



## Exemption in ANNEX III & ANNEX IV of 2011/65/EU (RoHS Directive)

### RoHS 2.0 附件 III 以及附件 IV 豁免清单

#### Article 4

1. Member States shall ensure that EEE placed on the market, including cables and spare parts for its repair, its reuse, updating of its functionalities or upgrading of its capacity, does not contain the substances listed in Annex II.

规定成员国应确保投放市场的电子电气设备，包括电缆，其维修部件，或再利用，或者升级其功能/容量的部件不含有附件 II 中所列的物质

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产品类别：

1. Large household appliances. 大型家用设备
2. Small household appliances. 小型家用设备
3. IT and telecommunications equipment. 信息技术和远程通信设备
4. Consumer equipment. 消费设备
5. Lighting equipment. 照明设备
6. Electrical and electronic tools. 电气电子工具
7. Toys, leisure and sports equipment. 玩具，休闲和运动设备
8. Medical devices. 医疗器械
9. Monitoring and control instruments including industrial monitoring and control instruments. 监测和控制设备，包括工业监测和控制设备
10. Automatic dispensers. 自动贩卖机
11. Other EEE not covered by any of the categories above. 其他不在上述范围类的电气电子产品



Article 4(3) : Paragraph 1 shall apply to medical devices and monitoring and control instruments which are placed on the market from 22 July 2014, to in vitro diagnostic medical devices which are placed on the market from 22 July 2016 and to industrial monitoring and control instruments which are placed on the market from 22 July 2017, and to all other EEE that was outside the scope of Directive 2002/95/EC and which is placed on the market from 22 July 2019.-Amended by [ (EU) 2017/2102]

Article 4(3): 2014 年 7 月 22 日开始管控医疗设备和监控设备, 2016 年 7 月 22 日开始管控体外诊断医疗器械, 2017 年 7 月 22 日开始管控工业监测和控制设备, 2019 年 7 月 22 日开始管控不在 2002/95/EC 范围内的其他电子电器。

#### Article 5

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2. Measures adopted in accordance with point (a) of paragraph 1 shall, for categories 1 to 7, 10 and 11 of Annex I, have a validity period of up to 5 years and, for categories 8 and 9 of Annex I, a validity period of up to 7 years. The validity periods are to be decided on a case-by-case basis and may be renewed.

For the exemptions listed in Annex III as at 21 July 2011, unless a shorter period is specified, the maximum validity period, which may be renewed, shall be:

(a) for categories 1 to 7 and category 10 of Annex I, 5 years from 21 July 2011;

(b) for categories 8 and 9 of Annex I, 7 years from the relevant dates laid down in Article 4(3); and

(c) for category 11 of Annex I, 5 years from 22 July 2019. -Amended by [ (EU) 2017/2102]

针对附件 I 中的 1-7,10 和 11 类产品的有效期为 5 年, 第 8 和 9 类产品的有效期为 7 年, 有效期的设定根据具体案例而定并且有可能更新。

针对 2011 年 7 月 21 日列入附件 III 中的豁免, 除非给出更短的有效期, 否则, 针对附件 I 中 1-7 类以及 10 类产品, 其最长的有效期为从 2011 年 7 月 21 日开始计算的 5 年; 针对附件 I 中 8 和 9 类产品, 其有效期为 Article 4(3) 中所述相关时间开始计的 7 年; 针对附件 I 中第 11 类产品, 最长有效期为从 2019 年 7 月 22 日开始计算的 5 年。

For the exemptions listed in Annex IV as at 21 July 2011, the maximum validity period, which may be renewed, shall be 7 years from the relevant dates laid down in Article 4(3), unless a shorter period is specified.

2011 年 7 月 21 日附件 IV 中所列的豁免, 其有效期为 Article 4(3) 中所述相关时间开始计的 7 年, 除非有指出特别更短的有效期。

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## ANNEX III

## Applications exempted from the restriction in Article 4(1)

Exemption		Scope and dates of applicability
1	Mercury in single capped (compact) fluorescent lamps not exceeding (per burner): 单端紧凑荧光灯每灯管中的汞含量不得超过:	
1(a)	For general lighting purposes < 30 W: 5 mg 一般用途照明, <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 到期日为 2011 年 12 月 31 日; 单管含量不超过 3.5 mg 的灯可使用到 2012 年 12 月 31 日; 2012 年 12 月 31 日之后单管含量不得超过 2.5 mg。
1(b)	For general lighting purposes $\geq$ 30 W and < 50 W: 5 mg 一般用途照明, $\geq$ 30W, <50 W: 5 mg	Expires on 31 December 2011; 3,5 mg may be used per burner after 31 December 2011 到期日为 2011 年 12 月 31 日; 单管含量不超过 3.5 mg 的灯可在 2011 年 12 月 31 日之后使用。
1(c)	For general lighting purposes $\geq$ 50 W and < 150 W: 5 mg 一般用途照明, $\geq$ 50W, <150 W: 5 mg	
1(d)	For general lighting purposes $\geq$ 150 W: 15 mg 一般用途照明, $\geq$ 150W: 15 mg	



1(e)	For general lighting purposes with circular or square structural shape and tube diameter $\leq 17$ mm 一般用途照明，具有圆形或方形结构，灯管直径 $\leq 17$ mm	No limitation of use until 31 December 2011; 7 mg may be used per burner after 31 December 2011 在 2011 年 12 月 31 日前无限制；在 2011 年 12 月 31 日之后每灯管不得超过 7 mg。
1(f)	For special purposes: 5 mg 特殊用途：5 mg	
1(g)	For general lighting purposes < 30 W with a lifetime equal or above 20 000 h: 3,5 mg 1(g) 普通照明用<30W，寿命 $\geq 20000$ h：3.5 mg	Expires on 31 December 2017 *Amended by[2014/14/EU] 2017 年 12 月 31 日到期
2(a)	Mercury in double-capped linear fluorescent lamps for general lighting purposes not exceeding (per lamp): 一般用途双端直式荧光灯每灯汞含量不超过：	
2(a)(1)	Tri-band phosphor with normal lifetime and a tube diameter < 9 mm (e.g. T2): 5 mg 正常使用寿命的三基色荧光灯，灯管直径<9mm（例如 T2）：5mg	Expires on 31 December 2011; 4 mg may be used per lamp after 31 December 2011 可使用至 2011 年 12 月 31 日；2011 年 12 月 31 日之后不得超过 4 mg 每灯；
2(a)(2)	Tri-band phosphor with normal lifetime and a tube diameter $\geq 9$ mm and $\leq 17$ mm (e.g. T5): 5 mg 正常使用寿命的三基色荧光灯，9 mm $\leq$ 灯管直径 $\leq 17$ mm（例如 T5）：5mg	Expires on 31 December 2011; 3 mg may be used per lamp after 31 December 2011 可使用至 2011 年 12 月 31 日；2011 年 12 月 31 日之后不得超过 3 mg 每灯；
2(a)(3)	Tri-band phosphor with normal lifetime and a tube diameter > 17 mm and $\leq 28$ mm (e.g. T8): 5 mg	Expires on 31 December 2011; 3,5 mg may be



