



Shenzhen LCS Compliance Testing Laboratory Ltd.

Add: Unit F-G, Floor 23, Kechuang Building, Quanzhi Innovation Science and Technology Park,  
Shajing Town, Bao'an District, Shenzhen, Guangdong, China

Tel: (86)755-23353209

Internet: [Http://www.LCS-cert.com](http://www.LCS-cert.com)

Report No.: LCS181012025AR

## TEST REPORT

Client company :

Client address :

Manufacturer :

Address :

Report on the submitted samples said to be:

Sample Name : Power bank

Trade Mark : N/A

Test Item No. : UP-9112

Style/ Item No. : N/A

Sample Receiving Date : October 12, 2018

Testing Period : October 12, 2018 ~ October 25, 2018

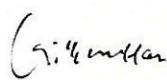
Results : Please refer to next page(s).

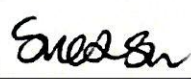
Summary of Test Results:


### TEST REQUEST

According to the customer's request, based on the performed tests on submitted sample, the results of lead(Pb), mercury(Hg), cadmium(Cd), hexavalent chromium( $\text{Cr}^{6+}$ ), polybrominated biphenyls(PBBs), polybrominated diphenyl(PBDEs) comply with the limits as set by EU RoHS Directive 2011/65/EU

Signed for and on behalf of LCS

Written By:   
Lilian Hao

Checked by:   
Suez Su

Approved by:   
Lily Dan  
Manager





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## Results:

### A. EU RoHS Directive 2011/65/EU and its amendment directives on XRF

Test method: With reference to IEC 62321-3-1:2013, Screening by X-ray Fluorescence Spectroscopy (XRF)

Seq. No.	Tested Part(s)	Results						Date of sample submission/r esubmission
		Pb	Cd	Hg	Cr(Cr <sup>6+</sup> )	PBBs	PBDEs	
1	White plastic sheet	BL	BL	BL	BL	BL	BL	2018-10-12
2	Blue plastic sheet	BL	BL	BL	BL	BL	BL	2018-10-12
3	Silver plastic sheet	BL	BL	BL	BL	BL	BL	2018-10-12
4	Silver plastic sheet	BL	BL	BL	BL	BL	BL	2018-10-12
5	Black plastic thread	BL	BL	BL	BL	BL	BL	2018-10-12
6	Red plastic wire	BL	BL	BL	BL	BL	BL	2018-10-12
7	Silver wire	BL	BL	BL	BL	BL	BL	2018-10-12
8	Silver metal screws	BL	BL	BL	BL	BL	BL	2018-10-12
9	Silver sheet metal	BL	BL	BL	BL	BL	BL	2018-10-12
10	Black plastic sheet	BL	BL	BL	BL	BL	BL	2018-10-12
11	Silver needle	BL	BL	BL	BL	BL	BL	2018-10-12
12	Black transistor	BL	BL	BL	BL	X	X	2018-10-12
13	Brown chip resistor	BL	BL	BL	BL	BL	BL	2018-10-12
14	Tin solder	BL	BL	BL	BL	BL	BL	2018-10-12
15	Silver sheet metal	BL	BL	BL	BL	BL	BL	2018-10-12
16	Grey plastic sheet	BL	BL	BL	BL	BL	BL	2018-10-12
17	Silver needle	BL	BL	BL	BL	BL	BL	2018-10-12
18	Black chip resistor	BL	BL	BL	X	BL	BL	2018-10-12
19	Silver sheet metal	BL	BL	BL	X	BL	BL	2018-10-12
20	Black plastic sheet	BL	BL	BL	BL	BL	BL	2018-10-12
21	Golden metal needle	BL	BL	BL	BL	BL	BL	2018-10-12
22	Gray ceramics	BL	BL	BL	X	BL	BL	2018-10-12
23	Black plastic sheet	BL	BL	BL	BL	BL	BL	2018-10-12
24	White plastic sheet	BL	BL	BL	BL	BL	BL	2018-10-12
25	Silver sheet metal	BL	BL	BL	BL	BL	BL	2018-10-12
26	Silver sheet metal	BL	BL	BL	X	BL	BL	2018-10-12

