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 Writer : Nick Yang
 Division : General

研華 GPM 監管物質標準
 Advantech GPM Regulated Substances
 Standard

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版別變更記錄： Version Change Record							
版次 Version	日期 Date	版本變更 Version of Change					
A0	2010/11/12	初版					
A1	2011/12/20	修改請詳見變更內容摘要					
A2	2013/1/23	修改請詳見變更內容摘要					
A3	2014/2/1	修改請詳見變更內容摘要					
A4	2015/1/19	修改請詳見變更內容摘要					
A5	2016/1/5	修改請詳見變更內容摘要					
B0	2017/12/29	修改請詳見變更內容摘要					
B1	2021/3/22	修改請詳見變更內容摘要					
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NJ.Lin		Sunni.Wang		Nick.Yang			
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版次 Version	日期 Date	變更內容摘要 Description of Change
A0	2010/11/12	初版
A1	2011/12/20	<p>1. JIG101 Ed 4.0 於 2011 年 3 月 10 日公布，其內容新增 3 項物質:結晶紫，DIHP, DHNUP。於 4.1.3 新增結晶紫(附錄 5.2.29)；於 5.2.21 加入 DIHP 以及 DHNUP</p> <p>2. 原 5.2.29 REACH SVHC 的內容變更為 5.2.31。刪除原物質內容，改提供連結網址</p> <p>3. 於 4.1.3 加入 REACH 附錄 17 的內容，並新增其附錄 5.2.30</p> <p>4. 新增歐盟 RoHS 指令的豁免清單 2011/534/EU。於 5.1 新增除外條款 7(c)-IV 以及 40</p> <p>5. RoHS 指令 2002/95/EC 修改為 2011/65/EU</p>
A2	2013/1/23	<p>1. JIG101 Ed 4.1 於 2012.5.21 公布,其內容新增變更如下: (1)於 4.1.3 加入氣系阻燃劑(CFR);更新 PVC 名稱 (2)於附錄 5.2.5 加註偶氮化合物的名稱解釋</p> <p>2. PAHs 於 2011.12 新增 2 個項目,目前總共為 18 項(請參考附錄 5.2.17) 於 4.1.2 加入此物質 Benzo[a]Pyrene 限制值為 1ppm</p> <p>3. REACH 於 2012.5 公告,將 DMF 加入附錄 17 於 4.1.2 修改 DMF 限制值為 0.1 ppm</p> <p>4. 鄰苯二甲酸酯類 (1)於 4.1.3 修改成其他鄰苯二甲酸酯類,於附錄 5.2.21 加入 DNHP, DnPP (2)於 4.1.2 新增 DEHP,DBP,BBP 為保證物質</p> <p>5. 於電池指令與包裝材指令加上國際法規號碼</p> <p>6. 歐盟 RoHS 指令的豁免清單 5.1,刪除已經到期的除外條款</p> <p>7. 2013/2/1 起,新承認的料件都需要提供測試方法為 IEC 62321 的檢測報告</p> <p>8. 增加 3.8 一般常用名詞說明</p> <p>新增附錄 5.3 檢測物質參考資訊,REACH 參考資訊從附錄 5.2 移至 5.4</p>
A3	2014/2/1	<p>1. 於 4.1 表 1~表 3,修改”適用對象”管制,加入 components and materials.</p> <p>2. 於 4.1.2 Ozone Depleting Substance 項目,修改”適用對象”管制,加入製程所用材料</p> <p>3. 於 4.1.3 監視物質“其他鄰苯二甲酸酯類”加上 DEHP, BBP, DBP 除外</p> <p>4. 增加 3.9 供應商的職責及 3.8 有害物質名詞說明</p> <p>5. 依照德國法規 ZEK 01.4-08,於 Appendix 5.2.17 加入 PAHs 分類別管制</p> <p>6. 於 Appendix 5.2.1 和 Appendix 5.2.18 依化審法監管物質各增列其化合物; Appendix 5.2.30 和 Appendix 5.2.21 增列其化合物</p> <p>7. 於 Appendix 5.4.3 增列 REACH 附錄 14 資訊</p> <p>8. 移除 4.3 電池指令汞及其化合物於鈕扣電池中的除外</p>

版次 Version	日期 Date	變更內容摘要 Description of Change
A4	2015/1/19	1.於 4.1.2 修改 DOT 及 DBT 的管制範圍,新增 DIBP,PFOA 及 POPs, Perchlorates(過氯酸鹽)從監視物質移至保證物質管制 Updated DOT, DBT and Added DIBP, PFOA, POPs in 4.1.2. Changed Perchlorates from 4.1.3 to 4.1.2. 2.於 4.1.3 監視物質刪除鎂及其合金 Deleted Magnesium and its alloy in 4.1.3. 3.於 4.4 新增研華低鹵定義 Added definition of “Advantech Low Halogen”. 4.於 5.1 新增修改歐盟 RoHS 指令除外清單,並刪除已經到期的除外條款 Updated RoHS exemptions in 5.1. 5.於 Appendix 5.2.17 PAHs 新增 REACH 附錄 17 管制 Added PAHs controlled in REACH ANNEX XVII in Appendix 5.2.17. 6.於 Appendix 5.2.增列其化合物(參考 IEC 62474) Added the substances in Appendix 5.2. (Reference by IEC 62474)
A5	2016/1/5	1. 於 2.1(3) 修改產品適用範圍 Updated 2.1(3) Scopes applicable to products. 2. 於 3.2 修改 RoHS 定義 Updated 3.2 Definition of RoHS 3. 於 3.9.1 修改供應商的職責描述 Updated 3.9.1 Supplier’s Responsibilities Description 4. 於 4.1.2 新增 BNST 和紅磷為保證物質 Added the Declaration substances of BNST and Red phosphor in 4.1.2. 5. Perchlorates(過氯酸鹽)從保證物質移至監視物質管制 Changed Perchlorates from 4.1.2 to 4.1.3. 6. RoHS 指令(EU) 2015/863 限用物質(DEHP,BBP,DBP,DIBP)單獨列出 Separately listed, Restricted substances in RoHS Directive (EU)2015/863 7. 於 4.1.4 修改 REACH SVHC 宣告方式 Updated in 4.1.4.For disclosure information of REACH SVHC. 8. 於 4.2 增加包材修訂指令 2013/2/EU Added Packing amending Directive 2013/2/EU. 9. 於 4.3 修改電池中鉛的限制值 40 ppm 和增加電池修訂指令 2013/56/EU Changed the Allowable concentration of Pb in Battery. Added Battery amending Directive 2013/56/EU. 10. 於 Appendix 5.1 增加除外條款的備註說明 Added annotation for RoHS Exemptions in Appendix 5.1. 11. 增加參考法規 in Appendix 5.6. Added the reference of law information in Appendix 5.6.

版次 Version	日期 Date	變更內容摘要 Description of Change
B0	2017/12/29	<ol style="list-style-type: none"> 1. 於 3.4 修改 REACH SVHC & REACH ANNEX XVII 的官方網址 Updated the website link for REACH SVHC & REACH ANNEX XVII in Chapter 3.4 2. 於 4.1.1 增加(EU) 2015/863 列管的 4 項物質並修正檢測物質的內容 Added 4 substance listed directive (EU) 2015/863 in Chapter 4.1.1 Updated the content in Chapter 4.1.1 3. 於 4.1.2 增加紅磷、BNST 的備註的內容 Updated the notes for Red phosphorus & BNST in Chapter 4.1.2 4. 於 4.1.2 修改三取代基有機錫化合物的管制範圍 Updated the scope of application for Trisubstituted organotin compounds in Chapter 4.1.2 5. 於 4.1.3 增加鎳、AZO、甲醛、多環芳香烴(PAHs)、紅磷 Added Ni, AZO, Formaldehyde, PAHs and Red phosphorus in Chapter 4.1.3 6. 於 4.1.3 修改”申報濃度”的欄位 Changed the “Threshold concentration for Reporting” in Chapter 4.1.3 7. 於 4.3 中修改電池的管制內容 Updated the content in Appendix 4.3 8. 於 Appendix 5.1 中增加 7(b)的到期日 Added the expiry date of item 7(b) in Appendix 5.1 9. 於 Appendix 5.1 中修改 15 的中文描述 Changed the Chinese description for item 15 in Appendix 5.1 10. 於 Appendix 5.2.17 修改多環芳香烴(PAHs)的管制內容 Updated the PAHs in Appendix 5.2.17 11. 於 Appendix 5.2.7 刪除元素銫(CAS No: 7440-46-2)以及鐳(CAS No:7440-24-6) Deleted Cesium (CAS No: 7440-46-2) and Strontium (CAS No:7440-24-6) in Appendix 5.2.7 12. 於 Appendix 5.3 修改內容 Updated the content in Appendix 5.3
B1	2021/3/22	<ol style="list-style-type: none"> 1. 於 2.2 修改適用範圍的內容 Updated the content in Chapter 2.2 2. 於 3.7 修改檢測物質的內容 Updated the content in Chapter 3.7 3. 於 4.1.1 修改檢測物質的內容 Updated the content in Chapter 4.1.1 4. 於 4.1.1 變更 RoHS 調和標準 Updated RoHS Harmonized Standards in Chapter 4.1.1 5. 於 4.1.2 更新 PFOA, PFOA 已被 REACH 附錄 17 以及 POPs 納入管制 Updated PFOA in Chapter 4.1.2. PFOA has been regulated by REACH Annex 17 and POPs

	2021/3/22	<p>6. 於 4.1.2 更新 PFOS Updated PFOS in Chapter 4.1.2</p> <p>7. 於 4.1.2 增加其他溴系阻燃劑(PBBs, PBDEs, HBCDD 除外) Added Other Brominated Flame Retardants (except PBBs, PBDEs, HBCDD) in Chapter 4.1.2</p> <p>8. 於 4.1.2 增加氯系阻燃劑 Added Chlorinated Flame Retardants in Chapter 4.1.2</p> <p>9. 於 4.1.2 增加異丙基化磷酸三苯酯 Added Phenol, isopropylated phosphate (3:1) (PIP (3:1)) in Chapter 4.1.2</p> <p>10. 於 4.1.2 增加 2,4,6 三-叔丁基苯酚 Added 2,4,6-Tris(tert-butyl)phenol (2,4,6-TTBP) in Chapter 4.1.2</p> <p>11. 於 4.1.2 增加五氯硫酚 Added Pentachlorothiophenol (PCTP) in Chapter 4.1.2</p> <p>12. 於 4.1.3 增加中鏈氯化石蠟(C14-17) Added Alkanes, C14-17, chloro (Medium chain chlorinated paraffins) in Chapter 4.1.3</p> <p>13. 於 5.1 中更新 RoHS 除外條款 Updated the content in Appendix 5.1</p> <p>14. 於 5.2.31 更新 PFOA Updated PFOA in Appendix 5.2.31</p> <p>15. 於 5.4 中修改連結網址 Updated the website in Appendix 5.4</p> <p>16. 於 4.2 中新增美國 TPCH 要求 Added US TPCH in Chapter 4.2</p> <p>17. 於 4.2 中新增全氟/多氟烷基物質(PFAS), 鄰苯二甲酸鹽類 Added Perfluoroalkyl and polyfluoroalkyl substances (PFAS) and Phthalates Compounds in Chapter 4.2</p> <p>18. 於 4.1.3 增加全氟/多氟烷基物質(PFAS) Added Perfluoroalkyl and polyfluoroalkyl substances (PFAS) in Chapter 4.1.3</p> <p>19. 於 4.1.3 增加四溴雙酚 A (TBBP-A) Added Tetrabromobisphenol A (TBBP-A) in Chapter 4.1.3</p>
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一. 目的 Purpose

為因應全球環保法令之要求，特訂定研華GPM監管物質標準，以達到(1)防止產品混入有害物質、(2)遵守法令、(3)保護地球環境以及(4)減輕對生態系統影響的目的。

In respond to the requirements of global environment concerning ordinances, Advantech define the “Advantech GPM Regulated Substances Standard” to realize the following aims:

- 1) To prevent the above-mentioned substances from being used for Advantech products
- 2) To comply with related laws and regulations
- 3) To reduce the influence of the above substances upon the ecosystem; and
- 4) To contribute to the preservation of the global environment

二. 範圍 Scope

2.1 產品的適用範圍 Scope applicable to products

- (1) 由研華設計、製造、銷售並且發佈的產品
- (2) 研華委託第三者設計、製造，貼有研華的商標進行銷售或發佈的產品
- (3) 委託研華進行設計、製造的產品(客戶指定用料除外)
(如其所管制之化學物質要求超出本規範,將依客戶特殊要求另行管制)
- 1) Advantech products that are designed and manufactured by the Advantech for sale, loan, or distribution.
- 2) Advantech products being sold or distributed with Advantech logos on them, whose design and production are outsourced to third parties.
- 3) Design and Manufacturing Service (DMS) products are outsourced to Advantech. (Except for the parts and materials are specified by the customer.)
(When controlled chemical substances that exceed Advantech, will be according to customers requirements separately control.)

