EEE products

HCT-202307-02

2011/65/EU (RoHS 2.0) latest exemption list

July 12, 2023 updated

13 February 2003, EU published Directive 2002/95/EC of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

1 July 2011, THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION published DIRECTIVE 2011/65/EU (RoHS 2.0) on Official Journal of the European Union, replacing Directive 2002/95/EC.

There are totally 45 entries in RoHS 2.0 Annex III and 49 entries in Annex IV.

The latest revision was on July 11, 2023, the European Commission issued Directive (EU) 2023/1437, which added an exemption for mercury to Annex IV of the EU RoHS Directive 2011/65/EU.

The following is the latest RoHS 2.0 exemption list, the latest updates are highlight in yellow.

ANNEX III

Exemption		**Scope and dates of applicability**
(EU)2022/276 amended directive		
1	Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):	
1(a)	For general lighting purposes < 30 W: 2.5 mg	Expires on 24 February 2023
1(b)	For general lighting purposes ≥ 30 W and < 50 W: 3.5 mg	Expires on 24 February 2023
1(c)	For general lighting purposes ≥ 50 W and < 150 W: 5 mg	Expires on 24 February 2023
1(d)	For general lighting purposes ≥ 150 W: 15 mg	Expires on 24 February 2023

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1(e)	For general lighting purposes with circular or square structural shape and tube diameter ≤ 17 mm: 5 mg	Expires on 24 February 2023
(EU)2022/281 amended directive		
1(f)-I	For lamps designed to emit mainly light in the ultraviolet spectrum: 5 mg	Expires on 24 February 2027
1(f)-II	For special purposes: 5 mg	Expires on 24 February 2025
(EU)2022/277 amended directive		
1(g)	For general lighting purposes < 30 W with a lifetime equal or above 20 000 h: 3.5 mg	Expires on 24 August 2023
(EU)2022/284 amended directive		
2(a)	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): 4 mg	Expires on 24 February 2023
2(a)(2)	Tri-band phosphor with normal lifetime and a tube diameter ≥ 9 mm and ≤ 17 mm (e.g. T5): 3 mg	Expires on 24 August 2023
2(a)(3)	Tri-band phosphor with normal lifetime and a tube diameter > 17 mm and ≤ 28 mm (e.g. T8): 3.5 mg	Expires on 24 August 2023
2(a)(4)	Tri-band phosphor with normal lifetime and a tube diameter > 28 mm (e.g. T12): 3.5 mg	Expires on 24 February 2023
2(a)(5)	Tri-band phosphor with long lifetime (≥ 25 000 h): 5 mg	Expires on 24 February 2023
2(b)	Mercury in other fluorescent lamps not exceeding (per lamp):	
2(b)(1)	Linear halophosphate lamps with tube > 28 mm (e.g. T10 and T12): 10 mg	Expires on 13 April 2012
2(b)(2)	Non-linear halophosphate lamps (all diameters): 15 mg	Expires on 13 April 2016
(EU)2022/282 amended directive		
2(b)(3)	Non-linear tri-band phosphor lamps with tube diameter > 17 mm (e.g. T9): 15 mg	Expires on 24 February 2023; 10 mg may be used per lamp from 25 February 2023 until 24 February 2025
(EU)2022/287 amended directive		

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2(b)(4)-I	Lamps for other general lighting and special purposes (e.g. induction lamps): 15 mg	Expires on 24 February 2025
2(b)(4)-II	Lamps emitting mainly light in the ultraviolet spectrum: 15 mg	Expires on 24 February 2027
2(b)(4)-III	Emergency lamps: 15 mg	Expires on 24 February 2027
(EU)2022/274 amended directive		
3	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 2022 not exceeding (per lamp):	
3(a)	Short length (≤ 500 mm): 3.5 mg	Expires on 24 February 2025
3(b)	Medium length (> 500 mm and ≤ 1 500 mm): 5 mg	Expires on 24 February 2025
3(c)	Long length (> 1 500 mm): 13 mg	Expires on 24 February 2025
(EU)2022/280 amended directive		
4(a)	Mercury in other low pressure discharge lamps (per lamp): 15 mg	Expires on 24 February 2023
4(a)-I	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	Expires on 24 February 2027
(EU)2022/283 amended directive		
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	Expires on 24 February 2027
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	Expires on 24 February 2023
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	Expires on 24 February 2023
4(b)-III	Mercury in High Pressure Sodium (vapour) lamps for	Expires on 24 February 2023