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Seq. No.	Tested Part(s)	Results						Date of sample submission/r esubmission
		Pb	Cd	Hg	Cr(Cr <sup>6+</sup> )	PBBs	PBDEs	
27	Tin solder	BL	BL	BL	BL	BL	BL	2018-10-12
28	Black IC	BL	BL	BL	BL	BL	BL	2018-10-12
29	Black chip resistor	BL	BL	BL	X	BL	BL	2018-10-12
30	Black IC	BL	BL	BL	BL	BL	BL	2018-10-12
31	Black plastic sheet	BL	BL	BL	BL	X	X	2018-10-12
32	White Gel	BL	BL	BL	BL	BL	BL	2018-10-12
33	PCB board	BL	BL	BL	BL	BL	BL	2018-10-12
34	White tape	BL	BL	BL	BL	BL	BL	2018-10-12
35	White tape	BL	BL	BL	BL	BL	BL	2018-10-12
36	Yellow tape	BL	BL	BL	BL	BL	BL	2018-10-12
37	Black foam cotton	BL	BL	BL	BL	BL	BL	2018-10-12
38	Silver plastic sheet	BL	BL	BL	BL	BL	BL	2018-10-12
39	Green tape	BL	BL	BL	BL	BL	BL	2018-10-12
40	White plastic sheet	BL	BL	BL	BL	BL	BL	2018-10-12
41	Silver sheet metal	BL	BL	BL	BL	BL	BL	2018-10-12
42	Gold metal sheet	BL	BL	BL	BL	BL	BL	2018-10-12
43	Silver sheet metal	OL	OL	BL	X	BL	BL	2018-10-12
44	Gold metal sheet	BL	BL	BL	BL	BL	BL	2018-10-12
45	Black carbon powder	BL	BL	BL	BL	BL	BL	2018-10-12

Note:

- (1) Results were obtained by XRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-Vis (for Cr(VI)) and GC-MS (for PBBs, PBDEs) are recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1:2013.

Element	Unit	Non-metal	Metal	Composite Material
Cd	mg/kg	BL≤70-3σ<X <130+3σ≤OL	BL≤70-3σ<X <130+3σ≤OL	BL≤50-3σ<X <150+3σ≤OL
Pb	mg/kg	BL≤700-3σ<X <1300+3σ≤OL	BL≤700-3σ<X <1300+3σ≤OL	BL≤500-3σ<X <1500+3σ≤OL
Hg	mg/kg	BL≤700-3σ<X <1300+3σ≤OL	BL≤700-3σ<X <1300+3σ≤OL	BL≤500-3σ<X <1500+3σ≤OL
Cr	mg/kg	BL≤700-3σ<X	BL≤700-3σ<X	BL≤500-3σ<X
Br	mg/kg	BL≤300-3σ<X	--	BL≤250-3σ<X

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Note:

BL = Below Limit  
OL = Over Limit  
X = Inconclusive

- (2) The XRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.
- (3) The maximum permissible limit is quoted from the document 2005/618/EC amending RoHS directive 2011/65/EU:

RoHS Restricted Substances	Maximum Concentration Value (mg/kg) (by weight in homogenous materials)
Cadmium (Cd)	100
Lead (Pb)	1000
Mercury (Hg)	1000
Hexavalent Chromium (Cr(VI))	1000
Polybrominated biphenyls (PBBs)	1000
Polybrominated diphenylethers (PBDEs)	1000

Disclaimers:

This XRF Screening report is for reference purposes only. The applicant shall make its/his/her own judgment as to whether the information provided in this XRF screening report is sufficient for its/his/her purposes.

The result shown in this XRF screening report will differ based on various factors, including but not limited to, the sample size, thickness, area, surface flatness, equipment parameters and matrix effect (e.g. plastic, rubber, metal, glass, ceramic etc.). Further wet chemical pre-treatment with relevant chemical equipment analysis are required to obtain quantitative data.

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**B. EU RoHS Directive 2011/65/EU on Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs, PBDEs content.**

**Test method:**

**Lead & Cadmium Content:**

With reference to IEC 62321-5:2013, by acid digestion and analysis was performed by inductively coupled plasma atomic emission spectrometer (ICP-OES)

**Mercury Content:**

With reference to IEC 62321-4:2013+AMD1:2017 CSV, by acid digestion and analysis was performed by inductively coupled plasma atomic emission spectrometer (ICP-OES)

**Hexavalent Chromium Content:**

With reference to IEC 62321-7-1:2015 or IEC 62321-7-2:2017, by alkaline digestion and analysis was performed by UV-visible spectrophotometer (UV-Vis)

**PBBs & PBDEs Content:**

With reference to IEC 62321-6:2015, by solvent extraction and analysis was performed by gas chromatographic-mass spectrometer (GC-MS)

**1) The test results of Lead (Pb) and Cadmium (Cd)**

Item	Unit	MDL	Results	Limit
			(43)	
Lead Content (Pb)	mg/kg	2	707	1000 mg/kg
Conclusion	/	/	Pass	/

