

### EU RoHS Exemptions

Exemption #	Description	Expiration date
1	Mercury in single capped (compact) fluorescent lamps not exceeding:	-
1a	For general lighting purposes < 30 W: 5 mg per burner. Expired December 31, 2011.	After December 31, 2011: 3.5 mg per burner. After December 31, 2012: 2.5 mg per burner.
1b	For general lighting purposes ≥ 30 W and < 50 W: 5 mg per burner.	Expired on December 31, 2011. After December 31, 2011: 3.5 mg per burner.
1c	For general lighting purposes ≥ 50 W and < 150 W: 5 mg per burner.	-
1d	For general lighting purposes ≥ 150 W: 15 mg per burner	-
1e	For general lighting purposes with circular or square structural shape and tube diameter ≤ 17 mm.	No limit until 2012. After December 31, 2011: 7 mg per burner
1f	For special purposes: 5 mg per burner	-
1g	For general lighting purposes less than 30 W with a lifetime equal or above 20,000 h: 3.5 mg.	Expired on December 31st, 2017
2a	Mercury in double-capped linear fluorescent lamps for general lighting purposes not exceeding:	-
2a-I	Tri-band phosphor with normal lifetime and a tube diameter < 9 mm (T2):	5 mg per lamp. Expired December 31, 2011. After December 31, 2011: 4 mg per lamp.
2a-II	Tri-band phosphor with normal lifetime and a tube diameter ≥ 9 mm and ≤ 17 mm (T5): 5 mg per lamp.	Expired on December 31, 2011. After December 31, 2011: 3 mg per lamp
2a-III	Tri-band phosphor with normal lifetime and a tube diameter > 17 mm and ≤ 28 mm (T8): 5 mg per lamp.	Expired on December 31, 2011. After December 31, 2011: 3.5 mg per lamp
2a-IV	Tri-band phosphor with normal lifetime and a tube diameter > 28 mm (T12): 5 mg per lamp.	Expired on December 31, 2012. After December 31, 2012: 3.5 mg per lamp
2a-V	Tri-band phosphor with long lifetime (≥ 25 000 h): 8 mg per lamp	Expired on December 31, 2011. After December 31, 2011: 5 mg per lamp
2b	Mercury in other fluorescent lamps not exceeding:	-
2b-I	Linear halophosphate lamps with tube > 28 mm (T10 and T12): 10 mg per lamp.	Expired on April 13, 2012
2b-II	Non-linear halophosphate lamps (all diameters): 15 mg per lamp.	Expired on April 13, 2016
2b-III	Non-linear tri-band phosphor lamps with tube diameter > 17 mm (T9).	No limit until 2012. After December 31, 2011: 15 mg per lamp
2b-IV	Lamps for other general lighting and special purposes (induction lamps).	No limit until 2012. After December 31, 2011: 15 mg per lamp
3	Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes not exceeding:	-
3a	Short length (≤ 500 mm).	No limit until 2012. After December 31, 2011: 3.5 mg per lamp
3b	Medium length (> 500 mm and ≤ 1,500 mm).	No limit until 2012. After December 31, 2011: 7 mg per burner
3c	Long length (> 1 500 mm).	No limit until 2012. After December 31, 2011: 13 mg per lamp
4a	Mercury in other low pressure discharge lamps.	No limit until 2012. After December 31, 2011: 15 mg per lamp
4b	Mercury in high pressure sodium (vapor) lamps for general lighting purposes in lamps with improved color rendering index Ra > 60 not exceeding:	-
4b-I	P ≤ 155 W.	No limit until 2012. After December 31, 2011: 30 mg per burner