	正常使用寿命的三基色荧光灯，17 mm<灯管直径≤28 mm（例如 T8）：5mg	used per lamp after 31 December 2011 可使用至 2011 年 12 月 31 日；2011 年 12 月 31 日之后不得超过 3.5 mg 每灯；
2(a)(4)	Tri-band phosphor with normal lifetime and a tube diameter > 28 mm (e.g. T12): 5 mg 正常使用寿命的三基色荧光灯，28 mm<灯管直径（例如 T12）：5mg	Expires on 31 December 2012; 3,5 mg may be used per lamp after 31 December 2012 可使用至 2012 年 12 月 31 日；2012 年 12 月 31 日之后不得超过 3.5 mg 每灯；
2(a)(5)	Tri-band phosphor with long lifetime (≥ 25 000 h): 8 mg 长寿命的三基色荧光灯（寿命≥25000 h）：8mg	Expires on 31 December 2011; 5 mg may be used per lamp after 31 December 2011 可使用至 2011 年 12 月 31 日；2011 年 12 月 31 日之后不得超过 5 mg 每灯；
2(b)	Mercury in other fluorescent lamps not exceeding (per lamp): 其它荧光灯中的汞含量不超过（每灯）：	
2(b)(1)	Linear halophosphate lamps with tube > 28 mm (e.g. T10 and T12): 10 mg 直线型卤磷酸盐灯管直径>28 mm（例如 T10 和 T12）：10 mg	Expires on 13 April 2012 使用到 2012 年 4 月 13 日
2(b)(2)	Non-linear halophosphate lamps (all diameters): 15 mg 非直线型卤磷酸盐灯（所有直径）：15 mg	Expires on 13 April 2016 使用到 2016 年 4 月 13 日
2(b)(3)	Non-linear tri-band phosphor lamps with tube diameter > 17 mm (e.g. T9) 非直线型三基色荧光灯，灯管直径>17 mm（例如 T9）	No limitation of use until 31 December 2011; 15 mg may be used per lamp after 31 December 2011 2011 年 12 月 31 日前无限制；2011 年 12 月 31 日后不得超过 15 mg。



2(b)(4)	Lamps for other general lighting and special purposes (e.g. induction lamps) 其它一般用途照明和特殊用途的灯（例如感应灯）	No limitation of use until 31 December 2011; 15 mg may be used per lamp after 31 December 2011 2011 年 12 月 31 日前无限制；2011 年 12 月 31 日后不得超过 15 mg。
3	Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes not exceeding (per lamp): 特殊用途的冷阴极荧光灯和外置电极荧光灯（CCFL 和 EEFL）中汞含量不超过（每灯）：	
3(a)	Short length ( $\leq 500$ mm) 短尺寸（ $\leq 500$ mm）	No limitation of use until 31 December 2011; 3,5 mg may be used per lamp after 31 December 2011 2011 年 12 月 31 日前无限制；2011 年 12 月 31 日后不得超过 3.5 mg
3(b)	Medium length ( $> 500$ mm and $\leq 1\,500$ mm) 中等长度（ $> 500$ mm 但是 $\leq 1\,500$ mm）	No limitation of use until 31 December 2011; 5 mg may be used per lamp after 31 December 2011 2011 年 12 月 31 日前无限制；2011 年 12 月 31 日后不得超过 5 mg
3(c)	Long length ( $> 1\,500$ mm) 长的（ $> 1\,500$ mm）	No limitation of use until 31 December 2011; 13 mg may be used per lamp after 31 December 2011 2011 年 12 月 31 日前无限制；2011 年 12 月 31 日后不得超过 13 mg



4(a)	Mercury in other low pressure discharge lamps (per lamp) 其它低压放电灯中的汞含量（每灯）：	No limitation of use until 31 December 2011; 15 mg may be used per lamp after 31 December 2011 2011年12月31日前无限制；2011年12月31日后不得超过15 mg
4(b)	Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner) in lamps with improved colour rendering index $R_a > 60$ : 一般用途经过改良的彩色再现指数 $R_a > 60$ 的高压钠灯（蒸气）中汞含量（每灯管）不超过：	
4(b)-I	$P \leq 155 \text{ W}$ $P \leq 155 \text{ W}$	No limitation of use until 31 December 2011; 30 mg may be used per burner after 31 December 2011 2011年12月31日前无限制；2011年12月31日后不得超过30 mg
4(b)-II	$155 \text{ W} < P \leq 405 \text{ W}$ $155 \text{ W} < P \leq 405 \text{ W}$	No limitation of use until 31 December 2011; 40 mg may be used per burner after 31 December 2011 2011年12月31日前无限制；2011年12月31日后不得超过40 mg
4(b)-III	$P > 405 \text{ W}$ $P > 405 \text{ W}$	No limitation of use until 31 December 2011; 40 mg may be used per burner after 31 December 2011 2011年12月31日前无限制；2011年12月31日后不得超过40 mg



