires on 1 June 2011
27	Pb	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	Expires on 24 September 2011
29	Pb	Lead bound in crystal glass as defined in Annex I (Categories 1, 2, 3 and 4) of Council Directive 69/493/EEC (1)	
30	Cd	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	Pb	Lead in soldering materials in mercury free flat fluorescent lamps (which, e.g. are used for liquid crystal displays, design or industrial lighting)	
32	Pb	Lead oxide in seal frit used for making window assemblies for Argon and Krypton laser tubes	
33	Pb	Lead in solders for the soldering of thin copper wires of 100 µm diameter and less in power transformers	
34	Pb	Lead in cermet-based trimmer potentiometer elements	
36	Hg	Mercury used as a cathode sputtering inhibitor in DC plasma displays with a content up to 30 mg per display	Expires on 1 July 2010
37	Pb	Lead in the plating layer of high voltage diodes on the basis of a zinc borate glass body	
38	Cd	Cadmium and cadmium oxide in thick film pastes used on aluminium bonded beryllium oxide	

No.	Substance	Exemption	Scope and dates of applicability
39	Cd	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	Scheduled to expire on 1 July 2014. Effective: under discussion
40	Cd	Cadmium in photoresistors for analogue optocouplers applied in professional audio equipment	Expires on 31 December 2013
41	Pb	Lead in solders and termination finishes of electrical and electronic components and finishes of printed circuit boards used in ignition modules and other electrical and electronic engine control systems, which for technical reasons must be mounted directly on or in the crankcase or cylinder of hand-held combustion engines (classes SH:1, SH:2, SH:3 of Directive 97/68/EC of the European Parliament and of the Council(*)	Expires on 31 December 2018.

(*) Directive 97/68/EC of the European Parliament and of the Council of 16 December 1997 on the approximation of the laws of the Member States relating to measures against the emission of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery (OJ L 59, 27.2.1998, p. 1).

RoHS Directive Exemptions – Table 2**Applications exempted from the restriction in Directive 2011/65/EU Article 4 (1)****specific to medical devices and monitoring and control instruments****Refer to Official Journal of the European Union for correct exemption from regulatory requirements.**

No.	Substance	Exemption	Scope and dates of applicability
Equipment utilising or detecting ionising radiation			
1	Pb, Cd, Hg	Lead, cadmium and mercury in detectors for ionising radiation.	
2	Pb	Lead bearings in X-ray tubes.	
3	Pb	Lead in electromagnetic radiation amplification devices: micro-channel plate and capillary plate.	
4	Pb	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	Pb	Lead in shielding for ionising radiation.	
6	Pb	Lead in X-ray test objects.	
7	Pb	Lead stearate X-ray diffraction crystals.	
8	Cd	Radioactive cadmium isotope source for portable X-ray fluorescence spectrometers.	
Sensors, detectors and electrodes			
1a	Pb, Cd	Lead and cadmium in ion selective electrodes including glass of pH electrodes.	
1b	Pb	Lead anodes in electrochemical oxygen sensors.	
1c	Pb, Cd, Hg	Lead, cadmium and mercury in infra-red light detectors.	
1d	Hg	Mercury in reference electrodes: low chloride mercury chloride, mercury sulphate and mercury oxide.	