Item	Unit	MDL	Results	Limit
			(43)	
Cadmium Content (Cd)	mg/kg	2	N.D.	100 mg/kg
Conclusion	/	/	Pass	/

**2) The test results of Hexavalent Chromium (Cr<sup>6+</sup>)(for nonmetal)**

Item	Unit	MDL	Results			Limit
			(18)	(22)	(29)	
Hexavalent Chromium (Cr <sup>6+</sup> )	mg/kg	2	N.D.	N.D.	N.D.	1000 mg/kg
Conclusion	/	/	Pass	Pass	Pass	/

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### 3) The test results of Hexavalent Chromium (Cr<sup>6+</sup>)(metal)

Item	Unit	MDL	Results			Limit
			(19)	(26)	(43)	
Hexavalent Chromium (Cr <sup>6+</sup> )	ug/cm <sup>2</sup>	0.10	N.D.	N.D.	N.D.	1000 mg/kg
<b>Conclusion</b>	<b>/</b>	<b>/</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>/</b>

Note:

- MDL = Method Detection Limit
- /= Not apply
- mg/kg = ppm=parts per million
- LOQ = Limit of Quantification, The LOQ of Hexavalent chromium is 0.10 µg/cm<sup>2</sup>
- N.D.=Not Detected(<MDL or LOQ)
- \*The sample is negative for Cr(VI)-The Cr(VI) concentration is below 0.10ug/cm<sup>2</sup>  
The coating is considered a non-Cr(VI) based coating.

- #1 According to RoHS directive 2011/65/EU and its amendments, Lead is exempted in glass of cathode ray tubes, electronic components and fluorescent tubes.
- #2 According to RoHS directive 2011/65/EU and its amendments, Lead is exempted in electronic ceramic parts (e.g. piezoelectronic devices).
- #3 According to RoHS directive 2011/65/EU and its amendments, Lead is exempted as an alloying element in Copper containing up to 4% (40000ppm) by weight.
- #4 According to RoHS directive 2011/65/EU and its amendments, Lead is exempted in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead).
- #5 According to the statement provided by the customer, according to RoHS directive 2011/65/EU and its amendments, Lead is exempted as an alloying element in Aluminum containing up to 0.4% (4000ppm) by weight.
- #6 According to the statement provided by the customer, according to RoHS directive 2011/65/EU and its amendments, Cadmium and its compounds in electrical contact is exempted.

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#### 4) The test results of PBBs & PBDEs

Item	Unit	MDL	Results		Limit
			(12)	(31)	
<b>Polybrominated Biphenyls (PBBs)</b>					
Monobromobiphenyl	mg/kg	5	N.D.	N.D.	
Dibromobiphenyl	mg/kg	5	N.D.	N.D.	
Tribromobiphenyl	mg/kg	5	N.D.	N.D.	
Tetrabromobiphenyl	mg/kg	5	N.D.	N.D.	
Pentabromobiphenyl	mg/kg	5	N.D.	N.D.	
Hexabromobiphenyl	mg/kg	5	N.D.	N.D.	
Heptabromobiphenyl	mg/kg	5	N.D.	N.D.	
Octabromobiphenyl	mg/kg	5	N.D.	N.D.	
Nonabromodiphenyl	mg/kg	5	N.D.	N.D.	
Decabromodiphenyl	mg/kg	5	N.D.	N.D.	
Total content	mg/kg	/	N.D.	N.D.	1000 mg/kg
<b>Polybrominated Diphenylethers (PBDEs)(Mon-Deca)</b>					
Monobromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Dibromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Tribromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Tetrabromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Pentabromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Hexabromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Heptabromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Octabromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Nonabromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Decabromodiphenyl ether	mg/kg	5	N.D.	N.D.	
Total content	mg/kg	/	N.D.	N.D.	1000 mg/kg
<b>Conclusion</b>	/	/	Pass	Pass	/

Remark:

- mg/kg = ppm
- N.D. = Not detected
- Flow chart appendix is included.
- Photo appendix is included.