4(c)	Mercury in other High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner): 其它一般用途高压钠灯（蒸气）中汞含量（每灯管）不超过：	
4(c)-I	$P \leq 155 \text{ W}$ $P \leq 155 \text{ W}$	No limitation of use until 31 December 2011; 25 mg may be used per burner after 31 December 2011 2011年12月31日前无限制；2011年12月31日后不得超过25 mg
4(c)-II	$155 \text{ W} < P \leq 405 \text{ W}$ $155 \text{ W} < P \leq 405 \text{ W}$	No limitation of use until 31 December 2011; 30 mg may be used per burner after 31 December 2011 2011年12月31日前无限制；2011年12月31日后不得超过30 mg
4(c)-III	$P > 405 \text{ W}$ $P > 405 \text{ W}$	No limitation of use until 31 December 2011; 40 mg may be used per burner after 31 December 2011 2011年12月31日前无限制；2011年12月31日后不得超过40 mg
4(d)	Mercury in High Pressure Mercury (vapour) lamps (HPMV) 高压汞灯（蒸气）中（HPMV）的汞	Expires on 13 April 2015 到期日 2015年4月13日
4(e)	Mercury in metal halide lamps (MH) 金属卤化物灯（MH）中的汞	





4(f)	Mercury in other discharge lamps for special purposes not specifically mentioned in this Annex 其它本附件没有特别说明的特殊用途的放电灯中的汞	
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. 豁免用于标志、装饰或建筑，以及专业照明和轻工艺术品的手工制作发光放电管(HLDTs)中的汞限量如下： (a) 20mg 每电极对+0.3mg 每 cm 灯管长度，但不得超过 80mg，针对暴露在 20℃以下使用的户外以及室内的应用设备。 (b) 15mg 每电极对+0.24mg 每 cm 灯管长度，但不得超过 80mg，针对所有其他的室内设备。	Expires on 31 December 2018 *Amended by [2014/76/EU] 直至 2018 年 12 月 31 日
5(a)	Lead in glass of cathode ray tubes 阴极射线管玻璃中的铅	
5(b)	Lead in glass of fluorescent tubes not exceeding 0,2 % by weight 荧光管玻璃中铅的含量不超过 0.2 % (Wt)	
6(a)	Lead as an alloying element in steel for machining purposes and in galvanised steel containing up to 0,35 % lead by weight 铅作为一种合金元素，在用于加工的钢和镀锌钢中铅含量不超过 0.35 % (Wt)。	-
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



	<p>铅作为一种合金元素，在用于加工的钢和镀锌钢中铅含量不超过 0.35 % (Wt)。</p>	<p>in vitro diagnostic medical devices and industrial monitoring and control instruments;</p> <ul style="list-style-type: none"> <li>—21 July 2023 for category 8 in vitro diagnostic medical devices;</li> <li>—21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.</li> </ul> <p>*Amended by [(EU)2018/739]</p> <p>截止至:</p> <ul style="list-style-type: none"> <li>—除体外诊断医疗器械和工业监控设备以外的第 8 类和第 9 类产品: 截止至 2021 年 7 月 21 日</li> <li>—第 8 类体外诊断医疗器械: 截止至 2023 年 7 月 21 日</li> <li>—第 9 类工业监控设备及第 11 类产品: 截止至 2024 年 7 月 21 日</li> </ul>
6(a)-I	<p>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</p> <p>用于机械加工目的的钢材中，铅作为合金元素含量最高达到 0.35% (Wt)，以及批量热处理镀锌钢组件中的铅含量最高达到 0.2% (Wt)</p>	<p>Expires on 21 July 2021 for categories 1-7 and 10.</p> <p>*Amended by [(EU)2018/739]</p> <p>第 1-7 类和第 10 类产品: 截止至 2021 年 7 月 21 日</p>
6(b)	<p>Lead as an alloying element in aluminium containing up to 0,4 % lead by weight</p> <p>铅作为一种合金元素，在铝合金中铅含量不超过 0.4%。</p>	-
6(b)	<p>Lead as an alloying element in aluminium containing up to 0,4 % lead by weight</p>	Expires on:



	<p>铅作为一种合金元素，在铝合金中铅含量不超过 0.4 %。</p>	<p>—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.          *Amended by [(EU)2018/740]          截止至：          —除体外诊断医疗器械和工业监控设备以外的第 8 类和第 9 类产品：截止至 2021 年 7 月 21 日          —第 8 类体外诊断医疗器械：截止至 2023 年 7 月 21 日          —第 9 类工业监控设备及第 11 类产品：截止至 2024 年 7 月 21 日</p>
6(b)-I	<p>Lead as an alloying element in aluminium containing up to 0,4 % lead by weight, provided it stems from lead-bearing aluminium scrap recycling          铅作为一种合金元素，在铝合金中的含量高达 0.4%，基于含铅废铝回收</p>	<p>Expires on 21 July 2021 for categories 1-7 and 10.          *Amended by [(EU)2018/740]          第 1-7 类和第 10 类产品，截止至 2021 年 7 月 21 日</p>
6(b)-II	<p>Lead as an alloying element in aluminium for machining purposes with a lead content up to 0,4 % by weight</p>	<p>Expires on 18 May 2021 for categories 1-7 and 10.          *Amended by [(EU)2018/740]</p>



	用于机械加工目的的铝合金，铅作为一种合金元素含量高达 0.4%	第 1-7 类和第 10 类产品，截止至 2021 年 5 月 18 日
6(c)	<del>Copper alloy containing up to 4 % lead by weight</del> 在铜合金中铅含量不超过 4 %。	-
6(c)	Copper alloy containing up to 4 % lead by weight 在铜合金中铅含量不超过 4 %；	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. *Amended by [(EU)2018/741] 截止至： —第 1-7 类及第 10 类产品：2021 年 7 月 21 日 —除体外诊断医疗器械和工业监控设备以外的第 8 类和第 9 类产品：2021 年 7 月 21 日 —第 8 类体外诊断医疗器械：2023 年 7 月 21 日 —第 9 类工业监控设备及第 11 类产品：2024 年 7 月 21 日



7(a)	<p>Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead)</p> <p>高熔融温度型焊料中的铅（例如：铅基合金中铅含量<math>\geq</math>85%）；</p>	
7(a)	<p>Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead)</p> <p>高熔融温度型焊料中的铅（例如：铅基合金中铅含量<math>\geq</math>85%）；</p>	<p>Applies to categories 1-7 and 10 (except applications covered by point 24 of this Annex) and expires on 21 July 2021.</p> <p>For categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments expires on 21 July 2021.</p> <p>For category 8 in vitro diagnostic medical devices expires on 21 July 2023.</p> <p>For category 9 industrial monitoring and control instruments, and for category 11 expires on 21 July 2024.</p> <p>*Amended by [(EU)2018/742]</p> <p>第 1-7 类及第 10 类产品, 点 24 涵盖的电器产品除外: 截止至 2021 年 7 月 21 日</p> <p>除体外诊断医疗器械和工业监控设备以外的第 8 类和第 9 类产品: 截止至 2021 年 7 月 21 日</p> <p>第 8 类体外诊断医疗器械: 截止至 2023 年 7 月 21 日</p> <p>第 9 类工业监控设备及第 11 类产品: 截止至 2024 年 7 月 21 日</p>