No.	Substance	Exemption	Scope and dates of applicability
Others			
9	Cd	Cadmium in helium-cadmium lasers.	
10	Pb, Cd	Lead and cadmium in atomic absorption spectroscopy lamps.	
11	Pb	Lead in alloys as a superconductor and thermal conductor in MRI.	
12	Pb, Cd	Lead and cadmium in metallic bonds creating superconducting magnetic circuits in MRI, SQUID, NMR (Nuclear Magnetic Resonance) or FTMS (Fourier Transform Mass Spectrometer) detectors.	Expires on 30 June 2021
13	Pb	Lead in counterweights.	
14	Pb	Lead in single crystal piezoelectric materials for ultrasonic transducers	
15	Pb	Lead in solders for bonding to ultrasonic transducers.	
16	Hg	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	Pb	Lead in solders in portable emergency defibrillators.	
18	Pb	Lead in solders of high performance infrared imaging modules to detect in the range 8-14 μm .	
19	Pb	Lead in Liquid crystal on silicon (LCoS) displays.	
20	Cd	Cadmium in X-ray measurement filters.	
21	Cd	Cadmium in phosphor coatings in image intensifiers for X-ray images.	Until 31 December 2019 and in spare parts for X-ray systems placed on the EU market before 1 January 2020
22	Pb	Lead acetate marker for use in stereotactic head frames for use with CT and MRI and in positioning systems for gamma beam and particle therapy equipment.	Expires on 30 June 2021
23	Pb	Lead as an alloying element for bearings and wear surfaces in medical equipment exposed to ionising radiation.	Expires on 30 June 2021

No.	Substance	Exemption	Scope and dates of applicability
24	Pb	Lead enabling vacuum tight connections between aluminium and steel in X-ray image intensifiers.	Expires on 31 December 2019
25	Pb	Lead in the surface coatings of pin connector systems requiring nonmagnetic connectors which are used durably at a temperature below – 20 °C under normal operating and storage conditions.	Expires on 30 June 2021
26	Pb	Lead in the following applications that are used durably at a temperature below – 20 °C under normal operating and storage conditions: (a) solders on printed circuit boards; (b) termination coatings of electrical and electronic components and coatings of printed circuit boards; (c) solders for connecting wires and cables; (d) solders connecting transducers and sensors. Lead in solders of electrical connections to temperature measurement sensors in devices which are designed to be used periodically at temperatures below – 150 °C.	Expires on 30 June 2021
27	Pb	Lead in — solders, — termination coatings of electrical and electronic components and printed circuit boards, — connections of electrical wires, shields and enclosed connectors, which are used in (a) magnetic fields within the sphere of 1 m radius around the isocentre of the magnet in medical magnetic resonance imaging equipment, including patient monitors designed to be used within this sphere, or (b) magnetic fields within 1 m distance from the external surfaces of cyclotron magnets, magnets for beam transport and beam direction control applied for particle therapy.	Expires on 30 June 2020
28	Pb	Lead in solders for mounting cadmium telluride and cadmium zinc telluride digital array detectors to printed circuit boards.	Expires on 31 December 2017
29	Pb	Lead in alloys, as a superconductor or thermal conductor, used in cryo-cooler cold heads and/or in cryo-cooled cold probes and/or in cryo-cooled equipotential bonding systems, in medical devices (category 8) and/or in industrial monitoring and control instruments.	Expires on 30 June 2021
30	Cr ⁶⁺	Hexavalent chromium in alkali dispensers used to create photocathodes in X-ray image intensifiers.	Until 31 December 2019 and in spare parts for X-ray systems placed on the EU market before 1 January 2020