2.2 部件和材料的適用範圍 Scope applicable to components and materials

適用於研華以及研華委託設計、製造的產品所包含的部件、材料及其他物品(例如: 輔耗材等)。這些必須符合本規範中規定的標準。

Targets are the components, materials, and other articles such as consumables that are procured by Advantech or by third parties to which Advantech outsources the design and manufacture of products.

備註:

在本規範中未明確規定的物質或者其用途，如果各國或當地法令禁止使用或限制使用，必須按照其各國或當地法令執行。

Note:

Regarding the use of substances are prohibited or restricted by regional or country's laws and ordinances, the laws and ordinances must be observed and followed even though the substances and their uses are nor clearly regulated in this standard.

三. 定義 Definition

3.1 監管物質 Regulated Substances

研華判定在材料、部件、等所含有的物質中，有對地球環境和人體存在顯著影響的物質。

Among the substances contained in components and devices, “Environment-related Substances to be controlled (‘Controlled Substances’)” are those which, according to Advantech’s judgment, have significant environmental-impact on both humans and the globe.

3.2 RoHS

電氣及電子設備使用某些危害物質限制指令 (RoHS) 2011/65/EU 及歐盟修訂指令 (EU)2015/863(修訂2011/65/ EU附錄II限制物質清單)

Means Restriction of Hazardous Substances (RoHS) Directive 2011/65/EU and amending Directive (EU) 2015/863.

(Amending Annex II to Directive 2011/65/EU of the European Parliament and of the Council as regards the list of restricted substances)

3.3 REACH

係指歐盟新化學品政策REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) 法規，於2007年6月1日正式生效實施，其詳細內容可連結下列歐盟網站查詢：

<http://echa.europa.eu>

Means the regulations REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) under EU’s new chemical policy; REACH became officially effective on June 1, 2007, detailed contents of which can be viewed at the following website:

<http://echa.europa.eu>

3.4 SVHC

係指歐盟化學署(European Chemicals Agency, ECHA)所公布需管制之高度關注物質。(Substances of Very High Concern, SVHC)，其所公布之SVHC清單網址連結如下：

[REACH SVHC candidate list](#)

Means Substances of Very High Concern, SVHC, published by the European Chemicals Agency, ECHA; such SVHC list is available by linking to the following website:

[REACH SVHC candidate list](#)

3.5 禁止使用 Prohibited

係指禁止在「產品」中含有被禁用物質。

Means the content of banned substances in the “Product” is not allowed.

3.6 雜質 Impurity

包含在天然材料中，作為工業材料使用，在精製過程中技術上不能完全去除的物質（natural impurity），或者合成反應過程中產生，而在技術上不能完全去除的物質。此外，為了與主原料加以區別，在為了改變材料的特性而使用稱為“雜質”的物質時也按“含有”處理。但是，在製造半導體設備等使用的摻雜劑（Dopant），雖然是有意添加的，但實質上在半導體設備中僅有極微量殘存，這種情況不作為“含有”處理。此外，在本規範中，在指定允許濃度的情況下，當在部件、設備中該環境管理物質作為雜質混入或者粘附時，其濃度不應超過該允許濃度。

An “Impurity” is a substance that satisfies either or both of the following conditions: a) One contained in a natural material, which cannot technically be removed in a refining process totally (i.e. natural impurity); and b) One generated in a synthesis process, the total removal of which is technically impossible.

Additionally, there are substances called “impurity”, the name of which is used to distinguish them from main materials. If they are used for the purpose of changing the characteristics of a material, they are treated as “Contained”. Furthermore, there are substances called Dopants (Doping Agents) that are intentionally added to manufacture semiconductor devices, etc. They are not treated as “Contained” if present in the devices in a very small amount

3.7 管理級別 Management standards

研華 GPM 監管物質管理分為三個級別：

（以下均管制於”均質材質”）

1. 檢測物質(請見表 1): 需提供產品或零組件對此類物質的檢測報告或原廠聲明書。
2. 保證物質(請見表 2): 此類物質不需附上檢測報告，但對於所限制的項目皆須保證符合研華所規定的允許濃度範圍內。
3. 監視物質(請見表3): 此類物質並無禁用，不需附上檢測報告，亦不限制使用含量。但產品或零組件中若含有此類物質時，供應商必須確實向研華進行通報以及其使用資訊。

The Management standard is divided into three levels:
(Substances controlled in Homogeneous Material Level.)

1. Tested substances (See table 1): Need to provide the analysis reports or the declaration of maker.

2. Declaration substances (See table 2): Don't need analysis reports.
The manufactory or supplier shall promise that the products meet the standard for such substances on table 2.
3. Substances of concern (See table 3): No deadline for banning the use is currently set for the substances classified into this level. When the products or components contain such substances, the supplier must report to Advantech and give the information of its use.

3.8 常用名詞 Some Common Terminologies

以下為常用名詞

- 1.原料: 原料包括塑材、金屬、外部噴塗、油漆、膠黏劑及其他相關材料
- 2.物質: 物質是化學成分與它們的化合物。例如：鉛是一種化學元素而氧化鉛則是化合物。
- 3.同質性材料(均質材質)： 由一種或一種以上的物質組成的同質性材料 (同質性材料包括塑膠製品、合金、成品、玻璃、與陶器等材料)。
同質性材料表示一種材料不能以機械方法被分解為不同材料。
- 4.無法被檢測：使用標準分析技術檢測同質性材料裡的一種物質的質量，低於偵測極限以下的值而無法測出。
- 5.刻意導入或刻意添加： 刻意導入或刻意添加(物質)表示故意或存心使用其於材料或零件配方，而需要此種物質繼續存在於末端產品，以達成此產品的一定特性、外觀與品質。
- 6.PPM 值：材料(於零件)或零件含有的化學物質總含有量，以 PPM 為測量單位 (百萬分之一=1 毫克/公斤=百分比*10000)。
7. N/A: 不適用。
8. N/C: 不含有。
9. 有害物質: 指能對人類健康或環境產生威脅的物質，典型的有害物質通常是有毒、具腐蝕性、易燃、易爆炸或具化學反應性的物品。

Below are some common terminologies we use throughout this document.

1. Materials: Materials include plastics, metals, coatings, paints, adhesives, and etc.
2. Substances: Substances are chemical elements and their compounds.
Example: lead is a chemical element and lead oxide is a compound.
3. Homogeneous material: a homogenous material is made up of one or more substances (Homogeneous materials include plastics, alloys, finishes, glass, ceramics, etc.). "Homogeneous material means a material that cannot be mechanically disjointed into different materials".
4. Not detectable: Not detectable means that a substance in a homogeneous material is not detected at the lowest limit using standard analytical techniques.

5. Intentionally Introduced or Intentionally Added: Intentionally introduced or intentionally added shall mean deliberately utilized in the formulation of a material or component where its continued presence is desired in the final product to provide a specific characteristic, appearance, or quality.
6. PPM: The amount of chemical substance contained in material (of the component) or component is measured in PPM (component per million = 1mg/km=%*10000)
7. N/A: Not applicable
8. N/C: Not contain
9. Hazardous substance: Hazardous substances are substances that are considered harmful to human health and the environment.

3.9 供應商的職責 Supplier's Responsibilities

1. 提交研華 MCD 調查表, 正確揭露所有產品, 零組件及材質的均質材質資料
2. 提交材質成分表的物質 CAS NO 為未知或是原廠機密, 都需要保證這些物質不含有害物質。

1. Submit Advantech MCD survey form (full material declaration of product, component and material in homogeneous)
2. Suppliers provide the Material Data Form, the actual CAS number / name of the substances are unknown or cannot be reported for trade secret reasons. Suppliers need to prove they don't include hazardous substances.

四. 作業內容 Operation content

4.1 一般禁/限用物質要求 General requirements of banned/restricted substances

4.1.1. 檢測物質: Tested substances

此規範所制定的檢測物質項目包含 RoHS 2011/65/EU & (EU) 2015/863 指令所規定的十項禁用物質。需提供產品或零組件對此類物質的檢測報告(須為 ISO/IEC 17025 認證的檢測實驗室所出的報告^{#1} 或原廠的聲明書^{#2}; 不接受用 XRF 儀器所測的檢測報告)

The items of tested declaration substance contain ten restricted substances defined in RoHS 2011/65/EU & (EU) 2015/863 directive. The maker or vendor need to provide the analysis reports^{#1} of laboratory authenticated by ISO/IEC 17025 or the declaration^{#2} of maker. (Don't accept the test reports by XRF instrument)

表 1 檢測物質項目 (RoHS 2011/65/EU & (EU) 2015/863 指令所規定的十項禁用物質)

Table 1 The items of tested substances contain ten restricted substances defined in RoHS directive 2011/65/EU & (EU) 2015/863.