7(b)	<p>Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission, and network management for telecommunications</p> <p>用于服务器、存储器和存储阵列系统的焊料中的铅；用于交换、信号生成和传输，以及电信网络管理的网络基础设施设备内的焊料中的铅；</p>	
7(c)-I	<p><del>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</del></p> <p><del>电子电气器件的玻璃或陶瓷（电容中介电陶瓷除外）中的铅，或玻璃或陶瓷复合材料中的铅（例如：压电陶瓷器件）；</del></p>	
7(c)-I	<p>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</p> <p>电子电气器件的玻璃或陶瓷（电容中介电陶瓷除外）中的铅，或玻璃或陶瓷复合材料中的铅（例如：压电陶瓷器件）；</p>	<p>Applies to categories 1-7 and 10 (except applications covered under point 34) and expires on 21 July 2021.</p> <p>For categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments expires on 21 July 2021.</p> <p>For category 8 in vitro diagnostic medical devices expires on 21 July 2023.</p> <p>For category 9 industrial monitoring and control instruments, and for category 11 expires on 21 July 2024.</p> <p>*Amended by [(EU)2018/736]</p> <p>第 1-7 可及第 10 类产品, 点 34 涵盖的电器产品除外: 截止至 2021 年 7 月 21 日</p>



		除体外诊断医疗器械和工业监控设备以外的第 8 类和第 9 类产品：截止至 2021 年 7 月 21 日 第 8 类体外诊断医疗器械：截止至 2023 年 7 月 21 日 第 9 类工业监控设备及第 11 类产品：截止至 2024 年 7 月 21 日
7(c)-II	Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher 额定交流电压 125V 以上或直流电压 250V 以上的电容中介电陶瓷中的铅；	
7(c)-III	Lead in dielectric ceramic in capacitors for a rated voltage of less than 125 V AC or 250 V DC 额定交流电压 125V 以下或直流电压 250V 以下的电容中介电陶瓷中的铅；	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 到期日 2013 年 1 月 1 日，之后，只能用于 2013 年 1 月 1 日以前投放市场的电子电气产品的备件；
7(c)-IV	Lead in PZT based dielectric ceramic materials for capacitors which are part of integrated circuits or discrete semiconductors 以锆钛酸铅（PZT）为基础的介电陶瓷材料的电容器的铅，该电容器为集成电路或分立半导体的组成部分	Expires on 21 July 2016 *Amended by [2012/50/EU] 豁免至 2016 年 7 月 21 日
8(a)	Cadmium and its compounds in one shot pellet type thermal cut-offs 一次性的球型热熔断体中的镉及其化合物；	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 到期日 2012 年 1 月 1 日，之后，只能用于 2012 年 1 月 1 日以前投放市场的电子电气产品的备



		件
8(b)	Cadmium and its compounds in electrical contacts 用于电子触点中的镉及其化合物	
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 在吸收式电冰箱中作为碳钢冷却系统防腐剂的六价铬，冷却液中六价铬的含量最高为 0.75 %	
9(b)	<del>Lead in bearing shells and bushes for refrigerant-containing compressors for heating, ventilation, air conditioning and refrigeration (HVACR) applications 冷暖空调（HVACR）设备压缩机轴瓦和轴承衬中的铅；</del>	-
9(b)	Lead in bearing shells and bushes for refrigerant- containing compressors for heating, ventilation, air conditioning and refrigeration (HVACR) applications — Amended by [(EU)2017/1010] 用于采暖、通风、空调和制冷（HVACR）的含制冷剂的压缩机轴瓦和轴承衬套中的铅	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. 第 8 类中体外诊断医疗器械：截止至 2023 年 7 月 21 日； 第 9 类中工业监控设备以及第 11 类：截止至 2024 年 7 月 21 日； 其他第 8 类和第 9 类产品：截止至 2021 年 7 月 21 日





9(b)-(l)	Lead in bearing shells and bushes for refrigerant- containing hermetic scroll compressors with a stated electrical power input equal or below 9 kW for heating, ventilation, air conditioning and refrigeration (HVACR) applications —Amended by [(EU)2017/1010] 用于采暖、通风、空调和制冷（HVACR）设备的含制冷剂的全封闭涡旋式压缩机，额定输入功率等于或低于 9KW，其轴瓦和轴承衬套中的铅	Applies to category 1; expires on 21 July 2019. 第 1 类产品：截止至 2019 年 7 月 21 日
11(a)	Lead used in C-press compliant pin connector systems C-press 顺应针连接系统中所使用的铅；	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 除了 C-press 之外的顺应针连接系统中所使用的铅；	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 截止至 2013 年 1 月 1 日，之后仅能用于该日期前投放市场的电子电气产品的备件
12	Lead as a coating material for the thermal conduction module C-ring 用于导热模块中 C-环的镀层材料中的铅	May be used in spare parts for EEE placed on the market before 24 September 2010 只能用于 2010 年 9 月 24 日以前投放市场的电子电气产品的备件
13(a)	Lead in white glasses used for optical applications 白色光学玻璃中所用的铅	-
13(b)	Cadmium and lead in filter glasses and glasses used for reflectance standards 滤光玻璃及用来作反射率标准片的玻璃中所用的铅及镉	-
13(a)	Lead in white glasses used for optical applications —Amended by [(EU)2017/1011] 光学仪器中使用的白玻璃中的铅	Applies to all categories; expires on: —21 July 2023 for category 8 in vitro diagnostic



