RoHS Exemption List Version 2.9
((EU) 2025/2364 Annex Date: 2025-11-21)

The following RoHS Exemption List is based on the latest RoHS legislation (Including decision for amendment). Before making final decision, be sure to confirm the latest RoHS exemption on RoHS legislation official site as below.

http://ec.europa.eu/environment/waste/rohs_eee/legis_en.htm

(An exemption No. in gray means that RoHS exemption application is expired)

In either of Tables 1 and 2, when "† 1" is written in the "Expiration date" column, It means that there is no expiration date description. For the date in this case, see the last page.

"Under deliberation": Indicates an exemption for which an application for renewal was submitted in due time; the exemption remains valid until the EU Commission takes a decision.

"Extended 2": The EU Committee decided to change the contents of "RoHS exemption", but because the application date has not been reached, the contents will not be changed.

Table 1. RoHS exemptions for all categories

Exemption No.	Substance	Description	Expiration date
~~1(a)~~	Mercury	For general lighting purposes < 30 W:2.5mg / Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):	2023/2/24
~~1(b)~~		For general lighting purposes ≥ 30 W and < 50 W:3.5mg / Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):	2023/2/24
~~1(c)~~		For general lighting purposes ≥ 50 W and < 150 W :5mg / Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):	2023/2/24
~~1(d)~~		For general lighting purposes ≥ 150 W:15mg / Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):	2023/2/24
~~1(e)~~		For general lighting purposes with circular or square structural shape and tube diameter ≤ 17 mm :5mg / Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):	2023/2/24
1(f) –I		For lamps designed to emit mainly light in the ultraviolet spectrum: 5 mg / Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):	2027/2/24
~~1(f) –II~~		For special purposes: 5 mg/ Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):	2025/2/24
~~1(g)~~		For general lighting purposes < 30 W with a lifetime equal or above 20 000 h: 3,5 mg	2023/8/24
~~2(a)(1)~~		Tri-band phosphor with normal lifetime and a tube diameter < 9 mm (e.g. T2) : 4 mg/ Mercury in double-capped linear fluorescent lamps for general lighting purposes not exceeding (per lamp):	2023/2/24
~~2(a)(2)~~		Tri-band phosphor with normal lifetime and a tube diameter ≥ 9 mm and ≤ 17 mm (e.g. T5): 3 mg / Mercury in double-capped linear fluorescent lamps for general lighting purposes not exceeding (per lamp):	2023/8/24

~~2(a)(3)~~	Mercury	Tri-band phosphor with normal lifetime and a tube diameter > 17 mm and ≤ 28 mm (e.g. T8): 3,5 mg / Mercury in double-capped linear fluorescent lamps for general lighting purposes not exceeding (per lamp):	2023/8/24
~~2(a)(4)~~		Tri-band phosphor with normal lifetime and a tube diameter > 28 mm (e.g. T12) : 3,5 mg / Mercury in double-capped linear fluorescent lamps for general lighting purposes not exceeding (per lamp):	2023/2/24
~~2(a)(5)~~		Tri-band phosphor with long lifetime(≥ 25,000 h) :5 mg. / Mercury in double-capped linear fluorescent lamps for general lighting purposes not exceeding (per lamp):	2023/2/24
~~2(b)(1)~~		Linear halophosphate lamps with tube diameter > 28 mm (e.g. T10 and T12) / Mercury in other fluorescent lamps not exceeding 10mg per lamp	Expired on 13 April 2012
~~2(b)(2)~~		Non-linear halophosphate lamps (all diameters) / Mercury in other fluorescent lamps not exceeding 15mg per lamp	Expires on 13 April 2016
~~2(b)(3)~~		Non-linear tri-band phosphor lamps with tube diameter > 17 mm (e.g. T9) / Mercury in other fluorescent lamps	15 mg may be used per lamp:2023/2/24 10 mg may be used per lamp:2025/2/24
2(b)(4) -I		Lamps for other general lighting and special purposes (e.g. induction lamps) / Mercury in other fluorescent lamps: 15 mg	2025/2/24 **Under deliberation**
2(b)(4) – II		Lamps emitting mainly light in the ultraviolet spectrum: 15 mg	2027/2/24
2(b)(4) – III		Emergency lamps: 15 mg	2027/2/24
~~3(a)~~		Short length (≤ 500 mm) / Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes used in EEE placed on the market before 24 February 2022not exceeding (per lamp):	3.5 mg may be used per lamp: 2025/2/24
~~3(b)~~		Medium length (> 500 mm and ≤ 1,500mm) / Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes used in EEE placed on the market before 24 February 2022not exceeding (per lamp):	5 mg may be used per lamp: 2025/2/24
~~3(c)~~		Long length (> 1,500 mm) / Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes used in EEE placed on the market before 24 February 2022not exceeding (per lamp):	13 mg may be used per lamp: 2025/2/24
~~4(a)~~		Mercury in other low pressure discharge lamps (per lamp): 15 mg	2023/2/24