物質 Substances	適用對象 Application	允許濃度(ppm)^{#3} Allowable concentration (mg/kg=ppm)	參考 Reference
鎘(Cd)及其化合物 Cadmium (Cd) / Cadmium Compounds	所有產品,零組件及材質 All products, parts, components and materials	100ppm	Appendix 5.3.1
鉛(Pb)及其化合物 Lead (Pb) / Lead Compounds	所有產品,零組件及材質 All products, parts, components and materials	1000ppm	Appendix 5.3.2
汞(Hg)及其化合物 Mercury (Hg) / Mercury compounds	所有產品,零組件及材質 All products, parts, components and materials	1000ppm	Appendix 5.3.3
六價鉻及(Cr6+)其化合物 Hexavalent-Chromium (Cr6+) Compounds	所有產品,零組件及材質 All products, parts, components and materials	1000ppm	Appendix 5.3.4
多溴聯苯類(PBBs) Polybrominated biphenyls(PBBs)	所有產品,零組件及材質 All products, parts, components and materials	1000ppm	Appendix 5.3.5
多溴聯苯醚類(PBDEs) Polybrominated diphenyl ethers(PBDEs)	所有產品,零組件及材質 All products, parts, components and materials	1000ppm	Appendix 5.3.6
鄰苯二甲酸二乙基己酯(DEHP) Bis (2-ethylhexyl) phthalate (DEHP)	所有產品,零組件及材質 All products, parts, components and materials	1000ppm	Appendix 5.3.7
鄰苯二甲酸丁酯苯甲酯(BBP) Buty-benzyl phthalate(BBP)	所有產品,零組件及材質 All products, parts, components and materials	1000ppm	Appendix 5.3.7
鄰苯二甲酸二丁酯(DBP) Dibutylphthalate(DBP)	所有產品,零組件及材質 All products, parts, components and materials	1000ppm	Appendix 5.3.7
鄰苯二甲酸二異丁酯(DIBP) Diisobutyl phthalate (DIBP)	所有產品,零組件及材質 All products, parts, components and materials	1000ppm	Appendix 5.3.7

備註:

- #1. 測試報告其測試方法須為 IEC 62321。(參考:RoHS 2011/65/EU 第 16 條(2)調和標準 EN IEC 63000)
- #2. 原廠所提供的 RoHS 聲明書須明確指出此產品或零組件 RoHS 除外條款使用資訊，並於研華 GPM 系統填入正確資料。
- #3. 允許濃度所列的限值不適用於歐洲 RoHS 指令的除外條款(附錄 5.1)。若物質超過規定允許濃度的限值時，需提供所使用的除外條款，並至研華 GPM 管理平台登錄資料。

Notes:

- #1. All of the chemical analysis reports provided to Advantech must follow the test methods of IEC 62321. (Reference: RoHS 2011/65/EU Article 16 (2) Harmonized Standards EN IEC 63000)
- #2. The RoHS declaration shall clear the use of information about exemption, and write the correct information on Advantech GPM platform.
- #3. "Allowable concentration" on table 1 doesn't apply to RoHS exemption.(see Appendix 5.1)

4.1.2 保證物質(不能刻意添加): Declaration substances (Not Intentionally Added)

表 2.保證物質項目

Table 2.The items of declaration substances

物質 Substances	適用對象 Application	允許濃度(ppm) Allowable concentration (mg/kg=ppm)	參考 Reference.
三取代基有機錫化合物(包括三丁基錫化合物(TBT), 三苯基錫化合物(TPT), 氧化三丁基錫(TBTO)) Trisubstituted organotin compounds(including Tributyltin (TBT) compounds , Triphenyltin (TPT) compounds and Tributyl tin oxide(TBTO))	所有產品,零組件及材質 All products, parts, components and materials	1000 ppm of tin(Sn)	<u>Appendix 5.2.1</u>
二丁基錫化合物(DBT) Dibutyltin(DBT) compounds	所有產品,零組件及材質 All products, parts, components and materials	1000 ppm of tin(Sn)	<u>Appendix 5.2.2</u>

<p>物質 Substances</p>	<p>適用對象 Application</p>	<p>允許濃度(ppm) Allowable concentration (mg/kg=ppm)</p>	<p>參考 Reference.</p>
<p>二辛基錫化合物(DOT) Diocetyl tin (DOT) compounds</p>	<p>(a) 與皮膚接觸的 紡織品和皮革製品 (b)兒童護理用品 (c)兩組式室溫硫化模具 (RTV-2 模具) (a) textile and leather articles intended to come into contact with the skin (b) childcare articles (c) two-component room temperature vulcanization molding kits (RTV-2 molding kits)</p>	<p>1000 ppm of tin(Sn)</p>	<p>Appendix 5.2.2</p>
<p>鎳(Ni)及其化合物 Nickel (Ni) / Nickel Compounds</p>	<p>有可能長時間接觸皮膚的用途 Prohibited on surfaces that are designed to be in prolonged contact with skin.</p>	<p>禁止使用 Prohibited</p>	<p>Appendix 5.2.3</p>
<p>石棉類 Asbestos</p>	<p>所有產品,零組件及材質 All products, parts, components and materials</p>	<p>禁止使用 Prohibited</p>	<p>Appendix 5.2.4</p>
<p>特定偶氮化合物 Specific Azo Compounds</p>	<p>有可能長時間接觸皮膚的用途 Prohibited on surfaces that are designed to be in prolonged contact with skin.</p>	<p>禁止使用 Prohibited</p>	<p>Appendix 5.2.5</p>
<p>臭氧層破壞物質(ODS) (CFC,Halon,HFBC,HCFC,others) Ozone Depleting Substances(ODS) (CFC,Halon,HFBC,HCFC,others)</p>	<p>所有產品,零組件及材質 All products, parts, components and materials 所有產品,零組件,材質的製程 The manufacturing process of any parts, components, materials or products</p>	<p>禁止使用 Prohibited</p>	<p>Appendix 5.2.6</p>
<p>放射性物質 Radioactive substances</p>	<p>所有產品,零組件及材質 All products, parts, components and materials</p>	<p>禁止使用 Prohibited</p>	<p>Appendix 5.2.7</p>

物質 Substances	適用對象 Application	允許濃度(ppm) Allowable concentration (mg/kg=ppm)	參考 Reference.
多氯三聯苯(PCT) Polychlorinated Terphenyls (PCT)	所有產品,零組件及材質 All products, parts, components and materials	禁止使用 Prohibited	Appendix 5.2.8
多氯聯苯(PCBs)及特定代替物質 Polychlorinated Biphenyls(PCBs) and those specific place of substance	所有產品,零組件及材質 All products, parts, components and materials	禁止使用 Prohibited	Appendix 5.2.9
多氯化萘類(PCNs) (氯原子數 3 個以上) Polychlorinated naphthalenes (PCNs) (more than 3 chlorine atoms)	所有產品,零組件及材質 All products, parts, components and materials	禁止使用 Prohibited	Appendix 5.2.10
氟族溫室效應氣體 Fluorinated greenhouse gases (PFC、SF6、HFC)	所有產品,零組件及材質 All products, parts, components and materials	禁止使用 Prohibited	Appendix 5.2.11
特定苯並三氮唑 (酚、2-(2H-苯並 三唑-2-yl)-4,6-雙(1,1-二甲乙基)) Phenol,2-(2H-benzotriazol-2-yl)- 4,6-bis(1,1-dimethylethyl)	所有產品,零組件及材質 All products, parts, components and materials	禁止使用 Prohibited	Appendix 5.2.12
六溴環十二烷(HBCDD)及其異構 物 Hexabromocyclododecane (HBCDD) and all major diastereoisomers	所有產品,零組件及材質 All products, parts, components and materials	1000ppm	Appendix 5.2.13
短鏈氯化石蠟(C10-13) Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	所有產品,零組件及材質 All products, parts, components and materials	1000ppm	Appendix 5.2.14
甲醛 Formaldehyde	複合木 Composite wood	禁止使用 Prohibited	Appendix 5.2.15
	紡織品 Textile	75ppm	
富馬酸二甲酯(DMF) Dimethyl fumarate(DMF)	所有產品,零組件及材質 All products, parts, components and materials	0.1ppm	Appendix 5.2.16

物質 Substances	適用對象 Application	允許濃度(ppm) Allowable concentration (mg/kg=ppm)	參考 Reference.
多環芳香烴(PAHs) Polycyclic Aromatic Hydrocarbons (PAHs)	遵循法規,依照不同類別控管,請參考附錄 5.2.17 Controlled in the different product type. See Appendix 5.2.17.		Appendix 5.2.17
全氟辛烷磺酸(PFOS)及其鹽類 Perfluorooctane Sulfonates (PFOS) and salts, etc	所有產品,零組件及材質 All products, parts, components and materials	禁止使用 Prohibited	Appendix 5.2.18
REACH 法規附錄 17(ANNEX XVII)危險物質 Hazardous substances in ANNEX XVII to REACH	遵循 REACH 法規要求內容實施 To practice in compliance with the content of REACH requirements		Appendix 5.4.1
全氟辛酸(PFOA)及其鹽類及其相關化合物 Perfluorooctanoic Acid (PFOA) its salts and PFOA related compounds	所有產品,零組件及材質 All products, parts, components and materials	禁止使用 Prohibited	Appendix 5.2.31
持久性有機污染物(源)(POPs) Persistent Organic Pollutants(POPs)	所有產品,零組件及材質 All products, parts, components and materials	禁止使用 Prohibited	Appendix 5.5
其他溴系阻燃劑(PBBs, PBDEs, HBCDD 除外) ^{#4} Other Brominates Flame Retardants (except PBBs, PBDEs, HBCDD) ^{#4}	作為顯示器產品外殼或支架的零件 The parts as the enclosure and stand in display products ^{#4}	1000ppm	Appendix 5.2.28
氯系阻燃劑 ^{#4} Chlorinated Flame Retardants ^{#4}	作為顯示器產品外殼或支架的零件 The parts as the enclosure and stand in display products ^{#4}	1000ppm	Appendix 5.2.30
異丙基化磷酸三苯酯 Phenol, isopropylated phosphate (3:1) (PIP (3:1))	所有產品,零組件及材質 All products, parts, components and materials	禁止使用 Prohibited	Appendix 5.2.34
2,4,6 三-叔丁基苯酚 2,4,6-Tris(tert-butyl)phenol (2,4,6-TTBP)	所有產品,零組件及材質 All products, parts, components and materials	禁止使用 Prohibited	Appendix 5.2.35
五氯硫酚 Pentachlorothiophenol (PCTP)	所有產品,零組件及材質 All products, parts, components and materials	禁止使用 Prohibited	Appendix 5.2.36

物質 Substances	適用對象 Application	允許濃度(ppm) Allowable concentration (mg/kg=ppm)	參考 Reference.
二苯胺與苯乙烯和 2,4,4-三甲基戊烯的反應產物(BNST) Benzenamine, N-phenyl-, reaction products with styrene and 2,4,4-trimethylpentene(BNST)	所有產品,零組件及材質 ^{#5} All products, parts, components and materials ^{#5} 所有產品,零組件,材質的製程 The manufacturing process of any parts, components, materials or products.	禁止使用 ^{#5} Prohibited ^{#5}	<u>Appendix 5.2.32</u>
紅磷 ^{#6} Red phosphorus ^{#6}	阻燃劑用於連接器塑膠件及線材塑膠件 ^{#7} Flame retardants in the plastic of connector and cable. ^{#7}	禁止使用 ^{#7} Prohibited ^{#7}	<u>Appendix 5.2.33</u>

備註:

- #4. 用於顯示器產品外殼和支架的塑膠件不允許使用溴系和氯系阻燃劑，這是依據歐盟指令（EU）2019/2021 電子顯示器生態設計的要求。
- #5. BNST 的豁免對象:用於橡膠製品(不包含橡膠輪胎)的添加劑可豁免
- #6. 紅磷的禁止並不是環境關聯的法律法規等所要求，而是為了預防產品安全相關事故為目的所列管。
- #7. 紅磷豁免對象: 連接器或線材中不會接觸不同電極導體的塑膠部件可豁免

Notes:

- #4. According to the requirements of the directive (EU) 2019/2021 for eco-design product. The use of halogenated flame retardants is not allowed in the enclosure and stand of electronic displays.
- #5. BNST exemption: Additive in rubber but except in tires.
- #6. Red phosphorus is not banned by environmental laws or regulations. However, ADVANTECH is banning its use to prevent accidents and ensure product safety.
- #7. Red phosphorus exemption: The plastic parts of connector or cable which don't contact with electrode conductor.

