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

March 11, 2020 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 39 entries in RoHS 2.0 Annex III and 20 entries in Annex IV.

9 January 2014, EU Commission published multiple amendments to DIRECTIVE 2011/65/EU (RoHS 2.0), newly added 14 entries to Annex IV. And from 20 May 2014 news, 8 amendments are officially added to Directive 2011/65/EU (RoHS 2.0).

16 April 2016, EU amended the 31st entry of Annex IV of RoHS 2.0, according to (EU) 2016/585, in Annex IV to Directive 2011/65/EU, point 31 is deleted and point 31a is added.

On 25 June 2016, the Official Journal of the European Union has published Commission Delegated Directives (EU) 2016/1028 to amend point 26 as regards an exemption on lead and (EU) 2016/1029 to add point 43 as regards an exemption on cadmium. Up to July 2016, there are totally 41 entries in Annex III and 43 in Annex IV.

18 May 2018, Official Journal of the European Union published 7 amendments （EU）2018/736,（EU）2018/737,（EU）2018/738,（EU）2018/739,（EU）2018/740,（EU）2018/741 and （EU）2018/742 amending Annex III to Directive 2011/65/EU of the European Parliament and of the Council as regards to the Entry 6(a), 6(a)-I, 6(b), 6(b)-I, 6(b)-II, 6(c), 7(a), 7(c)-I, 24 and 34.

16 Nov 2018, the Official Journal of European Union published Document C(2018)7495, C(2018)7499, C(2018)7505 to C(2018)7509, C(2018)7520, C(2018)7523, C(2018)7525, amending the exemption for lead and Cadmium content in the Annex III of EU RoHS Directive.

On Feb. 05, 2019, the Official Journal of European Union published Directive (EU) 2019/169 to (EU) 2019/178 of 16 Nov. 2018 amending, the 10 Directives will take effective from Feb. 25, 2019.

On November 5, 2019, the Official Journal of European Union published Directive (EU) 2019/1845, (EU) 2019/1846, the point 43 and 44 are added in Annex III, the 2 Directives will take effective from November 25, 2019.

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EEE products HCT-202003-04

On March 5, 2020, the EU Official Gazette issued five RoHS amendment directives: (EU) 2020/360, (EU) 2020/361, (EU) 2020/364, (EU) 2020/365, (EU) 2020/366 to amend the lead, cadmium and hexavalent chromium exemptions for certain uses in Annexes III and IV of the RoHS Directive. These five amendments will take effect on March 25, 2020.

Belows are the newest exemption lists of RoHS 2.0, words marked blue are those exemptions that were expired.

ANNEX III

Exemption		Scope and dates of applicability
1	Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
1(a)	For general lighting purposes < 30 W: 5 mg	Expires on 31 December 2011; 3,5 mg may be used per burner after 31 December 2011 until 31 December 2012; 2,5 mg shall be used per burner after 31 December 2012
1(b)	For general lighting purposes ≥ 30 W and < 50 W: 5 mg	Expires on 31 December 2011; 3,5 mg may be used per burner after 31 December 2011
1(c)	For general lighting purposes ≥ 50 W and < 150 W: 5 mg	The exemption apply until 21 July 2016 for a maximum validity period
1(d)	For general lighting purposes ≥ 150 W: 15 mg	The exemption apply until 21 July 2016 for a maximum validity period
1(e)	For general lighting purposes with circular or square structural shape and tube diameter ≤ 17 mm	No limitation of use until 31 December 2011; 7 mg may be used per burner after 31 December 2011
1(f)	For special purposes: 5 mg	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
1(g)	For general lighting purposes < 30 W with a lifetime equal or above 20 000 h: 3,5 mg	Expires on 31 December 2017
2(a)	Mercury in double-capped linear fluorescent lamps for general lighting purposes not exceeding (per lamp):	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
2(a)-I	Tri-band phosphor with normal lifetime and a tube diameter < 9 mm (e.g. T2): 5 mg	Expires on 31 December 2011; 4 mg may be used per lamp after 31 December 2011
2(a)-II	Tri-band phosphor with normal lifetime and a tube diameter ≥ 9 mm and ≤ 17 mm (e.g. T5): 5 mg	Expires on 31 December 2011; 3 mg may be used per lamp after 31 December 2011