4(a) –I	Mercury	Mercury in low pressure non-phosphor coated discharge lamps, where the application requires the main range of the lamp- spectral output to be in the ultraviolet spectrum: up to 15 mg mercury may be used per lamp	2027/2/24
4(b)		Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner) in lamps with improved colour rendering index Ra > 80: P ≤ 105 W: 16 mg may be used per burner	2027/2/24
~~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 > 60: P ≤ 155 W: 30 mg may be used per burner	2023/2/24
~~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 > 60: 155 W < P ≤ 405 W: 40 mg may be used per burner	2023/2/24
~~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 > 60: P > 405 W: 40 mg may be used per burner	2023/2/24
4(c)–I		P ≤ 155 W: 20 mg / Mercury in other High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner):	2027/2/24
4(c)–II		155 W < P ≤ 405W: 25 mg / Mercury in other High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner):	2027/2/24
4(c)–III		P > 405 W: 25 mg / Mercury in other High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner):	2027/2/24
~~4(d)~~		Mercury in High Pressure Mercury (vapour) lamps(HPMV)	Expires on 13 April 2015
4(e)		Mercury in metal halide lamps (MH)	2027/2/24
4(f) –I		Mercury in other discharge lamps for special purposes not specifically mentioned in this Annex	2025/2/24 **Under deliberation**
4(f) – II		Mercury in high pressure mercury vapour lamps used in projectors where an output ≥ 2000 lumen ANSI is required	2027/2/24
4(f) – III		Mercury in high pressure sodium vapour lamps used for horticulture lighting	2027/2/24
4(f)–IV		Mercury in lamps emitting light in the ultraviolet spectrum	2027/2/24
~~4(g)~~		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.	2018/12/31
~~36~~		Mercury used as a cathode sputtering inhibitor in DC plasma displays with a content up to 30 mg per display.	2010/7/1

~~8(a)~~		Cadmium and its compounds in one shot pellet type thermal cut-offs	Expired on 1 January 2012 and after that date may be used in spare parts for EEE placed on the market before 1 January 2012
8(b)		Cadmium and its compounds in electrical contacts	Applies to categories 8, 9 and 11 and 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. **Under deliberation**
8(b)-I		Cadmium and its compounds in electrical contacts used in: — circuit breakers, — thermal sensing controls, — thermal motor protectors (excluding hermetic thermal motor protectors), — AC switches rated at: — 6 A and more at 250 V AC and more, or — 12 A and more at 125 V AC and more, — DC switches rated at 20 A and more at 18 V DC and more, and — switches for use at voltage supply frequency ≥ 200 Hz.	Applies to categories 1 to 7 and 10 and expires on 21 July 2021. **Under deliberation**
13(b)	Cadmium	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 **Under deliberation**
13(b)-(II)		Cadmium in striking optical filter glass types; excluding applications falling under point 39 of this Annex	Applies to categories 1 to 7 and 10; expires on 21 July 2021 for categories 1 to 7 and 10 **Under deliberation**
13(b)-(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 **Under deliberation**
~~21~~		Lead and cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses	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.
~~21(a)~~		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	Applies to categories 1 to 7 and 10 except applications covered by entry 21(b) or entry 39 and expires on 21 July 2021.
~~21(b)~~		Cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses	Applies to categories 1 to 7 and 10 except applications covered by entry 21(a) or 39 and expires on 21 July 2021.