4.1.3 監視物質: Substances of concern

此類物質並無禁用不需附上檢測報告，亦不限制使用含量。但產品或零組件若含有此類物質時，供應商必須確實向研華進行通報。

Substances of concern (See table 3): No deadline for banning the use is currently set for the substances classified into this level. When the products or components contain such substances, the supplier must report to Advantech and give the information of its use.

表 3 監視物質項目
Table 3. The items of concentration substances

物質 Substances	適用對象 Application	參考 Reference.
砷(As)及其化合物 Arsenic (As) / Arsenic Compounds	所有產品,零組件及材質 All products, parts,components and materials	Appendix 5.2.20
其他鄰苯二甲酸鹽類 (DEHP, BBP, DBP, DIBP 除外) Other phthalates Compounds (except DEHP, BBP, DBP, DIBP)	所有產品,零組件及材質 All products, parts,components and materials	Appendix 5.2.21
銻(Sb)及其化合物 Antimony (Sb) / Antimony Compounds	所有產品,零組件及材質 All products, parts,components and materials	Appendix 5.2.22
鈹(Be)及其化合物 Beryllium(Be) / Beryllium Compounds	所有產品,零組件及材質 All products, parts,components and materials	Appendix 5.2.23
鉍(Bi)及其化合物 Bismuth(Bi) / Bismuth Compounds	所有產品,零組件及材質 All products, parts,components and materials	Appendix 5.2.24
硒(Se)及其化合物 Selenium(Se) / Selenium Compounds	所有產品,零組件及材質 All products, parts,components and materials	Appendix 5.2.26
聚聚氯乙烯及其共聚化合物(PVC) Polyvinyl chloride (PVC) & PVC Copolymers	所有產品,零組件及材質 All products, parts,components and materials	Appendix 5.2.27
過氯酸鹽 Perchlorates	所有產品,零組件及材質 All products, parts,components and materials	Appendix 5.2.19
其他溴系阻燃劑(PBBs, PBDEs, HBCDD 除外) Other Brominated Flame Retardants (except PBBs, PBDEs, HBCDD)	除表 2 適用對象外的所有產品,零組件及材質 All products, parts,components and materials (Except the application of substance in table 2)	Appendix 5.2.28

<p style="text-align: center;">物質 Substances</p>	<p style="text-align: center;">適用對象 Application</p>	<p style="text-align: center;">參考 Reference.</p>
<p style="text-align: center;">氯系阻燃劑 Chlorinated Flame Retardants</p>	<p style="text-align: center;">除表 2 適用對象外的所有產品,零組件及材質 All products, parts, components and materials (Except the application of substance in table 2)</p>	<p style="text-align: center;">Appendix 5.2.30</p>
<p style="text-align: center;">鹼性紫 3;結晶紫 4-[4,4'-bis(dimethylamino) benzhydrylidene] cyclohexa-2,5-dien-1-ylidene dimethylammonium chloride (C.I.Basic Violet 3)</p>	<p style="text-align: center;">所有產品,零組件及材質 All products, parts, components and materials</p>	<p style="text-align: center;">Appendix 5.2.29</p>
<p style="text-align: center;">鎳(Ni)及其化合物 Nickel (Ni) / Nickel Compounds</p>	<p style="text-align: center;">除表 2 適用對象外的所有產品,零組件及材質 All products, parts, components and materials (Except the application of substance in table 2)</p>	<p style="text-align: center;">Appendix 5.2.3</p>
<p style="text-align: center;">特定偶氮化合物 Specific Azo Compounds</p>	<p style="text-align: center;">除表 2 適用對象外的所有產品,零組件及材質 All products, parts, components and materials (Except the application of substance in table 2)</p>	<p style="text-align: center;">Appendix 5.2.5</p>
<p style="text-align: center;">多環芳香烴(PAHs) Polycyclic Aromatic Hydrocarbons (PAHs)</p>	<p style="text-align: center;">除表 2 適用對象外的所有產品,零組件及材質 All products, parts, components and materials (Except the application of substance in table 2)</p>	<p style="text-align: center;">Appendix 5.2.17</p>
<p style="text-align: center;">甲醛 Formaldehyde</p>	<p style="text-align: center;">除表 2 適用對象外的所有產品,零組件及材質 All products, parts, components and materials (Except the application of substance in table 2)</p>	<p style="text-align: center;">Appendix 5.2.15</p>
<p style="text-align: center;">紅磷 Red phosphorus</p>	<p style="text-align: center;">除表 2 適用對象外的所有產品,零組件及材質 All products, parts, components and materials (Except the application of substance in table 2)</p>	<p style="text-align: center;">Appendix 5.2.33</p>
<p style="text-align: center;">中鏈氯化石蠟(C14-17) Alkanes, C14-17, chloro (Medium chain chlorinated paraffins)</p>	<p style="text-align: center;">所有產品,零組件及材質 All products, parts, components and materials</p>	<p style="text-align: center;">Appendix 5.2.37</p>

物質 Substances	適用對象 Application	參考 Reference.
全氟/多氟烷基物質 (Perfluoroalkyl and polyfluoroalkyl substances, PFAS)	除表 5 適用對象外的所有產品,零組件及材質 All products, parts, components and materials (Except the application of substance in table 5)	Appendix 5.2.38
四溴雙酚 A (TBBP-A) Tetrabromobisphenol A (TBBP-A)	所有產品,零組件及材質 All products, parts, components and materials	Appendix 5.2.39

4.1.4 REACH 高關注物質: Substances of REACH SVHC

表 4 REACH SVHC

Table 4. The items of REACH SVHC

物質 Substances	適用對象 Application	通報閾值濃度 Threshold concentration for Reporting	參考 Reference.
REACH SVHC ^{#8}	所有產品,零組件及材質 All products, parts, components and materials	1000 ppm	Appendix 5.4.2

備註:

#8. REACH SVHC-沒有禁用。若產品或零組件中含有 REACH SVHC 所列物質時，供應商必須確實通報。

Notes:

#8. Substances of REACH SVHC-Not Prohibited. When the products or components contain such substances, the supplier must report to Advantech and give the information of its use.

4.2. 包裝材 Packaging materials

研華包裝材除需符合 4.1 所述的規範外，亦需符合美國包裝材毒性物質訊息交流中心(Toxics in Packaging Clearinghouse, TPCH)的要求以及歐盟包材指令 94/62/EC 和修訂指令 2013/2/EU (表 5)

Advantech packaging material requests must compliance chapter 4.1, also compliance US Toxics in Packaging Clearinghouse, EU packaging Directive 94/62/EC and amending Directive 2013/2/EU as table 5.

表 5. (Table 5.)

物質 Substances	適用對象 Application	允許濃度(ppm) Allowable concentration(mg/kg=ppm)
RoHS 重金屬 RoHS heavy metal (Cd、Pb、Hg、 Cr+6)	所有包裝材 all packaging materials	總和小於 100ppm Sum < 100ppm
全氟/多氟烷基物質 (Perfluoroalkyl and polyfluoroalkyl substances, PFAS)	所有包裝材 all packaging materials	禁止使用 Prohibited
鄰苯二甲酸鹽類 Phthalates Compounds	所有包裝材 all packaging materials	總和小於 100ppm Sum < 100ppm

4.3 電池 Battery

研華電池除需符合 4.1 所述的規範外，亦需符合歐盟電池指令 2006/66/EC 和修訂指令 2013/56/EU(表 6)

Advantech battery requests must compliance chapter 4.1, also compliance EU Battery Directive 2006/66/EC and amending Directive 2013/56/EU as table 6.

表 6. (Table 6.)

物質 Substances	適用對象 Application	允許濃度(ppm) Allowable concentration(mg/kg=ppm)
鎘及其化合物 Cadmium (Cd) / Cadmium Compounds	所有電池 all batteries	20 ppm
鉛及其化合物 Lead (Pb) / Lead Compounds	所有電池(鉛蓄電池除外) all batteries(except lead storage batteries)	40 ppm
汞及其化合物 Mercury(Hg)/Mercury compounds	所有電池 all batteries	5 ppm

4.4 低鹵 Low Halogen for Advantech

4.4.1 定義 Definition

若零件或產品符合”研華低鹵”,其每個均質材料皆需符合表 7 限制的濃度值
 Parts and/or products are considered “Low Halogen for Advantech”, each homogenous material in the part or product meets the maximum concentration values in Table 7.

表 7. (Table 7.)

物質應用 Application Substance	物質 Substance	最大允許濃度 (均質材料) Maximum Concentration Value (Homogeneous material)
印刷電路板 Printed Circuit Board (PCB)	Bromine (Br)	Less than 900 ppm
	Chlorine (Cl)	Less than 900 ppm
	Bromine (Br) + Chlorine (Cl)	Less than 1500 ppm
所有其他零件與材料 All other parts and materials	Brominated Flame Retardants (BFRs)	Less than 1000 ppm
	Chlorinated Flame Retardants (CFRs)	Less than 1000 ppm
	Polyvinyl Chloride (PVC)	Less than 1000 ppm

4.4.2 研華並無強制要求符合”低鹵”。若零件或是產品可符合”低鹵”,則必需提供相關的佐證文件證明符合。

Advantech is not mandatory requested with “Low Halogen ”.

If the materials and parts meet the “Low Halogen ” that need to provide the documents to prove it.

五.附錄 Appendix

5.1 RoHS 除外條款 RoHS Exemptions

下表內容以及到期日可能因業界向歐盟提出的申請而展延或變動，正確的內容請依照歐盟網站公告為主。可至下列網站查詢：

The content and expiration date of the following table may be extended or changed due to applications submitted by manufacturers. Please refer to the EU website announcement for the correct content and expiration date. This is available by linking to the following website:

https://ec.europa.eu/environment/topics/waste-and-recycling/rohs-directive/implementation-rohs-directive_en

物質 Substance	項目 Item	除外項目 Exemption	適用範圍及日期 Scope and dates of applicability
鎘 Cadmium (Cd)	8(b)	可用於電子接點中的鎘及鎘化合物。(Cadmium and its compounds in electrical contacts)	適用於第 8、9 和 11 類產品，到期日： -2021 年 7 月 21 日除類別 8 和 9 以外的體外診斷醫療設備和工業監測和控制設備器； -2023 年 7 月 21 日第 8 類體外診斷醫療設備； -2024 年 7 月 21 日第 9 類工業監測和控制設備、第 11 類。 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 vitrodiagnostic medical devices; -21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11
鎘 Cadmium (Cd)	8(b)-I	應用於以下用途的含鎘及其化合物的電子接點：(Cadmium and its compounds in electrical contacts used in) -斷路器。(circuit breakers,) -熱感應控制。(thermal sensing controls) -熱電機保護器(不包括密封熱電機保護器)。(thermal motor protectors (excluding hermetic thermal motor protectors)) -交流電開關為：(AC switches rated at: • 250 V 及以上時為 6 A 以上，或。(6 A and more at 250 V AC and more, or) • 125 V 及以上時為 12 A 以上。(12 A and more at 125 V AC and more) -直流電開關在直流電 18 V 及以上時為 20A 以上。(DC switches rated at 20 A and more at 18 V DC and more, and) -電源頻率≥200 Hz 時使用的開關。(Switches for use at voltage supply frequency ≥ 200 Hz)	適用於 1-7 和 10 類產品，到期日至 2021 年 7 月 21 日。Applies to categories 1 to 7 and 10 and expires on 21 July 2021.