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2(a)-III	Tri-band phosphor with normal lifetime and a tube diameter > 17 mm and ≤ 28 mm (e.g. T8): 5 mg	Expires on 31 December 2011; 3,5 mg may be used per lamp after 31 December 2011
2(a)-IV	Tri-band phosphor with normal lifetime and a tube diameter > 28 mm (e.g. T12): 5 mg	Expires on 31 December 2012; 3,5 mg may be used per lamp after 31 December 2012
2(a)-V	Tri-band phosphor with long lifetime (≥ 25 000 h): 8 mg	Expires on 31 December 2011; 5 mg may be used per lamp after 31 December 2011
2(b)	Mercury in other fluorescent lamps not exceeding (per lamp):	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
2(b)-I	Linear halophosphate lamps with tube > 28 mm (e.g. T10 and T12): 10 mg	Expires on 13 April 2012
2(b)-II	Non-linear halophosphate lamps (all diameters): 15 mg	Expires on 13 April 2016
2(b)-III	Non-linear tri-band phosphor lamps with tube diameter > 17 mm (e.g. T9)	No limitation of use until 31 December 2011; 15 mg may be used per lamp after 31 December 2011
2(b)-IV	Lamps for other general lighting and special purposes (e.g. induction lamps)	No limitation of use until 31 December 2011; 15 mg may be used per lamp after 31 December 2011
3	Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes not exceeding (per lamp):	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
3(a)	Short length (≤ 500 mm)	No limitation of use until 31 December 2011; 3.5 mg may be used per lamp after 31 December 2011
3(b)	Medium length (> 500 mm and ≤ 1 500 mm)	No limitation of use until 31 December 2011; 5 mg may be used per lamp after 31 December 2011
3(c)	Long length (> 1 500 mm)	No limitation of use until 31 December 2011; 13 mg may be used per lamp after 31 December 2011
4(a)	Mercury in other low pressure discharge lamps (per lamp)	No limitation of use until 31 December 2011; 15 mg may be used per lamp after 31 December 2011
4(b)	Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner)	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed

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	in lamps with improved colour rendering index Ra > 60:	only on request after assessment.
4(b)-I	P≤155 W	No limitation of use until 31 December 2011; 30 mg may be used per burner after 31 December 2011
4(b)-II	155W<P≤405W	No limitation of use until 31 December 2011; 40 mg may be used per burner after 31 December 2011
4(b)-III	P>405W	No limitation of use until 31 December 2011; 40 mg may be used per burner after 31 December 2011
4(c)	Mercury in other High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner):	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
4(c)-I	P≤155 W	No limitation of use until 31 December 2011; 25 mg may be used per burner after 31 December 2011
4(c)-II	155W<P≤405W	No limitation of use until 31 December 2011; 30 mg may be used per burner after 31 December 2011
4(c)-III	P>405W	No limitation of use until 31 December 2011; 40 mg may be used per burner after 31 December 2011
4(d)	Mercury in High Pressure Mercury (vapour) lamps (HPMV)	Expires on 13 April 2015
4(e)	Mercury in metal halide lamps (MH)	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
4(f)	Mercury in other discharge lamps for special purposes not specifically mentioned in this Annex	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
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	Expires on 31 December 2018

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	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	
5(a)	Lead in glass of cathode ray tubes	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
5(b)	Lead in glass of fluorescent tubes not exceeding 0,2 % by weight	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
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.
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 aluminium scrap recycling	Expires on 21 July 2021 for categories 1-7 and 10.
6(b)-II	Lead as an alloying element in aluminium for machining purposes with a lead content up to 0,4 %	Expires on 18 May 2021 for categories 1-7 and 10.

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	by weight	
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.
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 expire on 21 July 2024.
7(b)	Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission, and network management for telecommunications	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
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 expire on 21 July

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		2024.
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 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.
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
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 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.
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
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 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.
8(b)-I	Cadmium and its compounds in electrical contacts	Applies to categories 1 to 7 and 10 and expires on

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	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.	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.	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.
9(a)-I	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. (including minibars) designed to operate fully or partly with electrical heater, having an average utilised power input < 75 W at constant running conditions.	Applies to categories 1-7 and 10 and expires on 5 March 2021.
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 heater, 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.

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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 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
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
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	
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	Applies to categories 8, 9 and 11 and expires on:

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	connection between semiconductor die and carrier within integrated circuit flip chip packages	-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.
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 300mm^2 or larger in any semiconductor technology node; -stacked die packages with die of 300mm^2 or larger, or silicon interposers of 300mm^2 or larger.	Applies to categories 1 to 7 and 10 and expires on 21 Jul. 2021.
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	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
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) 2 MgSi 2 O 7 :Pb)	Expired on 1 January 2011
18(b)	Lead as activator in the fluorescent powder (1 % lead by weight or less) of discharge lamps when used as sun tanning lamps containing phosphors such as BSP (BaSi 2 O 5 :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.

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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.
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
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 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.
21(a)	Cadmium when used in color 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.
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 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

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		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	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
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
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.
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	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
31	Lead in soldering materials in mercury free flat fluorescent lamps (which, e.g. are used for liquid crystal displays, design or industrial lighting)	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
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;

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		-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	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
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 vitrodiagnostic 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 on 1 July 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 aluminium bonded beryllium oxide	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
39	Cadmium in colour converting II-VI LEDs (< 10 µg Cd per mm 2 of light-emitting area) for use in solid state illumination or display systems	Expired on 1 July 2014
40	Cadmium in photoresistors for analogue optocouplers applied in professional audio equipment	Expires on 31 December 2013
41	Lead in solders and termination finishes of electrical	Applies to all categories and expires on:

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	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.	—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 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.
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).	Applies to category 11 and expires on 21 July 2024.