~~30~~		Cadmium alloys as electrical/mechanical solder joints to electrical conductors located directly on the voice coil in ransducers used in high-powered loudspeakers with sound pressure levels of 100 dB (A) and more	†1
~~38~~		Cadmium and cadmium oxide in thick film pastes used on aluminium bonded beryllium oxide	†1
~~39~~		Cadmium in colour converting II-VI LEDs (< 10 μg Cd per mm2 of light-emitting area) for use in solid state illumination or display systems	Expires on 20 November 2018
~~39(a)~~		Cadmium selenide in downshifting cadmium-based semiconductor nanocrystal quantum dots for use in display lighting applications (< 0,2 μg Cd per mm2 of display screen area)	Expires on 21 November 2025
39(b)		Cadmium in downshifting semiconductor nanocrystal quantum dots directly deposited on LED semiconductor chips for use in display and projection applications (< 5 μg Cd per mm^2 of LED chip surface) with a maximum amount per device of 1 mg	Expires on 31 December 2027
~~40~~		Cadmium in photoresistors for analogue optocouplers applied in professional audio equipment	2013/12/31

~~5(a)~~	Lead	Lead in glass of cathode ray tubes	†1
5(b)		Lead in glass of fluorescent tubes not exceeding 0.2% by weight	†1 Under deliberation
6(a)		Lead as an alloying element in steel for machining purposes and in galvanized steel containing up to 0.35% lead by weight	Expires on 11 December 2026
6(a)-I		Lead as an alloying element in steel for machining purposes containing up to 0,35% lead by weight	Expires on 30 June 2027 for all categories.
6(a)- II		Lead as an alloying element in batch hot-dip galvanised steel components containing up to 0,2% lead by weight	Expires on 30 June 2027 for all categories.
6(b)		Lead as an alloying element in aluminium containing up to 0.4% lead by weight	Expires on 11 June 2027
6(b)-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	Expires on 11 December 2026 for categories 1-7, 10. Expires on 30 June 2027 for categories 9 industrial monitoring and control instruments, and 11.
6(b)-II		Lead as an alloying element in aluminium for machining purposes with a lead content up to 0,4 % by weight	Expires on 11 June 2027 for categories 1-7, 10. Expires on 30 June 2027 for categories 9 industrial monitoring and control instruments and 11.
6(b)- III		Lead as an alloying element in aluminium casting alloys containing up to 0,3% lead by weight provided it stems from lead-bearing aluminium scrap recycling	Expires on 30 June 2027 for categories 1-8, 9 other than industrial monitoring
6(c)		Copper alloy containing up to 4% lead by weight	Expires on 30 June 2027 for categories 1-8, 9 other than industrial monitoring

7(a)	Lead	Lead in high melting temperature type solders (i.e. lead-based alloys containing 85% by weight or more lead)	Applies to all categories (except applications covered by point 24 of this Annex) and expires on 30 June 2027.
7(a)-I		Lead in high melting temperature type solders (i.e., lead-based alloys containing 85% by weight or more lead) for internal interconnections for attaching die, or other components along with a die in semiconductor assembly with steady state or transient/impulse currents of 0.1 A or greater or blocking voltages beyond 10 V, or die edge sizes larger than 0.3 mm x 0.3 mm	Applies to all categories (except applications covered by point 24 of this Annex) and expires on 31 December 2027.
7(a)-II		Lead in high melting temperature type solders (i.e., lead-based alloys containing 85% by weight or more lead) for integral (meaning internal and external) connections of die attach in electrical and electronic components, if all the following conditions are met: - the thermal conductivity of the cured/sintered die-attach material is >35W/(m*K), - the electrical conductivity of the cured/sintered die-attach material is >4.7MS/m , - solidus melting temperature is higher than 260° C	Applies to all categories (except applications covered by point 24 of this Annex) and expires on 31 December 2027.
7(a)-III		Lead in high melting temperature type solders (i.e., lead-based alloys containing 85% by weight or more lead) in first level solder joints (internal or integral connections - meaning internal and external) for manufacturing components so that subsequent mounting of electronic components onto subassemblies (i.e. modules, sub-circuit boards, substrates, or point-to-point soldering) with a secondary solder does not reflow the first level solder. This sub-entry excludes die attach applications and hermetic sealings	Applies to all categories (except applications covered by point 24 of this Annex) and expires on 31 December 2027.
7(a)-IV		Lead in high melting temperature type solders (i.e., lead-based alloys containing 85% by weight or more lead) in second level solder joints for the attachment of components to printed circuit board or lead frames: 1. in solder balls for the attachment of ceramic ball-grid-array (BGA) 2. in high temperature plastic overmouldings (> 220 ° C)	Applies to all categories (except applications covered by point 24 of this Annex) and expires on 31 December 2027.
7(a)-V		Lead in high melting temperature type solders (i.e., lead-based alloys containing 85% by weight or more lead) as a hermetic sealing material between: 1. a ceramic package or plug and a metal case, 2. component terminations and an internal sub-part	Applies to all categories (except applications covered by point 24 of this Annex) and expires on 31 December 2027.
7(a)-VI		Lead in high melting temperature type solders (i.e., lead-based alloys containing 85% by weight or more lead) for establishing electrical connections between lamp components in incandescent reflector lamps for infrared heating, high intensity discharge lamps, or oven lamps	Applies to all categories (except applications covered by point 24 of this Annex) and expires on 31 December 2027.
7(a)-VII		Lead in high melting temperature type solders (i.e., lead-based alloys containing 85% by weight or more lead) for audio transducers where the peak operating temperature exceeds 200° C	Applies to all categories (except applications covered by point 24 of this Annex) and expires on 31 December 2027.
~~7(b)~~		Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, ransmission, and network management for telecommunications	†1