4b-II	155 W < P ≤ 405 W.	No limit until 2012. After December 31, 2011: 40 mg per burner
4b-III	P > 405 W.	No limit until 2012. After December 31, 2011: 40 mg per burner
4c	Mercury in other high pressure sodium (vapor) lamps for general lighting purposes not exceeding:	-
4c-I	P ≤ 155 W.	No limit until 2012. After December 31, 2011: 25 mg per burner
4c-II	155 W < P ≤ 405 W.	No limit until 2012. After December 31, 2011: 30 mg per burner
4c-III	P > 405 W.	No limit until 2012. After December 31, 2011: 40 mg per burner
4d	Mercury in high pressure mercury (vapor) lamps (HPMV).	Expired on April 13, 2015
4e	Mercury in metal halide lamps (MH).	-
4f	Mercury in other discharge lamps for special purposes not specifically mentioned.	-
4g	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.	Expired on 31 December 2018
5a	Lead in glass of cathode ray tubes.	-
5b	Lead in glass of fluorescent tubes not exceeding 0.2 % by weight.	-
6a	Lead as an alloying element in steel for machining purposes and in galvanized steel containing up to 0.35 % lead by weight.	As of July 1st, 2019: applies to categories 8 and 9. Expires on: — 21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments; — 21 July 2023 for category 8 in vitro diagnostic medical devices; — 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
6a-I	Lead as an alloying element in steel for machining purposes containing up to 0,35 % lead by weight and in batch hot dip galvanised steel components containing up to 0.2 % lead by weight	As of July 1st, 2019: applies to categories 1 to 7 and 10. Expires on 21 July 2021 for categories 1-7 and 10.
6b	Lead as an alloying element in aluminum containing up to 0.4 % lead by weight	As of July 1st, 2019: applies to categories 8 and 9. Expires on: — 21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments, — 21 July 2023 for category 8 in vitro diagnostic medical devices, — 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
6b-I	Lead as an alloying element in aluminium containing up to 0.4 % lead by weight, provided it stems from lead-bearing aluminium scrap recycling.	As of July 1st, 2019: applies to categories 1 to 7 and 10. Expires on 21 July 2021 for categories 1-7 and 10.
6b-II	Lead as an alloying element in aluminium for machining purposes with a lead content up to 0.4 % by weight.	As of July 1st, 2019: applies to categories 1 to 7 and 10. Expires on 18 May 2021 for categories 1-7 and 10.

6c	Copper alloy containing up to 4 % lead by weight.	Expires on: — 21 July 2021 for categories 1-7 and 10, —21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments, —21 July 2023 for category 8 in vitro diagnostic medical devices, — 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
7a	Lead in high melting temperature type solders (lead-based alloys containing 85 % by weight or more lead).	Applies to categories 1-7 and 10 (except applications covered by point 24) and expires on 21 July 2021. For categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments expires on 21 July 2021. For category 8 in vitro diagnostic medical devices expires on 21 July 2023. For category 9 industrial monitoring and control instruments, and for category 11 expires on 21 July 2024.
7b	Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signaling, transmission, and network management for telecommunications.	Expired on July 21, 2016
7c-I	Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors (piezoelectric devices) or in a glass or ceramic matrix compound.	Applies to categories 1-7 and 10 (except applications covered under point 34) and expires on 21 July 2021. For categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments expires on 21 July 2021. For category 8 in vitro diagnostic medical devices expires on 21 July 2023. For category 9 industrial monitoring and control instruments, and for category 11 expires on 21 July 2024.
7c-II	Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher	As of March 1st 2020: does not apply to applications covered by point 7c-I and 7c-IV. Expires on: — 21 July 2021 for categories 1-7 and 10; — 21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments; — 21 July 2023 for category 8 in vitro diagnostic medical devices; — 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
7c-III	Lead in dielectric ceramic in capacitors for a rated voltage of less than 125 V AC or 250 V DC.	Expired on January 1, 2013 (except spare parts for EEE placed on market before Jan 1, 2013)
7c-IV	Lead in PZT-based dielectric ceramic materials for capacitors being part of integrated circuits or discrete semiconductors.	Expires on: — 21 July 2021 for categories 1-7 and 10; — 21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments; — 21 July 2023 for category 8 in vitro diagnostic medical devices; — 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
8a	Cadmium and its compounds in one shot pellet type thermal cut-offs.	Expired January 1, 2012 (except spare parts for EEE placed on market before Jan 1, 2012)