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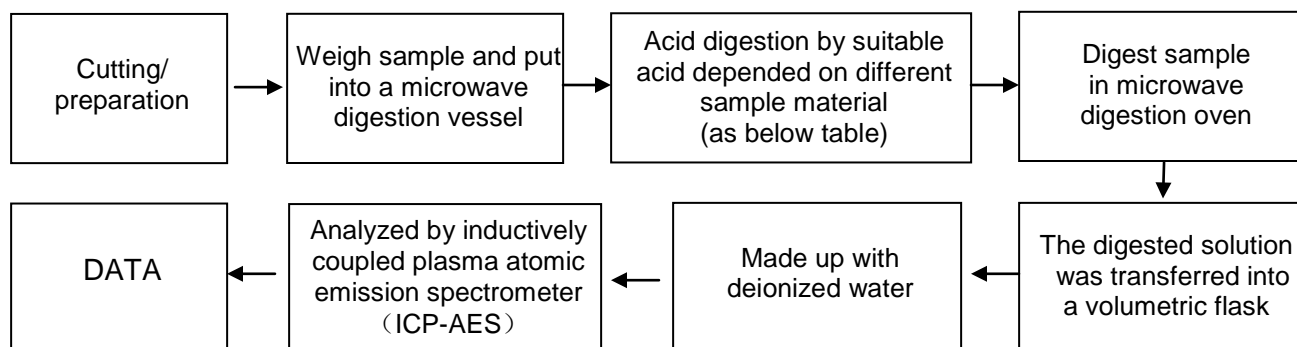
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## Appendix

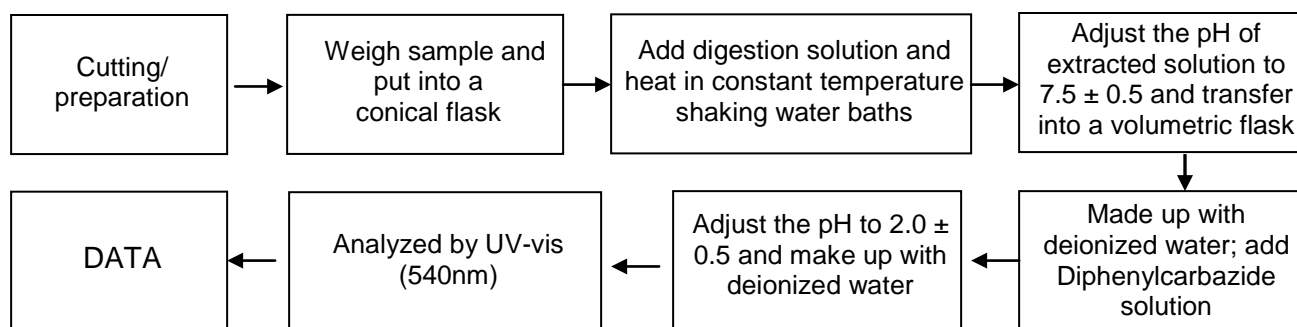
### Test Flow chart

#### 1. Test Flow chart for Cd / Pb /Hg content

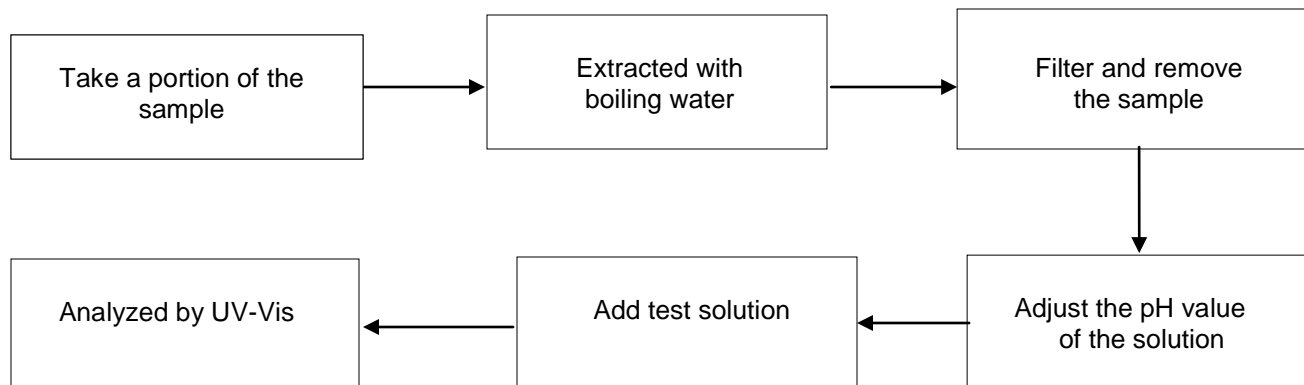
These samples were dissolved totally by pre-conditioning method according to below flow chart.