物質 Substance	項目 Item	除外項目 Exemption	適用範圍及日期 Scope and dates of applicability
鉛, 鎘 Lead (Pb), Cadmium (Cd)	13(b)	濾光玻璃及用來當做反射率標準片玻璃中的鉛及鎘。(Cadmium and lead in filter glasses and glasses used for reflectance standards)	適用於第 8, 9 及 11 類產品，到期日： -第 8 類 體外診斷醫療設備，至 2023 年 7 月 21 日 -第 9 類 工業監視及控制儀器 及 第 11 類，至 2024 年 7 月 21 日 -第 8 及 9 類的其他子類別，至 2021 年 7 月 21 日 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
鉛 Lead (Pb)	13(b)-I	離子色類型光學濾光玻璃中的鉛。(Lead in ion coloured optical filter glass types)	適用於第 1~7 及 10 類產品，到期日至 2021 年 7 月 21 日 Applies to categories 1 to 7 and 10; expires on 21 July 2021 for categories 1 to 7 and 10'
鎘 Cadmium (Cd)	13(b)- II	醒色域類型光學濾光玻璃中的鎘除了 5.1 RoHS 除外條款第 39 項的應用除外。(Cadmium in striking optical filter glass types; excluding applications falling under point 39 of this Annex)	
鉛, 鎘 Lead (Pb), Cadmium (Cd)	13(b)- III	用於反射率標準片中的釉的鉛及鎘。Cadmium and lead in glazes used for reflectance standards	
鉛, 鎘 Lead (Pb), Cadmium (Cd)	21	用於玻璃上釉的印刷油墨中的鉛和鎘，如硼矽酸鹽和鈉石灰玻璃。(Lead and cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses.)	適用於第 8, 9 及 11 類產品，到期日： -第 8 類和第 9 類中除體外診斷醫療設備和工業監測和控制儀器外，截止至 2021 年 7 月 21 日； -第 8 類體外診斷醫療設備，截止至 2023 年 7 月 21 日； -第 9 類工業監測和控制儀器和第 11 類，截止至 2024 年 7 月 21 日 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.

物質 Substance	項目 Item	除外項目 Exemption	適用範圍及日期 Scope and dates of applicability
鎘 Cadmium (Cd)	21(a)	在彩色印刷玻璃中使用鎘提供過濾功能，用作安裝在顯示器和電子電器產品控制台上的照明應用元件。(Cadmium when used in colour printed glass to provide filtering functions, used as a component in lighting applications installed in displays and control panels of EEE)	適用於第 1~7 及 10 類產品，除了除第 21(b)項或第 39 項到期日至 2021 年 7 月 21 日 Applies to categories 1 to 7 and 10 except applications covered by entry 21(b) or entry 39 and expires on 21 July 2021.
鎘 Cadmium (Cd)	21(b)	用於玻璃上釉的印刷油墨中的鎘，如硼矽酸鹽和鈉石灰玻璃。(Cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses)	適用於第 1~7 及 10 類產品，除了除第 21(a)項或第 39 項到期日至 2021 年 7 月 21 日 Applies to categories 1 to 7 and 10 except applications covered by entry 21(a) or 39 and expires on 21 July 2021.
鉛 Lead (Pb)	21(c)	用於硼矽酸鹽玻璃以外的搪瓷的印刷油墨中的鉛。(Lead in printing inks for the application of enamels on other than borosilicate glasses)	適用於第 1~7 及 10 類產品，到期日至 2021 年 7 月 21 日 Applies to categories 1 to 7 and 10; expires on 21 July 2021 for categories 1 to 7 and 10'
鎘 Cadmium (Cd)	30	用於位於音量大於或等於 100 分貝的大功率擴音器音圈上的電導體的電氣或機械焊點的鎘合金。(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.)	
鎘 Cadmium (Cd)	38	用於鋁結合氧化鈹的厚膜漿料中的鎘和氧化鎘。(Cadmium and cadmium oxide in thick film pastes used on aluminium bonded beryllium oxide.)	
鎘 Cadmium (Cd)	39(a)	硒化鎘用於顯示照明應用中使用的鎘基半導體納米晶體量子點(< 0.2 μ g Cd / mm ² 顯示屏幕面積)。(Cadmium selenide in downshifting cadmium based semiconductor nanocrystal quantum dots for use in display lighting applications (< 0.2 μ g Cd per mm ² of display screen area)	到期日至 2019 年 10 月 31 日 Expires for all categories on 31 Oct 2019.
六價鉻 Hexavalent-Chromium (Cr ⁶⁺)	9	電冰箱中作為破鋼冷卻系統防腐劑的六價鉻。(Hexavalent chromium as an anti-corrosion of the carbon steel cooling system in absorption refrigerators.)	
鉛 Lead (Pb)	5(a)	陰極射線管玻璃內的鉛含量。(Lead in glass of cathode ray tubes)	
鉛 Lead (Pb)	5(b)	螢光管玻璃內的鉛含量不得超過其重量之 0.2%。(Lead in glass of fluorescent tubes not exceeding 0,2 % by weight)	

物質 Substance	項目 Item	除外項目 Exemption	適用範圍及日期 Scope and dates of applicability
鉛 Lead (Pb)	6(a)	鉛用於加工用途之鋼材及鍍鋅鋼的合金元素之一，其含量不可超過 0.35%。(Lead as an alloying element in steel for machining purposes and in galvanized steel containing up to 0.35 percent lead by weight)	適用於第 8, 9 及 11 類產品，到期日： -第 8 類和第 9 類中除體外診斷醫療設備和工業監測和控制儀器外，截止至 2021 年 7 月 21 日； -第 8 類體外診斷醫療設備，截止至 2023 年 7 月 21 日； -第 9 類工業監測和控制儀器和第 11 類，截止至 2024 年 7 月 21 日 Applies to categories 8, 9 and 11. 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.
鉛 Lead (Pb)	6(a)-I	鉛用於加工用途之鋼材，含量不可超過 0.35%，用於批量熱浸鍍鋅鋼材，含鉛量不可超過 0.2%。(Lead as an alloying element in steel for machining purposes containing up to 0.35 percent lead by weight and in batch hot dip galvanized steel components containing up to 0.2 percent lead by weight)	適用於第 1~7 及 10 類產品，到期日至 2021 年 7 月 21 日 Expires on 21 July 2021 for categories 1-7 and 10.'
鉛 Lead (Pb)	6(b)	鋁合金中的鉛含量不超過 0.4%。(Lead as an alloying element in aluminium containing up to 0,4 % lead by weight)	適用於第 8, 9 及 11 類產品，到期日： -第 8 類和第 9 類中除體外診斷醫療設備和工業監測和控制儀器外，截止至 2021 年 7 月 21 日； -第 8 類體外診斷醫療設備，截止至 2023 年 7 月 21 日； -第 9 類工業監測和控制儀器和第 11 類，截止至 2024 年 7 月 21 日 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.
鉛 Lead (Pb)	6(b)-I	來源為回收含鉛鋁廢料時，其鉛含量不超過 0.4%。(Lead as an alloying element in aluminium containing up to 0,4 % lead by weight, provided it stems from lead-bearing aluminium scrap recycling)	適用於第 1~7 及 10 類產品，到期日至 2021 年 7 月 21 日。Expires on 21 July 2021 for categories 1-7 and 10.

物質 Substance	項目 Item	除外項目 Exemption	適用範圍及日期 Scope and dates of applicability
鉛 Lead (Pb)	6(b)-II	鉛用於加工用途之鋁合金，其鉛含量不超過 0.4%。(Lead as an alloying element in aluminium for machining purposes with a lead content up to 0,4 % by weight)	適用於第 1~7 及 10 類產品，到期日至 2021 年 7 月 21 日。Expires on 18 May 2021 for categories 1-7 and 10
鉛 Lead (Pb)	6(c)	銅合金中的鉛含量不超過 4%。(Lead as copper alloy containing up to 4% lead by weight.)	到期日： -第 1 至第 7 類和第 10 類，到期日至 2021 年 7 月 21 日 -第 8 類和第 9 類，除體外診斷醫療設備和工業監測和控制儀器外，到期日 2021 年 7 月 21 日 -第 8 類體外診斷醫療設備，到期日 2023 年 7 月 21 日； -第 9 類工業監測和控制儀器和第 11 類，到期日至 2024 年 7 月 21 日 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.'
鉛 Lead (Pb)	7(a)	高熔點鉛錫中的鉛(例如鉛含量 ≥ 85 % 合金中的鉛)。(Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead)).	到期日： -第 1 至第 7 類和第 10 類，到期日至 2021 年 7 月 21 日 -第 8 類和第 9 類，除體外診斷醫療設備和工業監測和控制儀器外，到期日 2021 年 7 月 21 日； -第 8 類體外診斷醫療設備，到期日 2023 年 7 月 21 日； -第 9 類工業監測和控制儀器和第 11 類，到期日至 2024 年 7 月 21 日。 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.'
鉛 Lead (Pb)	7(b)	用於伺服器、記憶體和存儲系統和交換、信號和傳輸，以及電信網路管理的網路基礎設施設備中焊料的鉛。(Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission as well as network management for telecommunications.)	到期日至 2016/7/21 (Expires on 21 July 2016)

物質 Substance	項目 Item	除外項目 Exemption	適用範圍及日期 Scope and dates of applicability
鉛 Lead (Pb)	7(c)-I	含鉛之玻璃或陶瓷的電器和電子元件，介電陶子瓷電容器除外 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	到期日： -第 1 至第 7 類和第 10 類，到期日至 2021 年 7 月 21 日。 -第 8 類和第 9 類，除體外診斷醫療設備和工業監測和控制儀器外，到期日 2021 年 7 月 21 日； -第 8 類體外診斷醫療設備，到期日 2023 年 7 月 21 日； -第 9 類工業監測和控制儀器和第 11 類，到期日至 2024 年 7 月 21 日。 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.'
鉛 Lead (Pb)	7(c)-II	額定電壓為 125 V AC 或 250 V DC 或更高之介電陶子瓷電容器中的鉛 Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher	到期日： -第 1 至第 7 類和第 10 類，到期日至 2021 年 7 月 21 日。 -第 8 類和第 9 類，除體外診斷醫療設備和工業監測和控制儀器外，到期日 2021 年 7 月 21 日； -第 8 類體外診斷醫療設備，到期日 2023 年 7 月 21 日； -第 9 類工業監測和控制儀器和第 11 類，到期日至 2024 年 7 月 21 日。 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.'
鉛 Lead (Pb)	7(c)-IV	以 PZT 為介電陶瓷材料的電容器的鉛，該電容器使用於積體電路或分立半導體(discrete semiconductors)(Lead in PZT based dielectric ceramic materials for capacitors being part of integrated circuits or discrete semiconductors)	到期日： -第 1 至第 7 類和第 10 類，到期日至 2021 年 7 月 21 日。 -第 8 類和第 9 類，除體外診斷醫療設備和工業監測和控制儀器外，到期日 2021 年 7 月 21 日； -第 8 類體外診斷醫療設備，到期日 2023 年 7 月 21 日； -第 9 類工業監測和控制儀器和第 11 類，到期日至 2024 年 7 月 21 日。 Expires on: -21 July 2021 for categories 1-7 and 10,