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	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	
(EU)2022/275 amended directive		
4(c)	Mercury in other High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner):	
4(c)-Ⅰ	P ≤ 155 W: 20mg	Expires on 24 February 2027
4(c)-Ⅱ	155 W < P ≤ 405 W: 25mg	Expires on 24 February 2027
4(c)-Ⅲ	P > 405 W: 25mg	Expires on 24 February 2027
4(d)	Mercury in High Pressure Mercury (vapour) lamps (HPMV)	Expires on 13 April 2015
(EU)2022/278 amended directive		
4(e)	Mercury in metal halide lamps (MH)	Expires on 24 February 2027
(EU)2022/279 amended directive		
4(f)-Ⅰ	Mercury in other discharge lamps for special purposes not specifically mentioned in this Annex	Expires on 24 February 2025
4(f)-Ⅱ	Mercury in high pressure mercury vapour lamps used in projectors where an output ≥ 2000 lumen ANSI is required	Expires on 24 February 2027
4(f)-Ⅲ	Mercury in high pressure sodium vapour lamps used for horticulture lighting	Expires on 24 February 2027
4(f)-Ⅳ	Mercury in lamps emitting light in the ultraviolet spectrum	Expires on 24 February 2027
▼M26 May 20, 2014,EU issued amendment directive 2014/76/EU		
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.	Expires on 31 December 2018
▼B		
5(a)	Lead in glass of cathode ray tubes	

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5(b)	Lead in glass of fluorescent tubes not exceeding 0,2 % by weight	
▼M41 May 18, 2018,EU issued amendment directive (EU) 2018/739		
6(a)	Lead as an alloying element in steel for machining purposes and in galvanised steel containing up to 0,35 % lead by weight	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.
6(a)-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	Expires on 21 July 2021 for categories 1-7 and 10.
▼M42 May 18, 2018,EU issued amendment directive (EU) 2018/740		
6(b)	Lead as an alloying element in aluminium containing up to 0,4 % lead by weight	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.
6(b)-I	Lead as an alloying element in aluminium containing up to 0,4 % lead by weight, provided it stems from lead-bearing	Expires on 21 July 2021 for categories 1-7 and 10.

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	aluminium scrap recycling	
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 18 May 2021 for categories 1-7 and 10.
▼M43 May 18, 2018,EU issued amendment directive (EU) 2018/741		
6(c)	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.
▼M44 May 18, 2018,EU issued amendment directive (EU) 2018/742		
7(a)	Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead)	Applies to categories 1-7 and 10 (except applications covered by point 24 of this Annex) 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.

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▼B		
7(b)	Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission, and network management for telecommunications	
▼M38 May 18, 2018,EU issued amendment directive (EU) 2018/736		
7(c)-I	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 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.
▼M45 February 5, 2019,EU issued amendment directive (EU) 2019/169		
7(c)-Ⅱ	Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher	Does not apply to applications covered by point 7(c)-I and 7 (c)-IV of this Annex. Expires on: — 21 July 2021 for categories 1-7 and 10; — 21 July 2021 for categories 8 and 9 other than in vitro dia gnostic medical devices and in dustrial monitoring and control instruments; — 21 July 2023 for category 8 in vitro diagnostic medical de vices;

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		— 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
▼B		
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 and after that date may be used in spare parts for EEE placed on the market before 1 January 2013
▼M46 February 5, 2019,EU issued amendment directive (EU) 2019/170		
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 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and in dustrial 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.
▼B		
8(a)	Cadmium and its compounds in one shot pellet type thermal cut-offs	Expires on 1 January 2012 and after that date may be used in spare parts for EEE placed on the market before 1 January 2012
▼M47 February 5, 2019,EU issued amendment directive (EU) 2019/171		
8(b)	Cadmium and its compounds in electrical contacts	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 ind