#### 2. Test Flowchart for Cr<sup>6+</sup> content (For non-metal material)



#### Test Flowchart for Cr<sup>6+</sup> content (For metal material)



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3. Test Flow chart for PBBs & PBDEs content

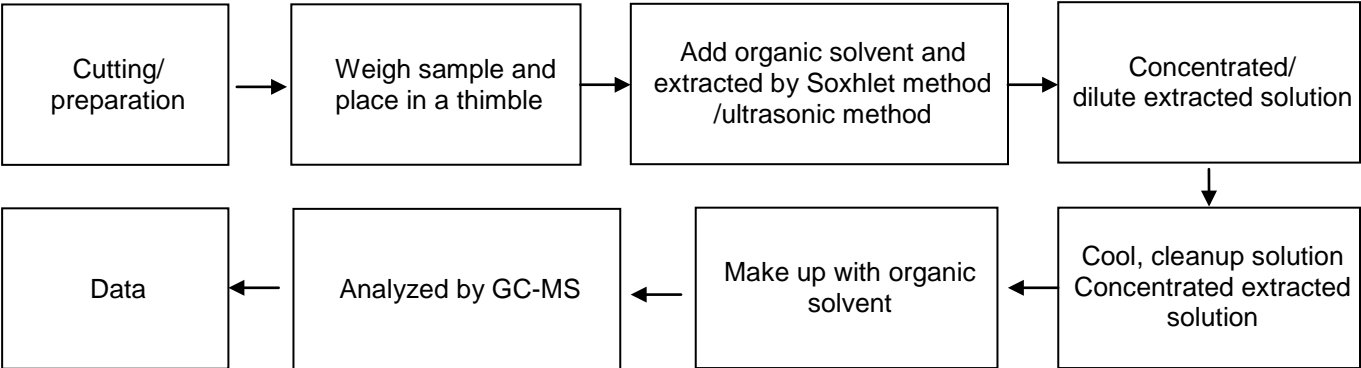


Table:

Sample Material	Digestion Acid
Steel, copper, aluminum, solder	Aqua regia, HNO <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub>
Glass	HNO <sub>3</sub> /HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO <sub>3</sub>
Plastic	H <sub>2</sub> SO <sub>4</sub> , H <sub>2</sub> O <sub>2</sub> , HNO <sub>3</sub> , HCl
Others	Any acid to total digestion

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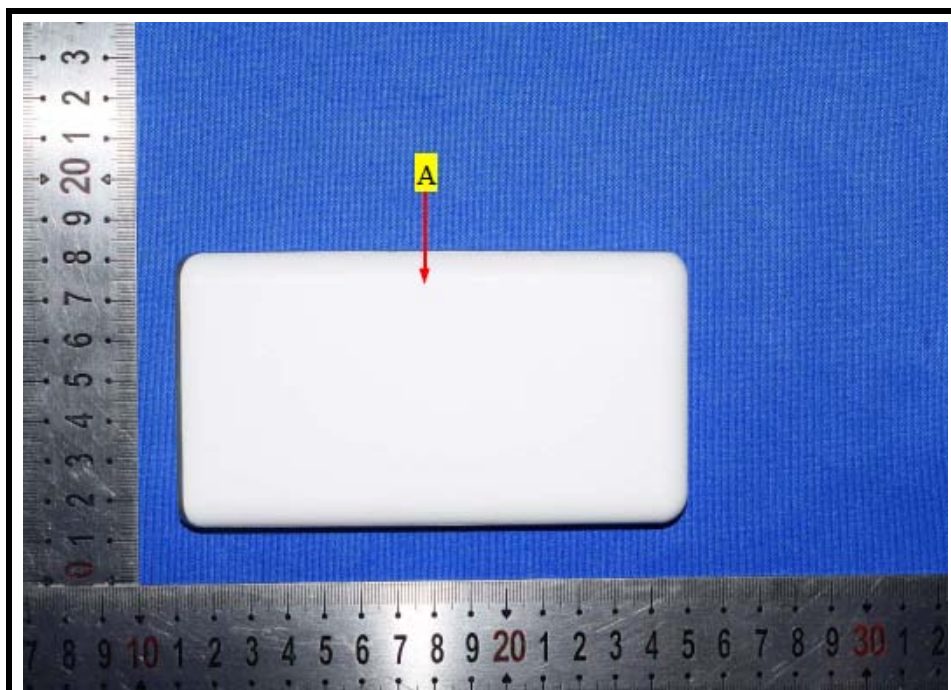
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## Appendix