			<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.’</p>
鉛 Lead (Pb)	9(b)	用於冷暖空調設計 (HVACR) 中零部件的軸承外殼及其軸襯中的鉛。(Lead in bearing shells and bushes for refrigerant-containing compressors for heating, ventilation, air conditioning and refrigeration (HVACR) applications)	<p>適用於第 8, 9 及 11 類產品，到期日： -第 8 類除體外診斷醫療設備，截止至 2023 年 7 月 21 日； -第 9 類工業監測和控制儀器和第 11 類，截止至 2024 年 7 月 21 日； -其他類別，截止至 2021 年 7 月 21 日 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.</p>
鉛 Lead (Pb)	9(b)- I	用於冷暖空調設計 (HVACR)，其電力輸入功率等於或低於 9 kW 的含製冷劑密封渦輪式壓縮機的軸承外殼及其軸襯中的鉛。(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)	<p>適用於第 1 類產品，到期日至 2019 年 7 月 21 日。Applies to category 1; expires on 21 July 2019.’</p>
鉛 Lead (Pb)	15	在積體電路倒裝晶片封裝中，用於完成半導體晶片和載體之間可行的電氣連接的焊料中的鉛(Lead in solders to complete viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.)	<p>適用於第 8, 9 及 11 類產品，到期日： -第 8 類和第 9 類中除體外診斷醫療設備和工業監測和控制儀器外，截止至 2021 年 7 月 21 日； -第 8 類體外診斷醫療設備，截止至 2023 年 7 月 21 日； -第 9 類工業監測和控制儀器和第 11 類，截止至 2024 年 7 月 21 日 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.</p>

物質 Substance	項目 Item	除外項目 Exemption	適用範圍及日期 Scope and dates of applicability
鉛 Lead (Pb)	15 (a)	用於在積體電路倒裝晶片封裝中完成半導體晶片和載體之間可行的電氣連接的焊料中的鉛，至少適用下列條件之一：(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:) -90 納米或以上的半導體技術節點；(a semiconductor technology node of 90 nm or larger) -所有半導體技術節點中的 300 mm ² 及以上的單個模塊；(a single die of 300 mm ² or larger in any semiconductor technology node) -堆疊模組，模組尺寸為 300mm ² 或以上，或矽夾具尺寸為 300mm ² 或以上 (stacked die packages with die of 300 mm ² or larger, or silicon interposers of 300 mm ² or larger)	適用於第 1~7 及 10 類產品，到期日至 2021 年 7 月 21 日。Expires on 21 July 2021 for categories 1-7 and 10.
鉛 Lead (Pb)	17	專業複印設備用的高強度放電燈中作為發光劑的鹵化鉛。(Lead halide as radiant agent in High Intensity Discharge (HID) lamps used for professional reprography applications)	
鉛 Lead (Pb)	18(b)	被用作含磷(例如 BSP (BaSi ₂ O ₅ :Pb))的日曬燈的螢光粉(重量不超過 1% 的鉛)中作為活化劑的鉛。(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))	到期日： -第 1 至第 7 類和第 10 類，到期日至 2021 年 7 月 21 日。 -第 8 類和第 9 類，除體外診斷醫療設備和工業監測和控制儀器外，到期日 2021 年 7 月 21 日； -第 8 類體外診斷醫療設備，到期日 2023 年 7 月 21 日； -第 9 類工業監測和控制儀器和第 11 類，到期日至 2024 年 7 月 21 日。 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.
鉛 Lead (Pb)	18(b)-I	用於醫療光療設備的螢光燈(含螢光粉，如 BSP (BaSi ₂ O ₅ :Pb))的螢光粉(重量不超過 1% 的鉛)中作為活化劑的鉛。(Lead as activator in the fluorescent powder (1 % lead by weight or less) of discharge lamps containing phosphors such as BSP (BaSi ₂ O ₅ :Pb) when used in medical phototherapy equipment)	適用於第 5 類和第 8 類產品，到期日至 2021 年 7 月 21 日 Applies to categories 5 and 8, excluding applications covered by entry 34 of Annex IV, and expires on 21 July 2021.

物質 Substance	項目 Item	除外項目 Exemption	適用範圍及日期 Scope and dates of applicability
鉛 Lead (Pb)	24	通孔盤狀及平面陣列陶瓷多層電容器焊料所含的鉛。(Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors)	到期日： -第 1 至第 7 類和第 10 類，到期日至 2021 年 7 月 21 日。 -第 8 類和第 9 類，除體外診斷醫療設備和工業監測和控制儀器外，到期日 2021 年 7 月 21 日； -第 8 類體外診斷醫療設備，到期日 2023 年 7 月 21 日； -第 9 類工業監測和控制儀器和第 11 類，到期日至 2024 年 7 月 21 日。 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.
鉛 Lead (Pb)	25	等離子顯示屏(PDP)及表面傳導式電子發射顯示器(SED)的構件所用的氧化鉛。(Lead oxide in plasma display panels (PDP) and surface conduction electron emitter displays (SED) used in structural elements; notably in the front and rear glass dielectric layer, the bus electrode, the black stripe, the address electrode, the barrier ribs, the seal frit and frit ring as well as in print pastes.)	
鉛 Lead (Pb)	29	在第 69/493/EEC 號指令附件 1 第 1、2、3 及 4 分類定義下之水晶玻璃的鉛。(Lead bound in crystal glass as defined in Annex I (Categories 1, 2, 3 and 4) of Council Directive 69/493/EEC)。	到期日： -第 1 至第 7 類和第 10 類，到期日至 2021 年 7 月 21 日。 -第 8 類和第 9 類，除體外診斷醫療設備和工業監測和控制儀器外，到期日 2021 年 7 月 21 日； -第 8 類體外診斷醫療設備，到期日 2023 年 7 月 21 日； -第 9 類工業監測和控制儀器和第 11 類，到期日至 2024 年 7 月 21 日。 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.
鉛 Lead (Pb)	31	用於無汞平面螢光燈（例如：用於液晶顯示器、設計或工業照明）的焊料中的鉛。(Lead in soldering materials in mercury free flat fluorescent lamps (which e.g. are used for liquid crystal displays, design or industrial lighting).)	
鉛 Lead (Pb)	32	用於氬和氪鐳射管防護窗組合件的封裝玻璃料裏的鉛的氧化物。(Lead oxide in seal frit used for making window assemblies for Argon and Krypton laser tubes.)	到期日： -第 1 至第 7 類和第 10 類，到期日至 2021 年 7 月 21 日。 -第 8 類和第 9 類，除體外診斷醫療設備和工業監測和控制儀器外，到期日 2021 年 7 月 21 日； -第 8 類體外診斷醫療設備，到期日 2023 年 7 月 21 日； -第 9 類工業監測和控制儀器和第 11 類，到期日至 2024 年 7 月 21 日。 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.
鉛 Lead (Pb)	33	涉及電源變壓器中直徑 100 微米及以下細銅線所用焊料中的鉛。(Lead in solders for the soldering of thin copper wires of 100 μm diameter and less in power transformers.)	
鉛 Lead (Pb)	34	金屬陶瓷微調電位計中的鉛(Lead in cermet-based trimmer potentiometer elements.)	到期日： -第 1 至第 7 類和第 10 類，到期日至 2021 年 7 月 21 日。 -第 8 類和第 9 類，除體外診斷醫療設備和工業監測和控制儀器外，到期日 2021 年 7 月 21 日； -第 8 類體外診斷醫療設備，到期日 2023 年 7 月 21 日； -第 9 類工業監測和控制儀器和第 11 類，到期日至 2024 年 7 月 21 日。 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.

物質 Substance	項目 Item	除外項目 Exemption	適用範圍及日期 Scope and dates of applicability
鉛 Lead (Pb)	37	基於硼酸鋅玻璃體的高壓二極體電鍍層的鉛。(Lead in the plating layer of high voltage diodes on the basis of a zinc borate glass body.)	
鉛 Lead (Pb)	41	產品應用於點火模組和其他電子電氣發動機控制系統時，電子電氣元件的焊料和最終表面材料以及使用於印刷電路板表面材料中的鉛(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)	到期日至 2018/12/31 (Expires on 31 December 2018)
鉛 Lead (Pb)	42	適用於非道路專業使用設備的柴油或燃氣內燃機軸承和襯套中的鉛： (Lead in bearings and bushes of diesel or gaseous fuel powered internal combustion engines applied in non-road professional use equipment) - 發動機總排水量≥15 升；或 (with engine total displacement ≥ 15 litres; or) - 發動機總排水量 < 15 升，發動機適用於信號啟動和滿載之間的時間要求小於 10 秒的應用場合；或者在惡劣和骯髒的戶外環境中進行定期維護，例如採礦、建築和農業應用 (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.)	適用於第 11 類產品除了 6(c) 項中的用途，到期日至 2024 年 7 月 21 日。 Applies to category 11, excluding applications covered by entry 6(c) of this Annex.

物質 Substance	項目 Item	除外項目 Exemption	適用範圍及日期 Scope and dates of applicability
汞 Mercury(Hg)	1	單端螢光燈中所使用的汞含量不得超過(每個燈):(Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):)	
	1(a)	一般用途照明<30 W: 5 毫克(mg)。(For general lighting purposes < 30 W: 5 mg)	到期日至 2011/12/31;小於 3.5 mg 至 2012/12/31;小於 2.5 mg 至 2012/12/31 後仍可使用(Expires on 31 December 2011; 3,5 mg may be used per burner after 31 December 2011; 2,5 mg shall be used per burner after 31 December 2012)
	1(b)	一般用途照明 ≥ 30 W 且 < 50 W: 5 mg。(For general lighting purposes ≥ 30 W and < 50 W: 5 mg)	到期日至 2011/12/31;小於 3.5 mg 至 2012/12/31 後仍可使用(Expires on 31 December 2011; 3,5 mg may be used per burner after 31 December 2011)
	1(c)	一般用途照明 ≥ 50 W 且 < 150 W: 5 mg。(For general lighting purposes ≥ 50 W and ≤ 150 W: 5 mg)	
	1(d)	一般用途照明 ≥ 150 W: 15 mg。(For general lighting purposes ≥ 150 W: 15 mg)	
	1(e)	一般用途照明，結構為圓形或方形，且管直徑 < 17 mm。(For general lighting purposes with circular or square structural shape and tube diameter < 17 mm)	到期日至 2011/12/31;小於 7 mg 可能 2011/12/31 後可使用(No limitation of use until 31 December 2011; 7 mg may be used per burner after 31 December 2011)
	1(f)	特殊用途: 5 mg。(For special purposes: 5 mg)	
	1(g)	一般照明用途<30W，壽命≥20000h：3.5 毫克 (mg) (For general lighting purposes < 30 W with a lifetime equal or above 20000 h: 3.5 mg)	到期日至 2017/12/31
	2(a)	一般用途照明之直線型雙端螢光燈中所使用的汞含量不得超過(每個燈管):(Mercury in double capped linear fluorescent lamps for general lighting purposes not exceeding (per lamp):)	
	2(a)(1)	一般壽命之三波長螢光燈，其管直徑 < 9 mm (例如 T2): 5 mg。(Tri-band phosphor with normal lifetime and a tube diameter < 9 mm (e.g. T2): 5 mg)	到期日至 2011/12/31；小於 4 mg: 2011/12/31 後仍可使用(Expires on 31 December 2011; 4 mg may be used per lamp after 31 December 2011)
	2(a)(2)	一般壽命之三波長螢光燈，其管直徑 ≥ 9 mm 且 < 17 mm (例如 T5): 5 mg。(Tri-band phosphor with normal lifetime and a tube diameter ≥ 9 mm and < 17 mm (e.g. T5): 5 mg)	到期日至 2011/12/31；小於 3 mg:2011/12/31 後仍可使用(Expires on 31 December 2011; 3 mg may be used per lamp after 31 December 2011)
	2(a)(3)	一般壽命之三波長螢光燈，其管直徑 > 17mm 且 < 28 mm (例如 T8): 5 mg。(Tri-band phosphor with normal lifetime and a tube diameter > 17 mm and < 28 mm (e.g. T8): 5 mg)	到期日至 2011/12/31；小於 3.5 mg: 2011/12/31 後仍可使用(Expires on 31 December 2011; 3,5 mg may be used per lamp after 31 December 2011)