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		ustrial monitoring and control i nstruments; — 21 July 2023 for category 8 in vitro diagnostic medical de vices; — 21 July 2024 for category 9 industrial monitoring and cont rol instruments, and for catego ry 11.
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 an d 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.
▼M58 March 5, 2020,EU issued amendment directive (EU) 2020/361		
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	Applies to categories 8, 9 and 11 and expires on: — 21 July 2021 for categories 8 and 9 other than in vitro dia gnostic medical devices and in dustrial monitoring and control instruments, — 21 July 2023 for category 8 in vitro diagnostic medical de vices, — 21 July 2024 for category 9 industrial monitoring and cont rol instruments, and for catego ry 11.
9(a)-I	Up to 0,75 % hexavalent chromium by weight, used as an anticorrosion agent in the cooling solution of carbon steel	Applies to categories 1-7 and 10 and expires on 5 March 2021.

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	cooling systems of absorption refrigerators (including minibars) designed to operate fully or partly with electrical heater, having an average utilised power input < 75 W at constant running conditions	
9(a)-II	Up to 0,75 % hexavalent chromium by weight, used as an anticorrosion agent in the cooling solution of carbon steel cooling systems of absorption refrigerators: — designed to operate fully or partly with electrical he ater, having an average utilised power input ≥ 75 W at constant running conditions, — designed to fully operate with non-electrical heater.	Applies to categories 1-7 and 10 and expires on 21 July 2021.
(EU) 2023/171		
9(a)-III	Up to 0,7 % hexavalent chromium by weight, used as an anticorrosion agent in the working fluid of the carbon steel sealed circuit of gas absorption heat pumps for space and water heating	Applies to category 1 and expires on 31 December 2026
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.
▼B		
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	Expires on 1 January 2013 and after that date may be used in

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		spare parts for EEE placed on the market before 1 January 2013
12	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
▼M35 June 16, 2017,EU issued amendment directive (EU) 2017/1011		
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
▼M33 June 16, 2017,EU issued amendment directive (EU) 2017/1009		
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
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
13(b)-(II)	Cadmium in striking optical filter glass types; excluding applications falling under point 39 of this Annex	
13(b)-(III)	Cadmium and lead in glazes used for reflectance standards	
▼B		
14	Lead in solders consisting of more than two elements for	Expired on 1 January 2011 and

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	the connection between the pins and the package of microprocessors with a lead content of more than 80 % and less than 85 % by weight	after that date may be used in spare parts for EEE placed on the market before 1 January 2011
▼M48 February 5, 2019,EU issued amendment directive (EU) 2019/172		
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 and expires on: — 21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and in dustrial 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.
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.
▼B		
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 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

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▼M53 February 5, 2019,EU issued amendment directive (EU) 2019/177		
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)	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 in dustrial 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.
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	Applies to categories 5 and 8, excluding applications covered by entry 34 of Annex IV, and expires on 21 July 2021.
▼B		
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)	Expires 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)	Expires on 1 June 2011
▼M49 February 5, 2019,EU issued amendment directive (EU) 2019/173		
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 and expires on: — 21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and in dustrial monitoring and control instruments;

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		— 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(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.
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.
▼B		
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
▼M39 May 18, 2018,EU issued amendment directive (EU) 2018/737		
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 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 catego

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		ry 11.
▼B		
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	Expires 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
▼M50 February 5, 2019,EU issued amendment directive (EU) 2019/174		
29	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 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.
▼B		
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)	
▼M51 February 5, 2019,EU issued amendment directive (EU) 2019/175		
32	Lead oxide in seal frit used for making window assemblies	Expires on:

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	for Argon and Krypton laser tubes	— 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.
▼B		
33	Lead in solders for the soldering of thin copper wires of 100 µm diameter and less in power transformers	
▼M40 May 18, 2018,EU issued amendment directive (EU) 2018/738		
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.
▼B		
36	Mercury used as a cathode sputtering inhibitor in DC	Expired on 1 July 2010