### Photograph of Sample



Test Item No.: UP-9112





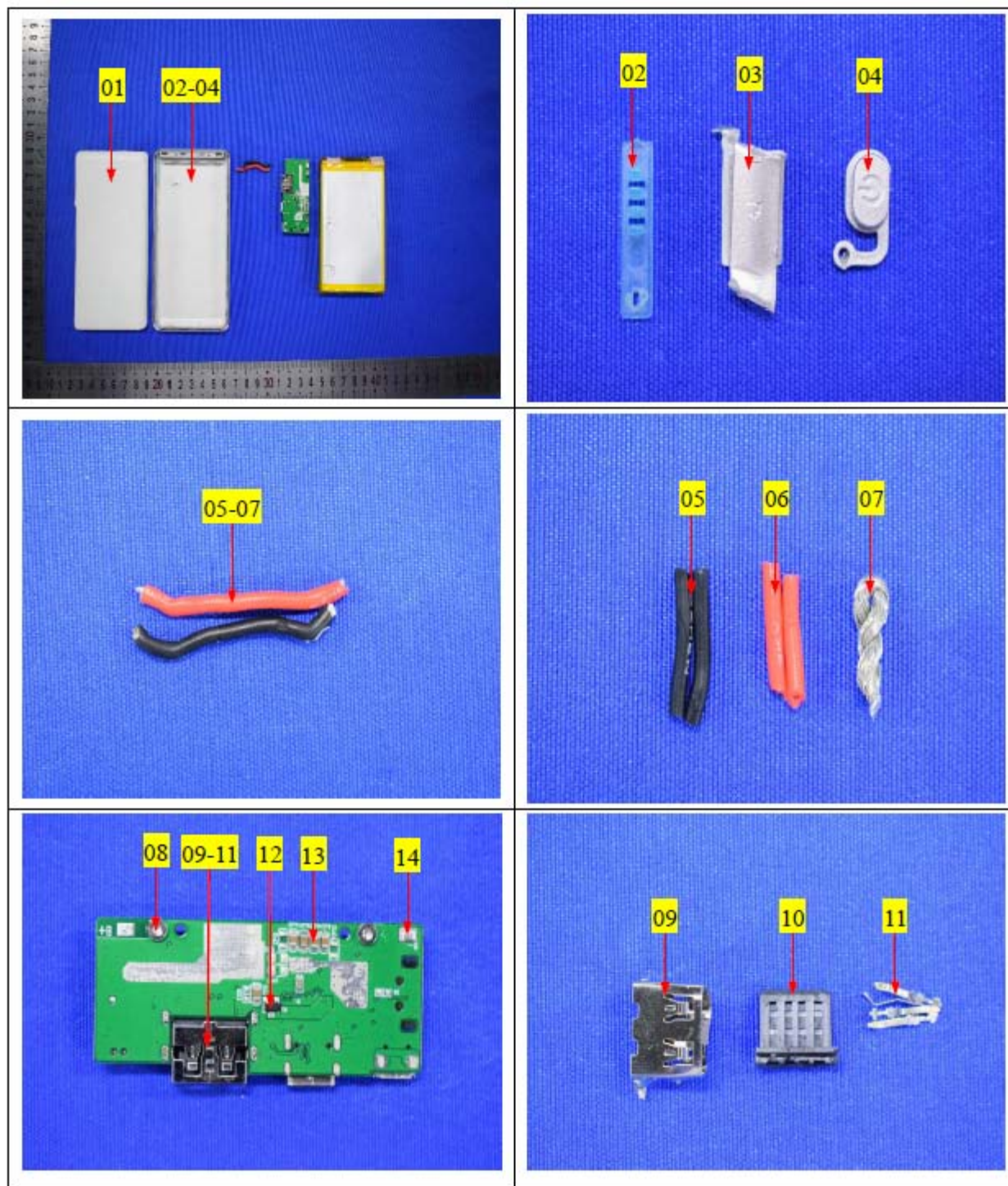
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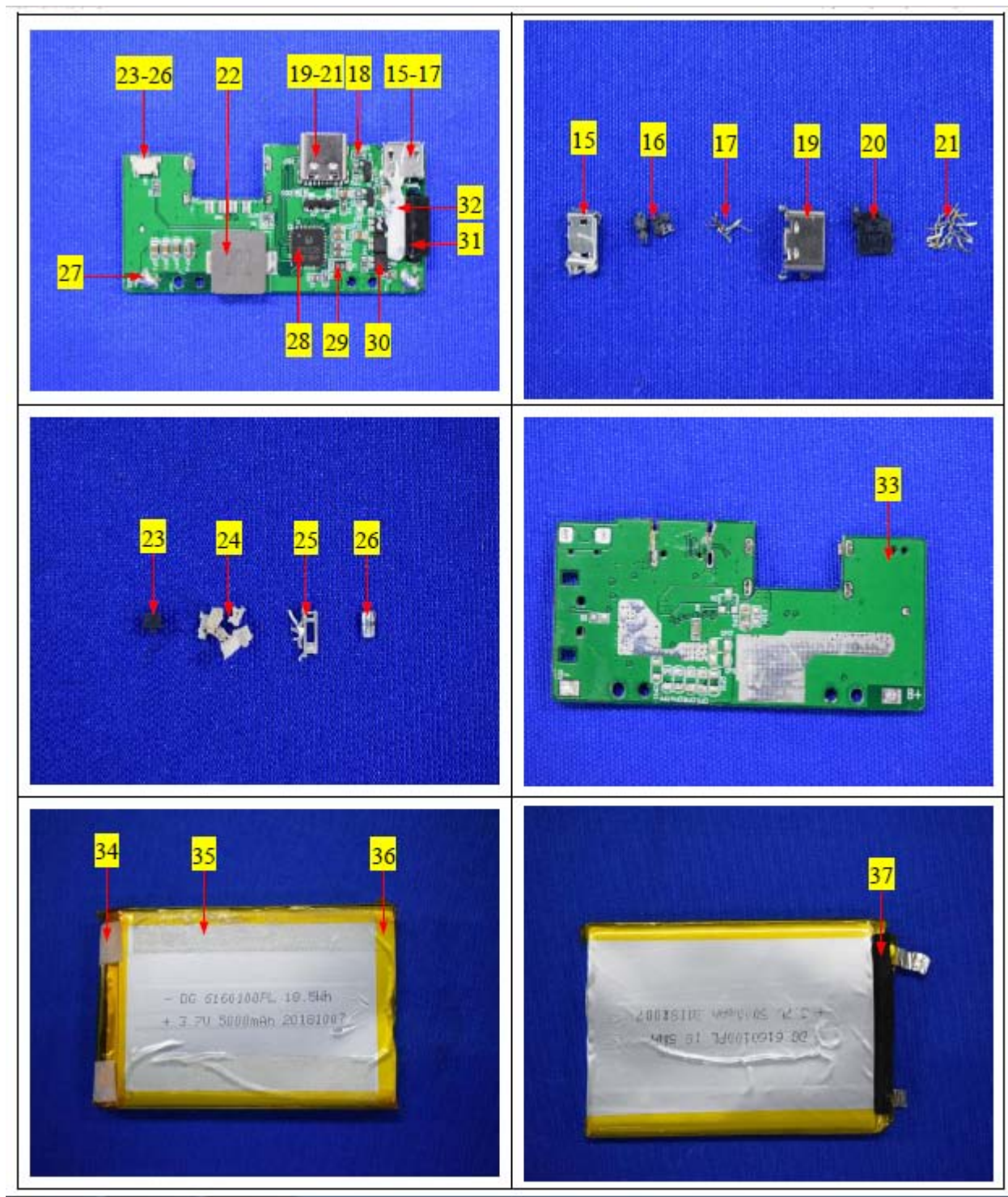