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	For the purposes of this entry, “prolonged contact with human skin” means continuous contact of more than 10 minutes duration or intermittent contact over a period of 30 minutes, per day.	
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 (*1), 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.

ANNEX IV

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

No	SCOPE	DATE OF EXPIRED
1.	Lead, cadmium and mercury in detectors for ionising radiation.	The exemption apply until 21 July 2018 for a maximum validity period, and may be renewed only on request after assessment.
2.	Lead bearings in X-ray tubes	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
3.	Lead in electromagnetic radiation amplification devices: micro-channel plate and capillary plate	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
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.	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
5.	Lead in shielding for ionising radiation	The exemption apply until 21 July 2016 for a

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		maximum validity period, and may be renewed only on request after assessment.
6.	Lead in X-ray test objects	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
7.	Lead stearate X-ray diffraction crystals	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
8.	Radioactive cadmium isotope source for portable X-ray fluorescence spectrometers	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
Sensors, detectors and electrodes		
1a.	Lead and cadmium in ion selective electrodes including glass of pH electrodes	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
1b.	Lead anodes in electrochemical oxygen sensors	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
1c.	Lead, cadmium and mercury in infra-red light detectors	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
1d.	Mercury in reference electrodes: low chloride mercury chloride, mercury sulphate and mercury oxide. Others	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
Others		
9.	Cadmium in helium-cadmium lasers	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
10.	Lead and cadmium in atomic absorption spectroscopy lamps	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
11.	Lead in alloys as a superconductor and thermal conductor in MRI	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed

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		only on request after assessment.
12.	Lead and cadmium in metallic bonds to superconducting materials in MRI and SQUID detectors	Expires on 30 June 2021
13.	Lead in counterweights	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
14.	Lead in single crystal piezoelectric materials for ultrasonic transducers	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
15.	Lead in solders for bonding to ultrasonic transducers	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
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	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
17.	Lead in solders in portable emergency defibrillators	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
18.	Lead in solders of high performance infrared imaging modules to detect in the range 8-14 μm	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
19.	Lead in Liquid crystal on silicon (LCoS) displays	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
20.	Cadmium in X-ray measurement filters	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
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	The exemption apply until 21 July 2016 for a maximum validity period, and may be renewed only on request after assessment.
22.	Lead acetate marker for use in stereotactic head frames for use with CT and MRI and in positioning systems for	Expires on 30 June 2021

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	gamma beam and particle therapy equipment.	
23.	Lead as an alloying element for bearings and wear surfaces in medical equipment exposed to ionising radiation.	Expires on 30 June 2021
24.	Lead enabling vacuum tight connections between aluminium and steel in X-ray image intensifiers.	Expires on 31 December 2019
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
26.	'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.	Expire on 30 June 2021
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 iso centre of the magnet in medical magnetic resonance imaging equipment, including patient monitors designed to be used within this sphere, or (b) magnetic fields within 1 m distance from the external surfaces of cyclotron magnets, magnets for beam transport and beam direction control applied for particle therapy.	Expires on 30 June 2020
28.	Lead in solders for mounting cadmium telluride and	Expires on 31 December 2017

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	cadmium zinc telluride digital array detectors to printed circuit boards.	
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
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	
~~31.~~	~~Lead, cadmium and hexavalent chromium in reused spare parts, recovered from medical devices placed on the market before 22 July 2014 and used in category 8 equipment placed on the market before 22 July 2021, provided that reuse takes place in auditable closed-loop business-to-business return systems, and that the reuse of parts is notified to the consumer.~~	~~Expires on 21 July 2021~~
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
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
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
34.	Lead as an activator in the fluorescent powder of discharge lamps when used for extracorporeal photopheresis lamps containing BSP (BaSi 2 O 5 :Pb)	Expires on 22 July 2021

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	phosphors.	
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
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 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.	Expires on 31 December 2025.
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
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;	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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	(b) a two-dimensional spatial resolution for detecting electrons or ions, where at least one of the following applies: (i) a response time shorter than 25 ns; (ii) a sample detection area larger than 149 mm^2; (iii) a multiplication factor larger than $1,3 \times 10^3$. (c) a response time shorter than 5 ns for detecting electrons or ions; (d) a sample detection area larger than 314 mm^2 for detecting electrons or ions; (e) a multiplication factor larger than $4,0 \times 10^7$.	
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.	Expires on 31 March 2022.
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.
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.

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