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	plasma displays with a content up to 30 mg per display	
▼M52 February 5, 2019,EU issued amendment directive (EU) 2019/176		
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 in dustrial 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.
▼B		
38	Cadmium and cadmium oxide in thick film pastes used on aluminium bonded beryllium oxide	
▼M36 October 31, 2017,EU issued amendment directive (EU) 2017/1975		
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 for all categories on 31 October 2019
▼M2 December 18, 2012,EU issued amendment directive 2012/51/EU		
40	Cadmium in photoresistors for analogue optocouplers applied in professional audio equipment	Expires on 31 December 2013
▼M62 March 5, 2020,EU issued amendment directive (EU) 2020/365		
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,	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 dia

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	SH:2, SH:3 of Directive 97/68/EC of the European Parliament and of the Council	gnostic medical devices and in dustrial monitoring and control instruments; — 21 July 2023 for category 8 in vitro diagnostic medical de vices; — 21 July 2024 for category 9 industrial monitoring and cont rol instruments.
▼M54 February 5, 2019,EU issued amendment directive (EU) 2019/178		
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 6(c) of this Annex. Expires on 21 July 2024.
▼M55 November 5, 2019,EU issued directive (EU) 2019/1845		
43	Bis(2-ethylhexyl) phthalate in rubber components in engine systems, designed for use in equipment that is not intended solely for consumer use and provided that no plasticised material comes into contact with human mucous membranes or into prolonged contact with human skin and the concentration value of bis(2-ethylhexyl) phthalate does not exceed: (a) 30 % by weight of the rubber for(i) gasket coatings; (ii) solid-rubber gaskets; or (iii) rubber components included in assemblies of at least three components using electrical, mechanical or hydraulic energy to do work, and attached to the engine. (b) 10 % by weight of the rubber for rubber-containing components not referred to in point (a). For the purposes of this entry, "prolonged contact with	Applies to category 11 and expires on 21 July 2024.

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	human skin" means continuous contact of more than 10 minutes duration or intermittent contact over a period of 30 minutes, per day.	
▼M56 November 5, 2019,EU issued directive (EU) 2019/1846		
44	Lead in solder of sensors, actuators, and engine control units of combustion engines within the scope of Regulation (EU) 2016/1628 of the European Parliament and of the Council, installed in equipment used at fixed positions while in operation which is designed for professionals, but also used by non-professional users	Applies to category 11 and expires on 21 July 2024.
Amendment directive (EU) 2021 / 647 issued on 20 April 2021		
45	Lead diazide, lead styphnate, lead dipicramate, orange lead (lead tetroxide), lead dioxide in electric and electronic initiators of explosives for civil (professional) use and barium chromate in long time pyrotechnic delay charges of electric initiators of explosives for civil (professional) use	Applies to category 11 and expires on 20 April 2026.

ANNEX IV

Applications exempted from the restriction in Article 4(1) specific to medical devices and monitoring and control instruments

No	Exemption	Scope and dates of applicability
Equipment utilising or detecting ionising radiation :		
1	Lead, cadmium and mercury in detectors for ionising radiation.	
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.	

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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.	
Sensors, detectors and electrodes :		
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.	
Others :		
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.	
▼M11 January 9, 2014,EU issued amendment directive 2014/9/EU		
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.	Expires on 30 June 2021.
▼B		
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.	

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18	Lead in solders of high performance infrared imaging modules to detect in the range 8-14 μm.	
19	Lead in Liquid crystal on silicon (LCoS) displays.	
20	Cadmium in X-ray measurement filters.	
▼M4 January 9, 2014,EU issued amendment directive 2014/2/EU		
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.	
▼M5 January 9, 2014,EU issued amendment directive 2014/3/EU		
22	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.
▼M3 January 9, 2014,EU issued amendment directive 2014/1/EU		
23	Lead as an alloying element for bearings and wear surfaces in medical equipment exposed to ionising radiation.	Expires on 30 June 2021.
▼M6 January 9, 2014,EU issued amendment directive 2014/4/EU		
24	Lead enabling vacuum tight connections between aluminium and steel in X-ray image intensifiers.	Expires on 31 December 2019.
▼M8 January 9, 2014,EU issued amendment directive 2014/6/EU		
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.	Expires on 30 June 2021.
▼M31 June 25, 2016,EU issued amendment directive (EU) 2016/1028		
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	Expires on 30 June 2021.