8b	Cadmium and its compounds in electrical contacts.	As of March 1st 2020: applies to categories 8, 9 and 11 and expires on: — 21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments; — 21 July 2023 for category 8 in vitro diagnostic medical devices; — 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
8b-l	Cadmium and its compounds in electrical contacts used in: <ul style="list-style-type: none"> <li>— circuit breakers,</li> <li>— thermal sensing controls,</li> <li>— thermal motor protectors (excluding hermetic thermal motor protectors),</li> <li>— AC switches rated at: <ul style="list-style-type: none"> <li>- 6 A and more at 250 V AC and more, or</li> <li>- 12 A and more at 125 V AC and more,</li> </ul> </li> <li>— DC switches rated at 20 A and more at 18 V DC and more, and</li> <li>— switches for use at voltage supply frequency <math>\geq</math> 200 Hz.</li> </ul>	As of March 1st 2020: applies to categories 1 to 7 and 10 and expires on 21 July 2021.
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	-
9b	Lead in bearing shells and bushes for refrigerant-containing compressors for heating, ventilation, air conditioning and refrigeration (HVACR) applications.	Applies to categories 8, 9 and 11; expires on: — 21 July 2023 for category 8 in vitro diagnostic medical devices, —21 July 2024 for category 9 industrial monitoring and control instruments and for category 11, —21 July 2021 for other subcategories of categories 8 and 9.
9b-l	Lead in bearing shells and bushes for refrigerant- containing hermetic scroll compressors with a stated electrical power input equal or below 9 kW for heating, ventilation, air conditioning and refrigeration (HVACR) applications.	Applies to category 1; expires on 21 July 2019.
11a	Lead used in C-press compliant pin connector systems.	Expired September 24, 2010 (except spare parts for EEE placed on market before Sept 24, 2010).
11b	Lead used in other than C-press compliant pin connector systems.	Expired on January 1, 2013 (except spare parts for EEE placed on market before Jan 1, 2013)
12	Lead as a coating material for the thermal conduction module C-ring.	Expired September 24, 2010 (except spare parts for EEE placed on market before Sept 24, 2010)
13a	Lead in white glasses used for optical applications.	Applies to all categories; expires on: — 21 July 2023 for category 8 in vitro diagnostic medical devices; —21 July 2024 for category 9 industrial monitoring and control instruments and for category 11; — 21 July 2021 for all other categories and subcategories
13b	Cadmium and lead in filter glasses and glasses used for reflectance standards.	Applies to categories 8, 9 and 11; expires on: — 21 July 2023 for category 8 in vitro diagnostic medical devices; —21 July 2024 for category 9 industrial monitoring and control instruments and for category 11; —21 July 2021 for other subcategories of categories 8 and 9
13b-l	Lead in ion coloured optical filter glass types.	Applies to categories 1 to 7 and 10; expires on 21 July 2021 for categories 1 to 7 and 10

13b-II	Cadmium in striking optical filter glass types; excluding applications falling under point 39.	Applies to categories 1 to 7 and 10; expires on 21 July 2021 for categories 1 to 7 and 10
13b-III	Cadmium and lead in glazes used for reflectance standards.	Applies to categories 1 to 7 and 10; expires on 21 July 2021 for categories 1 to 7 and 10
14	Lead in solders consisting of more than two elements for the connection between pins and package of microprocessors with lead content of more than 80% and less than 85% by weight.	Expired January 1, 2011. (except spare parts for EEE placed on market before Jan 1, 2011)
15	Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages.	As of March 1st 2020: applies to categories 8, 9 and 11 and expires on: — 21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments; — 21 July 2023 for category 8 in vitro diagnostic medical devices; — 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
15a	Lead in solders to complete a viable electrical connection between the semiconductor die and carrier within integrated circuit flip chip packages where at least one of the following criteria applies: — a semiconductor technology node of 90 nm or larger; — a single die of 300 mm <sup>2</sup> or larger in any semiconductor technology node; — stacked die packages with die of 300 mm <sup>2</sup> or larger, or silicon interposers of 300 mm <sup>2</sup> or larger.	As of March 1st 2020: applies to categories 1 to 7 and 10 and expires on 21 July 2021.
16	Lead in linear incandescent lamps with silicate coated tubes.	Expired on September 1, 2013
17	Lead halide as radiant agent in high intensity discharge (HID) lamps used for professional reprography applications	-
18a	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.	Expired January 1, 2011
18b	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 <sub>2</sub> O <sub>5</sub> :Pb).	Expires on: — 21 July 2021 for categories 1-7 and 10; — 21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments; — 21 July 2023 for category 8 in vitro diagnostic medical devices; — 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
18b-I	Lead as activator in the fluorescent powder (1 % lead by weight or less) of discharge lamps containing phosphors such as BSP (BaSi <sub>2</sub> O <sub>5</sub> :Pb) when used in medical phototherapy equipment	As of March 1st 2020: applies to categories 5 and 8, excluding applications covered by entry 34 of Annex IV (i.e. Lead as an activator in the fluorescent powder of discharge lamps when used for extracorporeal photopheresis lamps containing BSP (BaSi <sub>2</sub> O <sub>5</sub> :Pb) phosphors for Medical Devices and Monitoring and Control Instruments), and expires on 21 July 2021.
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).	Expired June 1, 2011
20	Lead oxide in glass used for bonding front & rear substrates of flat fluorescent lamps used for liquid crystal displays (LCD).	Expired June 1, 2011