		<p>medical devices;</p> <ul style="list-style-type: none"> <li>—21 July 2024 for category 9 industrial monitoring and control instruments and for category 11;</li> <li>—21 July 2021 for all other categories and subcategories</li> </ul> <p>第 8 类体外诊断医疗器械：截止至 2023 年 7 月 21 日</p> <p>第 9 类工业监控设备及第 11 类：截止至 2024 年 7 月 21 日</p> <p>其他类别产品：截止至 2021 年 7 月 21 日</p>
13(b)	<p>Cadmium and lead in filter glasses and glasses used for reflectance standards —Amended by [(EU)2017/1009]</p> <p>滤光玻璃及用于反射标准片的玻璃中的镉和铅</p>	<p>Applies to categories 8, 9 and 11; expires on:</p> <ul style="list-style-type: none"> <li>—21 July 2023 for category 8 in vitro diagnostic medical devices;</li> <li>—21 July 2024 for category 9 industrial monitoring and control instruments and for category 11;</li> <li>—21 July 2021 for other subcategories of categories 8 and 9</li> </ul> <p>第 8 类中体外诊断医疗器械：截止至 2023 年 7 月 21 日；</p> <p>第 9 类中工业监控设备以及第 11 类：截止至 2024 年 7 月 21 日；</p> <p>其他第 8 类和第 9 类产品：截止至 2021 年 7 月</p>



		21 日
13(b)-(I)	Lead in ion coloured optical filter glass types —Amended by [(EU)2017/1009] 离子彩色光学滤光玻璃中的铅	Applies to categories 1 to 7 and 10; expires on 21 July 2021 for categories 1 to 7 and 10' 第 1~7 和第 10 类产品：截止至 2021 年 7 月 21 日
13(b)-(II)	Cadmium in striking optical filter glass types; excluding applications falling under point 39 of this Annex —Amended by [(EU)2017/1009] 光学滤光玻璃中的镉；不包括本附件第 39 点中的设备	
13(b)-(III)	Cadmium and lead in glazes used for reflectance standards —Amended by [(EU)2017/1009] 反射标准片光滑面中的镉和铅	
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 微处理器引脚及封装联接所使用的含有两种以上组分的焊料中的铅（铅含量在 80 %与 85 %之间）。	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 到期日 2011 年 1 月 1 日，之后，只能用于 2011 年 1 月 1 日以前投放市场的电子电气产品的备件；
15	Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages 集成电路倒装芯中片封装中半导体芯片及载体之间形成可靠联接所用焊料中的铅	
16	Lead in linear incandescent lamps with silicate coated tubes 带硅酸盐套管的线性白炽灯中使用的铅	Expires on 1 September 2013 到期日 2013 年 9 月 1 日
17	Lead halide as radiant agent in high intensity discharge (HID) lamps used for professional reprography applications 用于专业复印设备用的高强度放电灯的发光剂的铅卤化物	



18(a)	<p>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)</p> <p>特殊用途的放电灯，例如用于重氮复印、平板印刷、捕虫器、光化学和食物加工过程的含有磷光物质（如 SMS（（Sr，Ba）2MgSi2O7:Pb））的特种灯，铅作为荧光触媒剂（其中铅含量在其重量的 1 %或以下）。</p>	<p>Expired on 1 January 2011</p> <p>到期日 2011 年 1 月 1 日</p>
18(b)	<p>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)</p> <p>用于仿日晒灯的放电灯，其中含有磷光物质（如 BSP（BaSi2O5: Pb）），铅作为荧光触媒剂（其中铅含量在其重量的 1 %或以下）。</p>	
19	<p>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)</p> <p>超小型节能灯（ESL）主汞齐组分 PbBiSn-Hg 和 PbInSn-Hg，以及辅助汞齐组分 PbSn-Hg 中的铅含量。</p>	<p>Expires on 1 June 2011</p> <p>到期日 2011 年 6 月 1 日</p>
20	<p>Lead oxide in glass used for bonding front and rear substrates of flat fluorescent lamps used for Liquid Crystal Displays (LCDs)</p> <p>液晶显示器中连接前后平板荧光灯基质的玻璃中的氧化铅</p>	<p>Expires on 1 June 2011</p> <p>到期日 2011 年 6 月 1 日</p>
21	<p>Lead and cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses</p> <p>用于硼硅酸盐和钠钙硅酸盐玻璃瓷釉的印刷油墨中所含的铅和镉。</p>	
23	<p>Lead in finishes of fine pitch components other than connectors with a pitch of 0,65 mm and less</p> <p>引线框架的引脚间距不大于 0.65 mm 的细间距元器件（不包括连接器类）的表面处理中的铅。</p>	<p>May be used in spare parts for EEE placed on the market before 24 September 2010</p> <p>仅用于 2010 年 9 月 24 日以前投放市场的电子</p>



		电气产品的备件;
24	Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors 通孔盘状及平面阵列陶瓷多层电容器焊料所含的铅。	-
24	Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors 通孔盘状及平面阵列陶瓷多层电容器焊料所含的铅。	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. *Amended by [(EU)2018/737] 截止至: —第 1-7 类及 10 类产品: 2021 年 7 月 21 日 —除体外诊断医疗器械和工业监控设备以外的第 8 类和第 9 类产品: 截止至 2021 年 7 月 21 日 —第 8 类体外诊断医疗器械: 截止至 2023 年 7 月 21 日 —第 9 类工业监控设备及第 11 类产品: 截止至



		2024 年 7 月 21 日
25	Lead oxide in surface conduction electron emitter displays (SED) used in structural elements, notably in the seal frit and frit ring 表面传导式电子发射显示器 (SED) 的构件所用的氧化铅, 特别是密封玻璃料以及环状玻璃。	
26	Lead oxide in the glass envelope of black light blue lamps 蓝黑灯玻璃外罩所含的氧化铅。	Expires on 1 June 2011 到期日 2011 年 6 月 1 日
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 用作大功率扬声器 (特指连续几小时运转在声功率 125 分贝以上) 中传感器的焊料的铅合金。	Expired on 24 September 2010 到期日 2010 年 9 月 24 日
29	Lead bound in crystal glass as defined in Annex I (Categories 1, 2, 3 and 4) of Council Directive 69/493/EEC (1) 欧盟指令 69/493/EEC 附件 I (第 1、2、3、4 类) 限定的水晶玻璃中的铅含量	
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 用于位于声压强度 (SPL) 大于或等于 100 分贝的大功率扬声器音圈上的电导体的电气/机械焊点的镉合金。	
31	Lead in soldering materials in mercury free flat fluorescent lamps (which, e.g. are used for liquid crystal displays, design or industrial lighting) 无汞平板荧光灯 (例如用于液晶屏、设计或工业照明) 中的焊料的铅	
32	Lead oxide in seal frit used for making window assemblies for Argon and Krypton laser tubes 用于氩和氪激光管防护窗组合件的封装玻璃料里的铅的氧化物。	