物質 Substance	項目 Item	除外項目 Exemption	適用範圍及日期 Scope and dates of applicability
	2(a)(4)	一般壽命之三波長螢光燈，其管直徑> 28mm (例如 T12): 5 mg。(Tri-band phosphor with normal lifetime and a tube diameter > 28 mm (e.g. T12): 5 mg)	到期日至 2012/12/31；小於 3.5 mg: 2012/12/31 後仍可使用 (Expires on 31 December 2012; 3,5 mg may be used per lamp after 31 December 2012)
	2(a)(5)	長壽命(≥ 25 000 h)之三波長螢光燈: 8 mg。(Tri-band phosphor with long lifetime (≥ 25 000 h): 8 mg)	到期日至 2011/12/31；小於 5 mg: 2011/12/31 後仍可使用 (Expires on 31 December 2011; 5 mg may be used per lamp after 31 December 2011)
	2(b)	其他螢光燈中所使用的汞含量不得超過(每個燈管):(Mercury in other fluorescent lamps not exceeding (per lamp):)	
	2(b)(2)	非直線型磷酸鹽燈管(所有管直徑): 15 mg。(Non-linear halophosphate lamps (all diameters): 15 mg)	到期日至 2016/4/13(Expires on 13 April 2016)
	2(b)(3)	非直線型三波長螢光燈，其管直徑> 17 mm(例如 T9)。(Non-linear tri-band phosphor lamps with tube diameter > 17 mm (e.g. T9))	無限制至 2011/12/31；小於 15 mg: 2011/12/31 後仍可使用 (No limitation of use until 31 December 2011; 15 mg may be used per lamp after 31 December 2011)
	2(b)(4)	其他一般照明及特殊用途之燈(例如感應燈)。(Lamps for other general lighting and special purposes (e.g. induction lamps))	無限制至 2011/12/31；小於 15 mg: 2011/12/31 後仍可使用 No limitation of use until 31 December 2011; 15 mg may be used per lamp after 31 December 2011
	3	特殊用途之冷陰極螢光燈及外部電極螢光燈(CCFL 和 EEFL) 中所使用的汞含量不得超過(每個燈管):(Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes not exceeding (per lamp)):	
	3(a)	長度較短(≤ 500 mm)。(Short length (≤ 500 mm))	無限制至 2011 年 12 月 31 日；小於 3.5 mg: 2011 年 12 月 31 日後仍可使用 (No limitation of use until 31 December 2011; 3,5 mg may be used per lamp after 31 December 2011)
	3(b)	中等長度(> 500 mm 且 < 1 500 mm)。(Medium length (> 500 mm and < 1 500 mm))	無限制至 2011/12/31；小於 5 mg: 2011/12/31 日後仍可使用 (No limitation of use until 31 December 2011; 5 mg may be used per lamp after 31 December 2011)
	3(c)	長度較長(> 1 500 mm)。(Long length (> 1 500 mm))	無限制至 2011/12/31；小於 13 mg: 2011/12/31 後仍可使用 (No limitation of use until 31 December 2011; 13 mg may be used per lamp after 31 December 2011)

物質 Substance	項目 Item	除外項目 Exemption	適用範圍及日期 Scope and dates of applicability
汞 Mercury(Hg)	4(a)	其他低壓放電燈中所使用的汞含量(每個燈管)。(Mercury in other low pressure discharge lamps (per lamp))	無限制至 2011/12/31；小於 15 mg: 2011/12/31 日後仍可使用(No limitation of use until 31 December 2011; 15 mg may be used per lamp after 31 December 2011)
	4(b)	一般照明用途高壓鈉(蒸氣)燈，其改進的演色性指數 $R_a > 60$ ，所使用的汞含量不得超過(每個燈): (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	$P < 155 \text{ W}$	無限制至 2011/12/31；小於 30 mg: 2011/12/31 後仍可使用(No limitation of use until 31 December 2011; 30 mg may be used per burner after 31 December 2011)
	4(b)-II	$155 \text{ W} < P < 405 \text{ W}$	無限制至 2011/12/31；小於 40 mg: 2012/12/31 後仍可使用(No limitation of use until 31 December 2011; 40 mg may be used per burner after 31 December 2011)
	4(b)-III	$P > 405 \text{ W}$	
	4(c)	其他一般照明用途高壓鈉(蒸氣)燈，所使用的汞含量不得超過(每個燈): (Mercury in other High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner):)	
	4(c)-I	$P < 155 \text{ W}$	無限制至 2011/12/31；小於 25 mg: 2011/12/31 後仍可使用(No limitation of use until 31 December 2011; 25 mg may be used per burner after 31 December 2011)
	4(c)-II	$155 \text{ W} < P < 405 \text{ W}$	
	4(c)-III	$P > 405 \text{ W}$	無限制至 2011/12/31；小於 40 mg: 2012/12/31 後仍可使用(No limitation of use until 31 December 2011; 40 mg may be used per burner after 31 December 2011)
	4(e)	金屬鹵化物燈(MH) 中的汞。(Mercury in metal halide lamps (MH))	
	4(f)	其他本附件未提及之特殊用途放電燈的汞。(Mercury in other discharge lamps for special purposes not specifically mentioned in this Annex)	
4(g)	用於標誌、裝飾或建築，以及專業照明和輕工藝品的手工製作發光放電管(HLDTs)中的汞(mercury in hand crafted luminous discharge tubes (HLDTs) used for signs, decorative or architectural and specialist lighting and light-artwork)	到期日至 2018/12/31 (Expires on 31 December 2018)	

5.2 監管物質例示、CAS Numbers 及應用(此清單並非全面，僅作參考之用)
 Examples of regulated substances, CAS Numbers, and use (This list is not comprehensive, and should be used for reference purposes only)

5.2.1 三取代基有機錫化合物 (包括三丁基錫化合物(TBT), 三苯基錫化合物(TPT), 氧化三丁基錫(TBTO))
 Trisubstituted organotin compounds(including Tributyltin (TBT) compounds, Triphenyltin (TPT) compounds and Tributyl tin oxide(TBTO))

物質 Substances		CAS Numbers	應用 Examples of Use
Tributyl tin oxide(TBTO)	氧化三丁基錫(TBTO)	56-35-9	用於塗料、油墨、防腐劑、防黴劑、殺菌劑等 Coatings, inks, preservatives ,fungicides , bactericides...etc.
Triphenyltin N,N'-Dimethyldithiocarbamate	N,N'-二甲基二硫代氨基甲酸鹽	1803-12-9	
Triphenyltin fluoride	三苯基氟化錫	379-52-2	
Triphenyltin acetate	三苯基錫醋酸鹽	900-95-8	
Triphenyltin chloride	三苯基氯化錫	639-58-7	
Triphenyltin hydroxide	三苯基氫氧化錫	76-87-9	
Triphenyltin fatty acid salts (C=9-11)	三苯基錫脂肪酸鹽(丙= 9-11)	18380-71-7;18380-72-8; 47672-31-1;94850-90-5	
Triphenyltin chloroacetate	三苯基錫氯代乙酸鹽	7094-94-2	
Tributyltin methacrylate	三丁基甲基丙烯酸錫	2155-70-6	
Bis(tributyltin) fumarate	雙(三丁基錫)富馬酸鹽	6454-35-9	
Tributyltin fluoride	三丁基氟化錫	1983-10-4	
Bis(tributyltin) 2,3-dibromosuccinate	雙(三丁基錫)2,3-二溴丁二酸鹽	31732-71-5	
Tributyltin acetate	乙酸三丁基錫	56-36-0	
Tributyltin laurate	月桂酸三丁基錫	3090-36-6	
Bis(tributyltin) phthalate	雙(三丁基錫)苯二甲酸鹽烷基丙烯酸酯共聚物	4782-29-0	
Copolymer of alkyl acrylate, methyl methacrylate and tributyltin methacrylate(alkyl; C=8)	甲基丙烯酸甲酯和甲基丙烯酸三丁基錫(烷基;碳=8)	67772-01-4	
Tributyltin sulfamate	三丁基錫硫酸鹽	6517-25-5	
Bis(tributyltin) maleate	雙(三丁基錫)馬來酸鹽	14275-57-1	
Tributyltin chloride	三丁基氯化錫	1461-22-9	
Tributyltin naphthenate	環烷酸三丁基錫	85409-17-2	
Tributyltin salt of rosin	三丁基錫的松香酯的混合物	26239-64-5	
Tetrabutyltin (TTBT)	四丁基錫	1461-25-2	
Triphenyl tin(TPhT)	三苯基錫化氫	892-20-6	
Other Tributyl Tins & Triphenyl Tins	其他三丁基錫及三苯基錫	-	

5.2.2 二丁基錫化合物(DBT)以及二辛基錫化合物(DOT)

Dibutyltin(DBT) compounds and Dioctyltin (DOT) compounds

物質 Substances	CAS Numbers	應用 Examples of Use	
Dibutyltin dichloride (DBTC)	二丁基二氯化錫	683-18-1	觸媒、安定劑、 酸化防止劑 Catalysts, stabilizers, antioxidants
Reaction mass of 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate and 2-ethylhexyl 10-ethyl-4-[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]-4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate(reaction mass of DOTE and MOTE)	二正辛基-雙(2-乙基己基巰基乙酸酯)錫和單辛基-三(2-乙基己基巰基乙酸酯)錫的反應物		
2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE)	二正辛基-雙(2-乙基己基巰基乙酸酯)錫	15571-58-1	
Dibutyltin oxide	氧化二丁基錫	818-08-6	
Dibutyltin diacetate	二乙酸二丁基錫	1067-33-0	
Dibutyltin dilaurate	二月桂酸二丁基錫	77-58-7	
Dibutyltin maleate	馬來酸二丁基錫	78-04-6	
Dibutyltin bis(benzyl maleate)	二丁基二異辛酸錫	7324-74-5	
Dioctyltin oxide	氧化二辛基錫	870-08-6	
Dioctyltin dichloride	二辛基二氯化錫	3542-36-7	
Dioctyltin maleate	馬來酸酯辛基錫	16091-18-2	
Di(n-octyl)tinbis(isooctylthioglycolate)	巰基乙酸異辛酯二正辛基錫	26401-97-8	
Dioctyltin dilaurates(DOTL)	二月桂酸二正辛基	3648-18-8	
Di-μ-oxo-di-n-butylstanniohydroxyborane /Dibutyltin hydrogen borate C8H19BO3Sn (DBB)		75113-37-0	
Other dibutyltin compounds	其他二丁基錫化合物以及二辛基錫化合物		

5.2.3 鎳(Ni)及其化合物 Nickel Compounds

物質 Substances	CAS Numbers	應用 Examples of Use	
Nickel	鎳	7440-02-0	鍍鎳、鎳金屬及合金 nickel plating, metal and alloy
Nickel Sulphate hexahydrate	六水硫酸鎳	10101-97-0	
Lithium nickel oxide (LiNiO2)	鎳鋰氧化物	12031-65-1	
Nickel Hydroxide	氫氧化鎳	12054-48-7	
NICKEL(II) SULFAMATE TETRAHYDRATE	氨基磺酸鎳	124594-15-6	
Nickel Zinc Iron Oxide Nanopowder	鎳氧化鐵鋅納米粉體	12645-50-0	
NICKEL NITRATE	硝酸鎳	13138-45	
Nickelous oxide	一氧化鎳	1313-99-1	
Nickel (III) oxide	三氧化二鎳	1314-06-3	
Nickel carbonyle	羰基鎳	13463-39-3	
Nickel bis(sulphamidate)	氨基磺酸鎳	1377089-3	