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	measurement sensors in devices which are designed to be used periodically at temperatures below − 150 °C.	
September 22, 2022, (EU) 2022/1632		
27	Lead in — solders, — termination coatings of electrical and electronic co mponents and printed circuit boards, — connections of electrical wires, shields and enclose d 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. (c) MRI non-integrated coils, for which the Declaration of Conformity of this model is issued for the first time before 23 September 2022, or (d) MRI devices including integrated coils, which are used in magnetic fields within the sphere of 1 m radius around the isocentre of the magnet in medical magnetic resonance imaging equipment, for which the Declaration of Conformity is issued for the first time before 30 June 2024.	Expires on 30 June 2027.
▼M10 January 9, 2014,EU issued amendment directive 2014/8/EU		
28	Lead in solders for mounting cadmium telluride and cadmium zinc telluride digital array detectors to printed circuit boards.	Expires on 31 December 2017.
▼M12 January 9, 2014,EU issued amendment directive 2014/10/EU		
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.	Expires on 30 June 2021.
▼M13 January 9, 2014,EU issued amendment directive 2014/11/EU		

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30	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.	
▼M30 April 16, 2016,EU issued amendment directive (EU) 2016/585		
31a	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.
▼M14 January 9, 2014,EU issued amendment directive 2014/12/EU		
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.	Expires on 31 December 2019.
▼M15 January 9, 2014,EU issued amendment directive 2014/13/EU		
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.	Expires on 30 June 2016 for class IIa and on 31 December 2020 for class IIb.
▼M18 January 9, 2014,EU issued amendment directive 2014/16/EU		
34	Lead as an activator in the fluorescent powder of discharge lamps when used for extracorporeal photopheresis lamps containing BSP (BaSi2O5:Pb) phosphors.	Expires on 22 July 2021.
▼M25 May 20, 2014,EU issued amendment directive 2014/75/EU		
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	Expires on 21 July 2024.
▼M24 May 20, 2014,EU issued amendment directive 2014/74/EU		
36	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

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		before 1 January 2021.
▼M57 March 5, 2020,EU issued amendment directive (EU) 2020/360		
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.	Expires on 31 December 2025.
▼M21 May 20, 2014,EU issued amendment directive 2014/71/EU		
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.	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.
▼M20 May 20, 2014,EU issued amendment directive 2014/70/EU		
39	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.	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.

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	(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 $4,0 \times 10^7$.	
▼M19 May 20, 2014,EU issued amendment directive 2014/69/EU		
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.
▼M61 March 5, 2020,EU issued amendment directive (EU) 2020/366		
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.	Expires on 31 March 2022.
▼M28 April 10, 2015,EU issued amendment directive (EU) 2015/574 **▼M63 June 2, 2021, (EU) 2021/884**		
42	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 2026.
▼M32 June 25, 2016,EU issued amendment directive (EU) 2016/1029		
43	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.
▼M59 May 3, 2020, (EU) 2020/364		
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.	Applies to category 9. Expires on 31 March 2027.
Amendment directive (EU) 2021 / 1980 issued on November 15, 2021		
45	Bis(2-ethylhexyl) phthalate (DEHP) in ion-selective electrodes applied in point of care analysis of ionic substances present in human body fluids and/or in	Expires on 21 July 2028

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	dialysate fluids	
Amendment directive (EU) 2021 / 1979 issued on November 15, 2021		
46	Bis(2-ethylhexyl) phthalate (DEHP) in plastic components in MRI detector coils	Expires on 1 January 2024
Amendment directive (EU) 2021 / 1978 issued on November 15, 2021		
47	Bis(2-ethylhexyl) phthalate (DEHP), butyl benzyl phthalate (BBP), dibutyl phthalate (DBP) and diisobutyl phthalate (DIBP) in spare parts recovered from and used for the repair or refurbishment of medical devices, including in vitro diagnostic medical devices, 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 21 July 2028
September 22, 2022, (EU) 2022/1631		
48	Lead in bismuth strontium calcium copper oxide (BSCCO) superconductor cables and wires and lead in electrical connections to these wires.	Expires on 30 June 2027.
July 12, 2023, (EU) 2023/1437		
49	Mercury in melt pressure transducers for capillary rheometers at temperatures over 300°C and pressures over 1000bar.	Applies to category 9 and expires on 31 December 2025.

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