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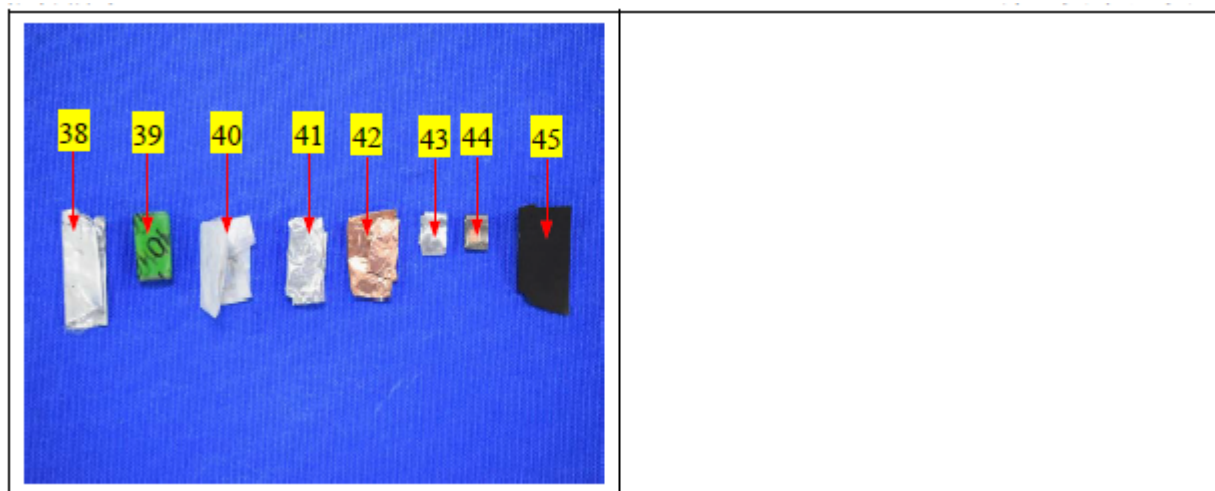
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## Exempted Items of RoHS Directive