7(c)-I	Lead	Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound	Applies to all categories and expires on 30 June 2027.
7(c)-II		Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher	Applies to all categories (except applications covered by point 7(c)-I or 7(c)-IV) and expires on 31 December 2027.
~~7(c)-III~~		Lead in dielectric ceramic in capacitors for a rated voltage of less than 125 V AC or 250 V DC	Expired on 1 January 2013 and after that date may be used in spare parts for EEE placed on the market before 1 January 2013
~~7(c)-IV~~		Lead in PZT based dielectric ceramic materials for capacitors which are part of integrated circuits or discrete semiconductors	Expires on: — 21 July 2021 for categories 1-7 and 10; — 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.
7(c)-V		Electrical and electronic components containing lead in a glass or glass matrix compound that fulfils any of the following functions: 1) for protection and electrical insulation in glass beads of high-voltage diodes and glass layers for wafers ; 2) for hermetic sealing between ceramic, metal and/or glass parts; 3) for bonding purposes in a process parameter window for < 500 ° C combined with a viscosity of 1013.3 dPas ('glass-transition temperature'); 4) for use as a resistive material such as ink, with a resistivity range from 1 ohm/square to 100 megohm/square, excluding trimmer potentiometers; 5) for use in chemically modified glass surfaces for microchannel plates (MCPs), channel electron multipliers (CEMs) and resistive glass products (RGPs).	Applies to all categories and expires on 31 December 2027.
7(c)-VI		Electrical and electronic components containing lead in a ceramic that fulfils any of the following functions: 1) for use in piezoelectric lead zirconium titanate (PZT) ceramics; 2) for providing ceramics with a positive temperature coefficient (PTC).	Applies to all categories (except applications covered by points 7(c)-II, 7(c)-III and 7(c)-IV of Table 1 as well as point 14 of Table 2) and expires on 31 December 2027.
~~9(b)~~		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.
~~9(b)-(I)~~		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
~~11(a)~~		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)~~		Lead used in other than C-press compliant pin connector systems	Expired on 1 January 2013 and after that date may be used in spare parts for EEE placed on the market before 1 January 2013