33	<p>Lead in solders for the soldering of thin copper wires of 100 µm diameter and less in power transformers</p> <p>用以焊接电源变压器中直径 100 微米及以下的细铜线的焊料中的铅</p>	
34	<p>Lead in cermet-based trimmer potentiometer elements</p> <p>金属陶瓷微调电位器中的铅</p>	-
34	<p>Lead in cermet-based trimmer potentiometer elements</p> <p>金属陶瓷微调电位器中的铅</p>	<p>Applies to all categories; expires on:</p> <ul style="list-style-type: none"> <li>—21 July 2021 for categories 1-7 and 10,</li> <li>—21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments,</li> <li>—21 July 2023 for category 8 in vitro diagnostic medical devices,</li> <li>—21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.</li> </ul> <p>*Amended by [(EU)2018/738]</p> <p>截止至:</p> <ul style="list-style-type: none"> <li>—第 1-7 类及 10 类产品: 2021 年 7 月 21 日</li> <li>—除体外诊断医疗器械和工业监控设备以外的第 8 类和第 9 类产品: 截止至 2021 年 7 月 21 日</li> <li>—第 8 类体外诊断医疗器械: 截止至 2023 年 7 月 21 日</li> </ul>



		—第9类工业监控设备及第11类产品：截止至2024年7月21日
36	Mercury used as a cathode sputtering inhibitor in DC plasma displays with a content up to 30 mg per display 直流等离子体显示器中作为阴极溅射抑制剂中的汞含量最高为30 mg	Expired on 1 July 2010 到期日 2010年7月1日
37	Lead in the plating layer of high voltage diodes on the basis of a zinc borate glass body 以硼酸锌玻璃体为基础的高压二极管的电镀层的铅	
38	Cadmium and cadmium oxide in thick film pastes used on aluminium bonded beryllium oxide 用氧化铍与铝键合制成的厚膜涂料中镉和氧化镉	
39	Cadmium in colour converting II-VI LEDs (< 10 µg Cd per mm <sup>2</sup> of light-emitting area) for use in solid state illumination or display systems 应用于固态照明或显示系统中的彩色转换 II-VI 的半导体照明 (LEDs) 内所含的镉 (镉含量<10 微克/平方毫米的发光面积)	Expires on 1 July 2014 到期日: 2014年7月1日
39(a)	Cadmium selenide in downshifting cadmium-based semiconductor nanocrystal quantum dots for use in display lighting applications (< 0,2 µg Cd per mm <sup>2</sup> of display screen area) —Amended by [(EU)2017/1975] 用于显示照明应用中的下转换镉基半导体纳米晶体量子点中的硒化镉 (每平方毫米的发光区域的镉小于0.2 微克)	Expires for all categories on 31 October 2019 到期日: 所有类型产品 2019年10月31日
40	Cadmium in photoresistors for analogue optocouplers applied in professional audio equipment 专业的声频设备中使用的模拟光耦合器中的光敏电阻器中的镉	Expires on 31 December 2013 *Amended by [2012/51/EU] 豁免至 2013年12月31日





41	<p>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(*)</p> <p>豁免电气和电子元件的焊料和最终表面材料，以及点火模块和其他电气和电子发动机控制系统（由于技术原因，必须直接安装在曲轴箱或手持内燃机汽缸内的）中使用的印刷电路板表面材料中铅</p>	<p>Expires on 31 December 2018</p> <p>*Amended by [2014/72/EU]</p> <p>豁免至 2018 年 12 月 31 日</p>
	<p>(*) 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).'</p>	



## ANNEX IV

**Applications exempted from the restriction in Article 4(1) specific to medical devices and monitoring and control instruments Equipment utilising or detecting ionising radiation**

医疗设备和监测/控制设备中不受第 4 (1) 条款规定限制的应用。 利用或检测电离辐射的设备。

1. Lead, cadmium and mercury in detectors for ionising radiation.

1、电离辐射检测器中的铅、镉和汞；

2. Lead bearings in X-ray tubes.

2、X 射线管中的铅轴承；

3. Lead in electromagnetic radiation amplification devices: micro-channel plate and capillary plate.

3、电磁辐射放大器（微通道板和毛细板）中的铅；

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.

4、X 射线管和图像增强器的玻璃粉中的铅，气体激光器和真空电子管中将电磁辐射转换为电子的部件所用的玻璃粉粘合剂中的铅；

5. Lead in shielding for ionising radiation.

5、电离辐射防护装置中的铅；

6. Lead in X-ray test objects.

6、X 射线测试物中的铅；

7. Lead stearate X-ray diffraction crystals.

7、硬脂酸铅 X 射线衍射晶体；

8. Radioactive cadmium isotope source for portable X-ray fluorescence spectrometers.

8、便携式 X 射线荧光光谱仪传感器、检测器和电极的镉放射性同位素源，以及以下应用；

**Sensors, detectors and electrodes**

传感器，探测器和电极

1a. Lead and cadmium in ion selective electrodes including glass of pH electrodes.

1a、离子选择电极以及 pH 电极玻璃中的铅和镉；



1b. Lead anodes in electrochemical oxygen sensors.

1b、电化学氧传感器中的铅阳极；

1c. Lead, cadmium and mercury in infra-red light detectors.

1c、红外线检测器中的铅、镉和汞；

1d. Mercury in reference electrodes: low chloride mercury chloride, mercury sulphate and mercury oxide.