In accordance with Directive 2011/65/EU as amended, there are 41 exemption items in Annex III of 2011/65/EU altogether.

	Exemption	Scope and dates of applicability
1	Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):	
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 $\geq$ 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 $\geq$ 50 W and < 150 W: 5 mg	
1(d)	For general lighting purposes $\geq$ 150 W: 15 mg	
1(e)	For general lighting purposes with circular or square structural shape and tube diameter $\leq$ 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	
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):	
2(a)(1)	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)(2)	Tri-band phosphor with normal lifetime and a tube diameter $\geq$ 9 mm and $\leq$ 17 mm (e.g. T5): 5 mg	Expires on 31 December 2011; 3 mg may be used per lamp after 31 December 2011.
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 used per lamp after 31 December 2011.
2(a)(4)	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)(5)	Tri-band phosphor with long lifetime ( $\geq$ 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):	
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.



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2(b)(3)	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)(4)	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):	
3(a)	Short length ( $\leq 500$ 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 $\leq 1\ 500$ mm)	No limitation of use until 31 December 2011; 5 mg may be used per lamp after 31 December 2011.
3(c)	Long length (> 1500 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) in lamps with improved colour rendering index $R_a > 60$ :	
4(b)-I	$P \leq 155$ W	No limitation of use until 31 December 2011; 30 mg may be used per burner after 31 December 2011.
4(b)-II	$155\text{ W} < P \leq 405\text{ W}$	No limitation of use until 31 December 2011; 40 mg may be used per burner after 31 December 2011.
4(b)-III	$P > 405\text{ W}$	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):	
4(c)-I	$P \leq 155\text{ W}$	No limitation of use until 31 December 2011; 25 mg may be used per burner after 31 December 2011.
4(c)-II	$155\text{ W} < P \leq 405\text{ W}$	No limitation of use until 31 December 2011; 30 mg may be used per burner after 31 December 2011.
4(c)-III	$P > 405\text{ W}$	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)	





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4(f)	Mercury in other discharge lamps for special purposes not specifically mentioned in this Annex.	
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.
5(a)	Lead in glass of cathode ray tubes.	
5(b)	Lead in glass of fluorescent tubes not exceeding 0,2 % by weight.	
6(a)	Lead as an alloying element in steel for machining purposes and in galvanized steel containing up to 0,35 % lead by weight. □	
6(b)	Lead as an alloying element in aluminium containing up to 0,4 % lead by weight. □	
6(c)	Copper alloy containing up to 4% lead by weight.	
7(a)	Lead in high melting temperature type solders (i.e. lead- based alloys containing 85 % by weight or more lead).	
7(b)	Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission, and network management for telecommunications.	
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.	
7(c)-II	Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher.	
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 being part of integrated circuits or discrete semiconductors.	



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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.	
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.	
9(b)	Lead in bearing shells and bushes for refrigerant -containing compressors for heating, ventilation, air conditioning and refrigeration (HVACR) applications.	Applies to categories 8, 9 and 11; expires on: -21 July 2023 for category 8 in vitro diagnostic medical devices; -21 July 2024 for category 9 industrial monitoring and control instruments and for category 11; -21 July 2021 for other subcategories of categories 8 and 9.
9(b)-(I)	Lead in bearing shells and bushes for refrigerant -containing hermetic scroll compressors with a stated electrical power input equal or below 9 kW for heating, ventilation, air conditioning and refrigeration (HVACR) applications.	Applies to category 1; expires on 21 July 2019.
11(a)	Lead used in C-press compliant pin connector systems.	May be used in spare parts for EEE placed on the market before 24 September 2010.
11(b)	Lead used in other than C-press compliant pin connector systems.	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.



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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.	Expires on 1 January 2011 and after that date may be used in spare parts for EEE placed on the market before 1 January 2011.
15	Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages.	
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).	Expires 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 (BaSi2O5 :Pb).	
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.



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21	Lead and cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses.	
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.	
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.
29	Lead bound in crystal glass as defined in Annex I (Categories 1, 2, 3 and 4) of Council Directive 69/493/EEC.	
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).	
32	Lead oxide in seal frit used for making window assemblies for Argon and Krypton laser tubes.	
33	Lead in solders for the soldering of thin copper wires of 100 µm diameter and less in power transformers.	
34	Lead in cermet-based trimmer potentiometer elements.	
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. □	
38	Cadmium and cadmium oxide in thick film pastes used on aluminium bonded beryllium oxide.	



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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.	Expires 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 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.	Expires on 31 December 2018. □

\*\*\*\*\* End of Report \*\*\*\*\*

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