~~12~~	Lead	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)		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 **Under deliberation**
13(b)		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 **Under deliberation**
13(b)-(I)		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 **Under deliberation**
13(b)-(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 **Under deliberation**
~~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 and after that date may be used in spare parts for EEE placed on the market before 1 January 2011
15		Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages	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 **Under deliberation**
15(a)		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 mm2 or larger in any semiconductor technology node; —stacked die packages with die of 300 mm2 or larger, or silicon interposers of 300 mm2 or larger.	Applies to categories 1 to 7 and 10 and expires on 21 July 2021. **Under deliberation**
~~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	†1
~~18(a)~~		Lead as activator in the fluorescent powder (1 % lead by weight or less) of discharge lamps when used as speciality 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	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)	Expires on: — 21 July 2021 for categories 1–7 and 10; — 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 **Under deliberation.**
18(b)–I		Lead as activator in the fluorescent powder (1 % lead by weight or less) of discharge lamps containing phosphors such as BSP (BaSi2O5:Pb) when used in medical phototherapy equipment	— 21 July 2021 for other subcategories of categories 8 and 9 **Under deliberation.**
~~**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 on 1 June 2011
~~**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	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.
~~**21(c)**~~		Lead in printing inks for the application of enamels on other than borosilicate glasses	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	May be used in spare parts for EEE placed on the market before 24 September 2010
24		Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors	Expires on: — 21 July 2021 for categories 1–7 and 10, — 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. **Under deliberation.**
~~**25**~~		Lead oxide in surface conduction electron emitter displays (SED) used in structural elements, notably in the seal frit and frit ring	†1
~~**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 highpowered (designated to operate for several hours at acoustic power levels of 125 dB SPL and above)	Expired on 24 September 2010

29	Lead	Lead bound in crystal glass as defined in Annex I (Categories 1, 2, 3 and 4) of Council Directive 69/493/EEC	Expires on: – 21 July 2021 for categories 1–7 and 10, – 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. **Under deliberation.**
~~31~~		Lead in soldering materials in mercury free flat fluorescent lamps (which e.g. are used for liquid crystal displays, design or industrial lighting)	†1
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 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. **Under deliberation.**
~~33~~		Lead in solders for the soldering of thin copper wires of 100 μm diameter and less in power transformers	†1
34		Lead in cermet-based trimmer potentiometer elements	Expires on: – 21 July 2021 for categories 1–7 and 10, – 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. **Under deliberation.**
~~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 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.
~~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 (1) (1)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).	Applies to all categories and expires on: – 31 March 2022 for categories 1 to 7, 10 and 11; – 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.

42	Lead	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 6(c) of this Annex. Expires on 21 July 2024. Under deliberation.

~~9~~	Hexavalent chromium	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	†1

Table 2. RoHS exemptions for categories 8&9 (medical devices and monitoring and control instruments)

Exemption No.	Substance	Description	Expiration date
1	Equipment utilising	Lead, cadmium and mercury in detectors for ionising radiation.	†1 Under deliberation.
2		Lead bearings in X-ray tubes	†1 Under deliberation.
3		Lead in electromagnetic radiation amplification devices: micro-channel plate and capillary plate	†1 Under deliberation.
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	†1 Under deliberation.
5		Lead in shielding for ionising radiation	†1 Under deliberation.
~~6~~		Lead in X-ray test objects	†1
~~7~~		Lead stearate X-ray diffraction crystals	†1
~~8~~		Radioactive cadmium isotope source for portable X-ray fluorescence spectrometers	†1
1a	Sensors, detectors and electrodes	Lead and cadmium in ion selective electrodes including glass of pH electrodes	†1 Under deliberation.
1b		Lead anodes in electrochemical oxygen sensors	†1 Under deliberation.
1c		Lead, cadmium and mercury in infra-red light detectors	†1 Under deliberation.
~~1d~~		Mercury in reference electrodes: low chloride mercury chloride, mercury sulphate and mercury oxide	†1
9	Others	Cadmium in helium-cadmium lasers	†1 Under deliberation.
10		Lead and cadmium in atomic absorption spectroscopy lamps	†1 Under deliberation.
11		Lead in alloys as a superconductor and thermal conductor in MRI	†1 Under deliberation.
12		Lead and cadmium in metallic bonds creating superconducting magnetic circuits in MRI, SQUID, NMR (Nuclear Magnetic Resonance) or FTMS (Fourier Transform Mass Spectrometer) detectors.	2021/6/30 Under deliberation.
13		Lead in counterweights	†1 Under deliberation.
14		Lead in single crystal piezoelectric materials for ultrasonic transducers	†1 Under deliberation.
15		Lead in solders for bonding to ultrasonic transducers	†1 Under deliberation.
~~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	†1
17		Lead in solders in portable emergency defibrillators	†1 Under deliberation.
18		Lead in solders of high performance infrared imaging modules to detect in the range 8-14 μ m	†1 Under deliberation.
~~19~~		Lead in Liquid crystal on silicon (LCoS) displays	†1
20		Cadmium in X-ray measurement filters	†1 Under deliberation.
~~21~~		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~~		Lead acetate marker for use in stereotactic head frames for use with CT (Computed Tomography) and MRI and in positioning systems for gamma beam and particle therapy equipment	2021/6/30
~~23~~		Lead as an alloying element for bearings and wear surfaces in medical equipment exposed to ionising radiation	2021/6/30
~~24~~		Lead enabling vacuum tight connections between aluminium and steel in X-ray image intensifiers	2019/12/31
~~25~~		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	2021/6/30