No.	Substance	Exemption	Scope and dates of applicability
31a	Pb, Cd, Cr ⁶⁺	Lead, cadmium, hexavalent chromium, and polybrominated diphenyl ethers (PBDE) in spare parts recovered from and used for the repair or refurbishment of medical devices, including in vitro diagnostic medical devices, or electron microscopes and their accessories, provided that the reuse takes place in auditable closed-loop business-to-business return systems and that each reuse of parts is notified to the customer.	Expires on: (a) 21 July 2021 for the use in medical devices other than in vitro diagnostic medical devices; (b) 21 July 2023 for the use in in vitro diagnostic medical devices; (c) 21 July 2024 for the use in electron microscopes and their accessories.
32	Pb	Lead in solders on printed circuit boards of detectors and data acquisition units for Positron Emission Tomographs which are integrated into Magnetic Resonance Imaging equipment.	Expires on 31 December 2019
33	Pb	Lead in solders on populated printed circuit boards used in Directive 93/42/EEC class IIa and IIb mobile medical devices other than portable emergency defibrillators.	Expires on; class IIa: 30 June 2016 class IIb: 31 December 2020
34	Pb	Lead as an activator in the fluorescent powder of discharge lamps when used for extracorporeal photopheresis lamps containing BSP (BaSi 2 O 5 :Pb) phosphors.	Expires on 22 July 2021
35	Hg	Mercury in cold cathode fluorescent lamps for back-lighting liquid crystal displays, not exceeding 5 mg per lamp, used in industrial monitoring and control instruments placed on the market before 22 July 2017.	Expires on 21 July 2024
36	Pb	Lead used in other than C-press compliant pin connector systems for industrial monitoring and control instruments.	Expires on 31 December 2020. May be used after that date in spare parts for industrial monitoring and control instruments placed on the market before 1 January 2021
37	Pb	Lead in platinized platinum electrodes used for conductivity measurements where at least one of the following conditions applies: (a) wide-range measurements with a conductivity range covering more than 1 order of magnitude (e.g. range between 0,1 mS/m and 5 mS/m) in laboratory applications for unknown concentrations; (b) measurements of solutions where an accuracy of +/- 1 % of the sample range and where high corrosion resistance of the electrode are required for any of the following: (i) solutions with an acidity < pH 1; (ii) solutions with an alkalinity > pH 13; (iii) corrosive solutions containing halogen gas; (c) measurements of conductivities above 100 mS/m that must be performed with portable instruments.	Expires on 31 December 2018

No.	Substance	Exemption	Scope and dates of applicability
38	Pb	Lead in solder in one interface of large area stacked die elements with more than 500 interconnects per interface which are used in X-ray detectors of computed tomography and X-ray systems.	Expires on 31 December 2019. May be used after that date in spare parts for CT and X-ray systems placed on the market before 1 January 2020
39	Pb	Lead in micro-channel plates (MCPs) used in equipment where at least one of the following properties is present: (a) a compact size of the detector for electrons or ions, where the space for the detector is limited to a maximum of 3 mm/MCP (detector thickness + space for installation of the MCP), a maximum of 6 mm in total, and an alternative design yielding more space for the detector is scientifically and technically impracticable; (b) a two-dimensional spatial resolution for detecting electrons or ions, where at least one of the following applies: (i) a response time shorter than 25 ns; (ii) a sample detection area larger than 149 mm ² ; (iii) a multiplication factor larger than $1,3 \times 10^3$. (c) a response time shorter than 5 ns for detecting electrons or ions; (d) a sample detection area larger than 314 mm ² for detecting electrons or ions; (e) a multiplication factor larger than $4,0 \times 10^7$.	The exemption expires on the following dates: (a) 21 July 2021 for medical devices and monitoring and control instruments; (b) 21 July 2023 for in-vitro diagnostic medical devices; (c) 21 July 2024 for industrial monitoring and control instruments.
40	Pb	Lead in dielectric ceramic in capacitors for a rated voltage of less than 125 V AC or 250 V DC for industrial monitoring and control instruments.	Expires on 31 December 2020. May be used after that date in spare parts for industrial monitoring and control instruments placed on the market before 1 January 2021
41	Pb	Lead as a thermal stabilizer in polyvinyl chloride (PVC) used as base material in amperometric, potentiometric and conductometric electrochemical sensors which are used in in-vitro diagnostic medical devices for the analysis of blood and other body fluids and body gases.	Expires on 31 December 2018
42	Hg	Mercury in electric rotating connectors used in intravascular ultrasound imaging systems capable of high operating frequency (> 50 MHz) modes of operation.	Expires on 30 June 2019
43	Cd	Cadmium anodes in Hersch cells for oxygen sensors used in industrial monitoring and control instruments, where sensitivity below 10 ppm is required.	Expires on 15 July 2023