1d、参考电极中的汞：低氯离子氯化汞、硫酸汞和氧化汞；

#### Others

#### 其他应用

9. Cadmium in helium-cadmium lasers.

9、氦镉激光器中的镉；

10. Lead and cadmium in atomic absorption spectroscopy lamps.

10、原子吸收光谱仪（阴极射线）灯中的铅和镉；

11. Lead in alloys as a superconductor and thermal conductor in MRI.

11、核磁共振成像（MRI）中作为超导和热导体合金中的铅；

~~12. Lead and cadmium in metallic bonds to superconducting materials in MRI and SQUID detectors.~~

~~12、核磁共振仪（MRI）和超导量子干涉仪（SQUID）检测器中与超导材料连接的金属线中的铅和镉。~~

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. —Amended by [2014/9/EU]

12、在 MRI, SQUID, NMR（核磁共振）或 FTMS（傅立叶变换质谱）的探测器的金属键（用于产生超导磁电路）的铅和镉。2021 年 6 月 30 日到期。

13. Lead in counterweights.

13、砝码中的铅；

14. Lead in single crystal piezoelectric materials for ultrasonic transducers.

14、用于超声换能器单晶压电材料中的铅；

15. Lead in solders for bonding to ultrasonic transducers.

15、用于与超声换能器焊接的焊料中的铅；



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.

16、很高容量电容和损害测定电桥中的汞；检测和控制装置中高频射频（RF）开关和继电器中的汞含量不超过 20 mg 每开关或继电器；

17. Lead in solders in portable emergency defibrillators.

17、用于便携式紧急去纤颤器的焊料中的铅；

18. Lead in solders of high performance infrared imaging modules to detect in the range 8-14  $\mu\text{m}$ .

18、用于高性能红外图像模块（检测范围 8-14  $\mu\text{m}$ ）的焊料中的铅；

19. Lead in Liquid crystal on silicon (LCoS) displays.

19、硅基液晶（LCoS）显示器中的铅；

20. Cadmium in X-ray measurement filters.

20、X 射线测量滤波器中的镉。

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. —Amended by [2014/2/EU]

21、X 射线影像的图像增强器的荧光涂料中的镉，2019 年 12 月 31 日期满。以及在 2020 年 1 月 1 日前投放欧盟市场的 X 射线系统的备件中的镉。

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. —Amended by [2014/3/EU]

22、醋酸铅标记用于 CT 和 MRI 的头部立体定位框架和伽马射线和离子治疗设备的定位系统。2021 年 6 月 30 日期满

23. Lead as an alloying element for bearings and wear surfaces in medical equipment exposed to ionising radiation. Expires on 30 June 2021. —Amended by [2014/1/EU]

23、铅作为合金元素用于暴露于电离辐射的医疗器械的轴承磨损表面。2021 年 6 月 30 日期满

24. Lead enabling vacuum tight connections between aluminium and steel in X-ray image intensifiers. Expires on 31 December 2019. —Amended by [2014/4/EU]

24、铅用于保证 X 荧光图像增强器中的铝和钢的真空密封连接。2019 年 12 月 31 日期满。

25. Lead in the surface coatings of pin connector systems requiring nonmagnetic connectors which are used durably at a temperature below  $-20\text{ }^{\circ}\text{C}$  under normal operating and storage conditions. Expires on 30 June 2021. —Amended by [2014/6/EU]

25、顺应针连接系统（要求非磁性连接器）的表面涂料的铅，该系统要求在正常操作和存储条件下可在  $-20\text{ }^{\circ}\text{C}$  的温度下持续使用。2021 年 6 月 30 日期满。



## 26. Lead in

- solders on printed circuit boards,
  - termination coatings of electrical and electronic components and coatings of printed circuit boards,
  - solders for connecting wires and cables,
  - solders connecting transducers and sensors,
- that are used durably at a temperature below  $-20^{\circ}\text{C}$  under normal operating and storage conditions.

Expires on 30 June 2021. — Amended by [2014/5/EU]

## 26 铅在

- 印刷电路板的焊料；
  - 电子电气零部件的终端涂层和印刷电路板的涂层；
  - 连接电线电缆的焊料；
  - 连接换能器和传感器的焊料；
- 在正常操作和存储条件下，其可在  $-20^{\circ}\text{C}$  长期使用。2021 年 6 月 30 日到期。

26. Lead in the following applications that are used durably at a temperature below  $-20^{\circ}\text{C}$  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  $-150^{\circ}\text{C}$ .

These exemptions expire on 30 June 2021. — Amended by [(EU)2016/1028]

26、正常操作和存放环境下，长期在低于 $-20^{\circ}\text{C}$ 温度下工作的以下用途中的铅：

- (a) 印刷电路板的焊料；
- (b) 电子电气零部件的终端涂层和印刷电路板的涂层；
- (c) 连接电线电缆的焊料；
- (d) 连接转换器和传感器的焊料；



周期性地用于低于 $-150^{\circ}\text{C}$ 的设备中的测温传感器的电气连接焊料中的铅。  
这些豁免截止至 2021 年 6 月 30 日。

#### 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.

Expires on 30 June 2020. —Amended by [2014/7/EU]

#### 27、铅在

- 焊料，
  - 电子电气零部件和印刷电路板的终端涂层，
  - 电线连接，防护和封闭式连接器，
- 用于

- (a) 以医用磁共振成像设备为中心的 1 米为半径的磁域，包括设计用于这个区域内使用的病人监护仪，或
- (b) 回旋加速器磁铁的外表面 1 米的距离的磁域，磁铁的束流传输和束流方向控制用于粒子治疗。

2020 年 6 月 30 日到期。

28. Lead in solders for mounting cadmium telluride and cadmium zinc telluride digital array detectors to printed circuit boards. Expires on 31 December 2017. —  
Amended by [2014/8/EU]

28、将碲化镉和碲锌镉数字阵列探测器嵌入印刷电路板的焊料中的铅。2017 年 12 月 31 日到期

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. —Amended by [2014/10/EU]



29、铅作为合金，作为超导或热导，用于低温冷机冷头和/或低温冷却的探针和/或低温冷却的等电位联结系统，医疗器械（8类）和/或在工业监测和控制仪器。2021年6月30日到期。

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. — Amended by [2014/11/EU]

30、用于X光图像增强器中产生光电阴极的碱分配器中的六价铬（2019年12月31日到期）和其在X光系统中作为备用零件于2020年1月1日前投放市场。

~~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. — Amended by [2014/15/EU]~~

~~31、再使用的备件中的铅、镉和六价铬，其由2014年7月22日前投放欧盟市场的医疗器械和2021年7月22日前投放欧盟市场的第8类设备回收。假设再使用是在审核闭环的商对商的回收系统中及部件的再使用已向消费者通报。2021年7月21日到期。~~

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:

21 July 2021 for the use in medical devices other than in vitro diagnostic medical devices;

21 July 2023 for the use in in vitro diagnostic medical devices;

21 July 2024 for the use in electron microscopes and their accessories. — Amended by [(EU) 2016/585]

31a、自维修或翻新的医疗设备中回收的，以及供维修或翻新的医疗设备（包括体外诊断设备及电子显微镜及其配件）使用的零部件中的铅、镉、六价铬以及PBDE。假设再使用是在审核闭环的商对商的回收系统中及部件的再使用已向消费者通报。

豁免至：

(a) 除体外诊断医疗设备外的医疗设备截止至2021年7月21日；

(b) 体外诊断医疗设备截止至2023年7月21日；

(c) 电子显微镜及其附件截止至2024年7月21日。

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. — Amended by [2014/12/EU]



32、正电子发射计算机断层扫描（被集成到磁共振成像设备）的探测器和数据采集单元的印刷电路板中的焊料中的铅。2019年12月31日到期。

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. —Amended by [2014/13/EU]

33、用于指令 93/42/EEC 的 IIa 和 IIb 类移动医疗设备的印刷电路板（便携式紧急除颤器除外）中的焊料中的铅。针对 IIa 类，2016 年 6 月 30 日到期，针对 IIb 类，2020 年 12 月 31 日到期。

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) phosphors. Expires on 22 July 2021. —Amended by [2014/16/EU]

34、当放电灯作为体外光照灯（含有 BSP (BaSi<sub>2</sub>O<sub>5</sub>:Pb) 荧光粉），铅在放电灯的荧光粉中作为激活剂。2021 年 7 月 22 日到期。

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. —Amended by [2014/75/EU]

35、豁免在 2017 年 7 月 22 日之前投放市场的，工业监测和控制仪器中使用的背光液晶显示器用冷阴极荧光灯(CCFLs)中汞（每盏灯不超过 5 毫克）截止日期为 2024 年 7 月 21 日。

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. —Amended by [2014/74/EU]

36、豁免用于工业监测和控制仪器中除了 C-压顺应针之外连接系统使用的铅。截止日期为 2020 年 12 月 31 日，在 2021 年 1 月 1 日前投放市场的工业监控设备配件仍可使用。

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 2018. —Amended by [2014/73/EU]

37、豁免电导率测定用镀铂的铂电极中铅，且至少满足以下一个要求：

a. 用于实验室测试位置浓度的，电导率范围覆盖超过 1 个数量级（举例：范围在 0.1mS/m-5 mS/m 质检）的宽量程测量

b. 测量溶液且精度在 +/-1% 的样本范围以及高耐腐蚀性的电极，要求如下：

i. 溶液酸度 pH<1 的；

ii. 溶液碱度 pH>13 的；





iii.含有卤素气体的腐蚀性溶液

c.必须由便携式仪表体现的，导电性的测量值大于 100 mS/m。

截止日期为 2018 年 12 月 31 日。

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. —Amended by [2014/71/EU]

38、用于 X-射线计算机断层扫描和 X 射线系统的大面积裸片堆叠元素（每个接口超过 500 个内连线）的单界面焊料中的铅。

截止日期为 2019 年 12 月 31 日，2020 年 1 月 1 日前投放市场的 CT 和 X-射线系统中的配件允许在 2019 年 12 月 31 日后使用。

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<sup>2</sup>; (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<sup>2</sup> for detecting electrons or ions; (e) a multiplication factor larger than  $4,0 \times 10^7$ . The exemption expires on the following dates: (a) 21 July 2021 for medical devices and monitoring and control instruments; (b) 21 July 2023 for in-vitro diagnostic medical devices; (c) 21 July 2024 for industrial monitoring and control instruments. —Amended by [2014/70/EU]

39、微通道板（MCPs）中的铅，被豁免产品必须具有至少下列的一种性能：

(a) 电子或离子检测器的空间不超过 3mm/MCP（探测器厚度+MCP 安装空间），总计最多不得超过 6mm，且未见能够产生更多空间的科学可替代技术；

(b) 电子或离子检测的二维空间分辨率，至少包含以下一种情况

(i) 响应时间小于 25ns；

(ii) 样品暴露区域大于 149mm<sup>2</sup>；

(iii) 乘法因子大于  $1,3 \times 10^3$ 。

(c) 电子或离子检测响应时间小于 5ns；

(d) 电子以及离子检测的样品检测区域大于 314mm<sup>2</sup>；

(e) 乘法因子大于  $4,0 \times 10^7$ 。



豁免截止日期如下：

医疗器械及监控设备的截止日期为：2021 年 7 月 21 日；

体外诊断医疗器械截止日期为：2023 年 7 月 21 日；

工业监测和控制仪器截止日期为：2024 年 7 月 21 日。

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. — Amended by [2014/69/EU]

40、豁免工业监测和控制仪器用额定交流电压 125 伏以下或直流电压 250 伏以下介电陶瓷电容器中的铅。截止日期为 2020 年 12 月 31 日，该日期后，在 2021 年 1 月 1 日前投放市场的工业监测和控制仪器中的配件仍旧享受豁免。

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 December 2018. — Amended by [(EU) 2015/573]

41、用于血液和其他体液、体气分析的体外诊断医疗设备中电位、电流、电导传感器聚氯乙烯（PVC）基材中作为热稳定剂的铅，豁免至 2018 年 12 月 31 日

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 2019. — Amended by [(EU) 2015/574]

42、用于具有高工作频率（> 50MHz）操作模式的血管内超声成像系统中的电旋转连接器中的汞。豁免至 2019 年 6 月 30 日

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. — Amended by [(EU) 2016/1029]

43、用于工业监测和控制设备的氧传感器的赫希池镉阳极，灵敏度应低于 10ppm。截止至 2023 年 7 月 15 日。



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C&K Testing

地址：浙江省杭州市滨江区滨安路 1180 号华业高科技产业园 4 号楼 1 层

Address: 1/F, No.4 Building, Huaye Hi-Tech Industrial Park, No.1180, Bin'an Road, Binjiang District, Hangzhou, Zhejiang, China

电话: 4006-721-723 传真: +86-571-89900719 邮箱: test@cirts-group.com

Tel: +86-571-87206587 Fax:+86-571-89900719 Email: test@cirts-group.com