26		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.	2021/6/30 **Under deliberation**.
27		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.	2027/6/30
~~28~~		Lead in solders for mounting cadmium telluride and cadmium zinc telluride digital array detectors to printed circuit boards	2017/12/31
29		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	2021/6/30 **Under deliberation**.
~~30~~		Hexavalent chromium in alkali dispensers used to create photocathodes in X-ray image intensifiers until 31 December 2019	Until 31 December 2019 and in spare parts for X-ray systems placed on the EU market before 1 January 2020.
31a	Others	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. **Under deliberation**
~~32~~		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	2019/12/31
~~33~~		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	Class Ⅱa: 2016-6-30 Class Ⅱb: 2020-12-31
~~34~~		Lead as an activator in the fluorescent powder of discharge lamps when used for extracorporeal photopheresis lamps containing BSP (BaSi2O5:Pb) phosphors	2021/7/22
~~35~~		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	2024/7/21
~~36~~		Lead used in other than C-press compliant pin connector systems for industrial monitoring and control instruments.	2020/12/31 May be used after that date in spare parts for industrial monitoring and control instruments placed on the market before 1 January 2021.'

~~37~~		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.	2025/12/31
~~38~~		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.	2019/12/31 May be used after that date in spare parts for CT and X-ray systems placed on the market before 1 January 2020.'
~~39~~	~~Others~~	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 × 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 × 10^7.	(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. Under deliberation.
~~40~~		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~~		Lead as a thermal stabiliser 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.	2022/3/31
42		Mercury in electric rotating connectors used in intravascular ultrasound imaging systems capable of high operating frequency (> 50 MHz) modes of operation.	2026/6/30
~~43~~		Cadmium anodes in Hersch cells for oxygen sensors used in industrial monitoring and control instruments, where sensitivity below 10 ppm is required.	2023/7/15
44		Cadmium in radiation tolerant video camera tubes designed for cameras with a centre resolution greater than 450 TV lines which are used in environments with ionising radiation exposure exceeding 100 Gy/hour and a total dose in excess of 100kGy.	2027/3/31

- **When "† 1" is written in the "Expiration date" column.**
  In this case, the maximum "expiration date" as described below is defined.
  However, this “expiration date” may be revised by ECHA.

	Table 1. RoHS exemptions for all categories	Table 2. RoHS exemptions for categories 8&9
categories 1 to 7 and 10	**2016/7/21**	**N/A**
categories 8 (General)	**2021/7/21**	**2021/7/21**
categories 8 (IVD)	**2023/7/21**	**2023/7/21**
categories 9 (General)	**2021/7/21**	**2021/7/21**
categories 9 (Industrial)	**2024/7/21**	**2024/7/21**

[**Revision history**]

2011-6-11 (Ver1.0)	RoHS exemption updated
2012-11-27 (Ver2.0)	RoHS exemption for categories 8&9 added
2013-3-22 (Ver2.1)	Expiration date for 7(c)-IV added
2015-2-25 (Ver2.2)	RoHS exemption updated
2017-3-2 (Ver2.3)	RoHS exemption updated, RoHS exemption for categories 8&9 added
2017-9-5 (Ver2.4)	The explanation of When ″† 1″ is described in the ″expiration date″ column added
2019-12-18 (Ver2.5)	RoHS exemption updated
2020-04-09 (Ver2.6)	RoHS exemption updated
2020-03-18 (Ver2.7)	RoHS exemption updated
2023-01-06 (Ver2.8)	RoHS exemption updated
2025-12-16 (Ver2.9)	RoHS exemption updated