21	Lead and cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses.	As of March 1st 2020: applies to categories 8, 9 and 11 and expires on: — 21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments; — 21 July 2023 for category 8 in vitro diagnostic medical devices; — 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
21a	Cadmium when used in colour printed glass to provide filtering functions, used as a component in lighting applications installed in displays and control panels of EEE.	As of March 1st 2020: applies to categories 1 to 7 and 10 except applications covered by entry 21b or entry 39 and expires on 21 July 2021.
21b	Cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses.	As of March 1st 2020: applies to categories 1 to 7 and 10 except applications covered by entry 21a or 39 and expires on 21 July 2021.
21c	Lead in printing inks for the application of enamels on other than borosilicate glasses.	As of March 1st 2020: applies to categories 1 to 7 and 10 and expires on 21 July 2021.
23	Lead in finishes of fine pitch components other than connectors with a pitch of 0.65 mm and less.	Expired September 24, 2010 (except spare parts for EEE placed on market before Sept 24, 2010)
24	Lead in solders for the soldering to machined through hole discoidal or planar array ceramic multilayer capacitors.	Expires on: — 21 July 2021 for categories 1-7 and 10, — 21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments, —21 July 2023 for category 8 in vitro diagnostic medical devices, — 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
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 June 1, 2011
27	Lead alloys as solder for transducers used in high-powered loudspeakers designated to operate for several hours at acoustic power levels of 125 dB SPL and above.	Expired September 24, 2010
29	Lead bound in crystal glass as defined in Annex I (Categories 1, 2, 3, 4) of Directive 69/493/EEC.	Expires on: — 21 July 2021 for categories 1-7 and 10; — 21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments; — 21 July 2023 for category 8 in vitro diagnostic medical devices; — 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
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 (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.	Expires on: — 21 July 2021 for categories 1-7 and 10, — 21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments, — 21 July 2023 for category 8 in vitro diagnostic medical devices, — 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.

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.	Applies to all categories; expires on: — 21 July 2021 for categories 1-7 and 10, —21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments, —21 July 2023 for category 8 in vitro diagnostic medical devices, — 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
36	Mercury used as a cathode sputtering inhibitor in DC plasma displays with a content up to 30 mg per display.	Expired July 1, 2010
37	Lead in the plating layer of high voltage diodes on the basis of a zinc borate glass body.	Expires on: — 21 July 2021 for categories 1-7 and 10; — 21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments; — 21 July 2023 for category 8 in vitro diagnostic medical devices; — 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
38	Cadmium and cadmium oxide in thick film pastes used on aluminum bonded beryllium oxide.	Expires on: — 21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments; — 21 July 2023 for category 8 in vitro diagnostic medical devices; — 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
39	Cadmium in color converting II-VI LEDs (< 10 µg Cd per mm of light-emitting area) for use in solid state illumination or display systems.	Expired on November 20, 2018
39a	Cadmium selenide in downshifting cadmium based semiconductor nanocrystal quantum dots for use in display lighting applications (< 0.2 µg Cd per mm <sup>2</sup> of display screen area).	Expire on October 31, 2019
40	Cadmium in photoresistors for analogue optocouplers applied in professional audio equipment.	Expired on December 31, 2013
41	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.	Expired on 31 December 2018 for categories 1 to 7, 10 and 11. Expires - on 21 July 2021 for categories 8 and 9 - on 21 July 2023 for category 8 in vitro diagnostic medical devices and - 21 July 2024 for category 9 industrial monitoring and control instruments.
42	Lead in bearings and bushes of diesel or gaseous fuel powered internal combustion engines applied in non-road professional use equipment: — with engine total displacement ≥ 15 litres; or — with engine total displacement < 15 litres and the engine is designed to operate in applications where the time between signal to start and full load is required to be less than 10 seconds; or regular maintenance is typically performed in a harsh and dirty outdoor environment, such as mining, construction, and agriculture applications.	Applies to category 11, excluding applications covered by entry 6c.  Expires on 21 July 2024.