物質 Substances		CAS Numbers	應用 Examples of Use
Nickel(II) carbonate	碳酸鎳	3333-67-3	
Solvent Brown 53	溶劑棕 53	64696-98-6	
C.I. Pigment Black 30	顏料黑 30(含鎳鐵)	71631-15-7	
Nickel sulfate	硫酸鎳	7786-81-4	

5.2.4 石棉類 Asbestos

物質 Substances		CAS Numbers	應用 Examples of Use
Asbestos	石棉類		絕緣子、磨料、填料、顏料、塗料、滑石、隔熱材料 Insulator, filler, abrasive, pigment, paint, talc, adiabatic material
Asbestos and Asbestos Materials	石棉和石棉材料	1332-21-4	
Actinolite	陽起石	77536-66-4	
Amosite (Grunerite)	鐵石棉	12172-73-5	
Anthophyllite	直閃石	77536-67-5	
Chrysotile	溫石棉	12001-29-5	
Crocidolite	青石棉	12001-28-4	
Tremolite	透閃石	77536-68-6	

5.2.5 特定偶氮化合物 Specific Azo Compounds (Azo colourants and azo dyes which form certain aromatic amines)

物質 Substances		CAS Numbers	應用 Examples of Use
4,4'- Diaminodiphenylmethane	4,4'-二氨基二苯甲烷(MDA)	101-77-9	顏料、染料、著色劑 Pigment, dyes, colorant
2-Methoxyaniline; o-Anisidine	鄰甲氧基苯胺	90-04-0	
2,2'-dichloro-4,4'-methylenedianiline (MOCA)	4,4'-二氯基-3,3'-二氯二苯甲烷	101-14-4	
o-toluidine	鄰甲基苯胺	95-53-4	
o-aminoazotoluene	鄰氨基偶氮甲苯	97-56-3	
4,4'-methylenedi-o-toluidine	4,4'-二氯基-3,3'-二甲基二苯甲烷	838-88-0	
4,4'-oxydianiline	4,4'-二氯基二苯醚	101-80-4	
4-methyl-m-phenylenediamine	4-甲基-m-次苯胺	95-80-7	
4-amino azobenzene	4-氨基偶氮苯	60-09-3	
biphenyl-4-ylamine	4-氨基聯苯	92-67-1	
6-methoxy-m-toluidine	6-甲氧基-m-甲苯胺	120-71-8	
Benzidine	聯苯胺	92-87-5	
4-Chloro-o-toluidine	4-氯鄰甲苯胺	95-69-2	
2-Naphthylamine	2-萘胺	91-59-8	
5-Nitro-o-toluidine	5-硝基鄰甲苯胺	99-55-8	
4-Chloroaniline	4-氯苯胺	106-47-8	
4-methoxy-m-phenylenediamine	4-甲氧基間苯二胺	615-05-4	
3,3'-Dichlorobenzidine	3,3'-二氯聯苯胺	91-94-1	
3,3'-Dimethoxybenzidine	3,3'-二甲氧基聯苯胺	119-90-4	
3,3'-Dimethylbenzidine	3,3'-二甲基聯苯胺	119-93-7	

物質 Substances		CAS Numbers	應用 Examples of Use
4,4,-Thiodianiline	4,4' - 二氨基二苯硫醚	139-65-1	
2,4,5-Trimethylaniline	2,4,5 - 三甲基苯胺	137-17-7	

5.2.6 臭氧層破壞物質(ODS)(CFC,Halon,HFBC,HCFC,others)

Ozone Depleting Substances(ODS)(CFC,Halon,HFBC,HCFC,others)

物質 Substances		CAS Numbers	應用 Examples of Use
Chloro Fluoro Carbons (CFCs)	氯氟化碳		製冷劑、發泡劑、滅火劑、溶劑清潔劑 Refrigerant, foaming agent, extinguish ant, solvent cleaner
Trichlorofluoromethane (CFC 11)	三氯氟甲烷 (氯氟化碳 11)	75-69-4	
Dichlorodifluoromethane (CFC12)	二氯二氟甲烷 (CFC12)	75-71-8	
Chlorotrifluoromethane (CFC 13)	氯三氟甲烷 (氯氟化碳 13)	75-72-9	
Pentachlorofluoroethane (CFC 111)	氟五氯乙烷 (氯氟化碳 111)	354-56-3	
Tetrachlorodifluoroethane (CFC 112)	二氟四氯乙烷 (氯氟化碳 112)	76-12-0	
Trichlorotrifluoroethane (CFC 113)	三氯三氟乙烷 (氯氟化碳 113)	354-58-5	
1,1,2 Trichlorotrifluoroethane	1,1,2 - 三氯三氟乙烷	76-13-1	
Dichlorotetrafluoroethane (CFC 114)	1,2 - 二氯四氟乙烷 (氯氟化碳 114)	76-14-2	
Monochloropentafluoroethane (CFC 115)	五氟氯乙烷 (氯氟化碳 115)	76-15-3	
Heptachlorofluoropropane (CFC 211)	七氯氟丙烷 (氯氟化碳 211)	422-78-6 ;135401-87-5	
Hexachlorodifluoropropane (CFC 212)	六氯二氟丙烷 (氯氟化碳 212)	3182-26-1	
Pentachlorotrifluoropropane (CFC 213)	氯三氟丙烷 (氯氟化碳 213)	2354-06-5; 134237-31-3	
Tetrachlorotetrafluoropropane (CFC 214)	四氯四氟丙烷 (氯氟化碳 214)	29255-31-0	
1,1,1,3-Tetrachlorotetrafluoropropane	1,1,1,3 - 四氯四氟丙烷	2268-46-4	
Trichloropentafluoropropane (CFC 215)	三氯五氟丙烷 (氯氟化碳 215)	1599-41-3	
1,1,1-Trichloropentafluoropropane	1,1,1 - 三氯五氟丙烷	4259-43-2	
1,2,3-Trichloropentafluoropropane	1,2,3 - 三氯五氟丙烷	76-17-5	
Dichlorohexafluoropropane (CFC 216)	二氯六氟丙烷 (氯氟化碳 216)	661-97-2	
Monochloroheptafluoropropane (CFC 217)	氯七氟丙烷 (氯氟化碳 217)	422-86-6	
Halons (HCFCs)	哈龍		
Bromochlorodifluoromethane (Halon 1211)	溴氯二氟甲烷 (哈龍 1211)	353-59-3	
Bromotrifluoromethane (Halon 1301)	三氟溴甲烷 (哈龍 1301)	75-63-8	
Dibromotetrafluoroethane (Halon 2402)	二溴四氟乙烷 (哈龍 2402)	124-73-2	
Dibromodifluoromethane (Halon 1202)	二溴二氟乙烷 (哈龍 1202)	75-61-6	
Hydrobromofluorocarbons (HBFCs)	鹵化氟溴化物(HBFC-22 B1)	1511-62-2	
Dibromofluoromethane	二溴氟甲烷(HBFC-21 B2)	1868-53-7	
Bromofluoromethane	氟溴甲烷(HBFC-31 B1)	373-52-4	
Tetrabromofluoroethane	四溴氟(HBFC-121 B4)	306-80-9	
Tribromodifluoroethane	三溴二氟乙烷(HBFC-122 B3)		
Dibromotrifluoroethane	1,2-二溴-1,1,2-三氟乙烷(HBFC-123 B2)	354-04-1	

物質 Substances		CAS Numbers	應用 Examples of Use
Bromotetrafluoroethane	替氟烷(HBFC-124 B1)	124-72-1	
Tribromofluoroethane	三溴氟(HBFC-131 B3)		
Dibromodifluoroethane	二溴二氟乙烷(HBFC-132 B2)	75-82-1	
Bromotrifluoroethane	一溴三氟乙烷(HBFC-133 B1)	421-06-7	
Dibromofluoroethane	1,2-二溴氟乙烷(HBFC-141 B2)	358-97-4	
Bromodifluoroethane	溴二氟乙烷(HBFC-142 B1)	420-47-3	
Bromofluoroethane	1-溴-2-氟乙烷(HBFC-151 B1)	762-49-2	
Hexabromofluoropropane	六溴氟丙烷(HBFC-221 B6)		
Pentabromodifluoropropane	五溴氟丙烷(HBFC-222 B5)		
Tetrabromotrifluoropropane	四溴三氟丙烷(HBFC-223 B4)		
Tribromotetrafluoropropane	三溴四氟(HBFC-224 B3)		
Dibromopentafluoropropane	二溴氟丙烷(HBFC-225 B2)	431-78-7	
Bromohexafluoropropane	溴六氟丙烷(HBFC-226 B1)	2252-78-0	
Pentabromofluoropropane	五溴氟丙烷(HBFC-231 B5)		
Tetrabromodifluoropropane	四溴丙烷二氟(HBFC-232 B4)		
Tribromotrifluoropropane	三溴丙烷三氟(HBFC-233 B3)		
Dibromotetrafluoropropane	二溴四氟(HBFC-234 B2)		
Bromopentafluoropropane	溴氟丙烷(HBFC-235 B1)	460-88-8	
Tetrabromofluoropropane	四溴氟丙烷(HBFC-241 B4)		
Tribromodifluoropropane	三溴丙烷二氟(HBFC-242 B3)	70192-80-2	
Dibromotrifluoropropane	二溴三氟丙烷(HBFC-243 B2)	431-21-0	
Bromotetrafluoropropane	鹵丙烷(HBFC-244 B1)	679-84-5	
Tribromofluoropropane	三溴氟丙烷(HBFC-251 B3)	75372-14-4	
Dibromodifluoropropane	二溴二氟丙烷(HBFC-252 B2)	460-25-3	
Bromotrifluoropropane	溴三氟丙烷(HBFC-253 B1)	421-46-5	
Dibromofluoropropane	二溴氟丙烷(HBFC-261 B2)	51584-26-0	
Bromodifluoropropane	溴二氟丙烷(HBFC-262 B1)		
Bromofluoropropane	溴氟丙烷(HBFC-271 B1)	1871-72-3	
Chlorinated hydrocarbons (CHCs)	氯化烴類		
Carbon Tetrachloride (Tetrachloromethane)	四氯化碳 (四氯甲烷)	56-23-5	
1,1,1, - Trichloroethane (methyl chloroform)	1,1,1-三氯乙烷 (甲基氯仿)	71-55-6	
Bromomethane (Methyl Bromide)	溴甲烷 (甲基溴)	74-83-9	
Bromochloromethane	溴氯甲烷	74-97-5	
Bromoethane(ethyl bromide)	溴乙烷	74-96-4	
1-bromopropane (n-propyl bromide)	1-溴丙烷(正溴丙烷)	106-94-5	
Trifluoriodomethane(trifluoromethyl iodide)	三氟碘甲烷	2314-97-8	
Chloromethane(methyl chloride)	氯甲烷	74-87-3	
Hydrogenated chlorofluorocarbons (HCFCs)	氟氯化碳		
Dichlorofluoromethane (HCFC 21)	二氯一氟甲烷 (HCFC 21)	75-43-4	

物質 Substances		CAS Numbers	應用 Examples of Use
Chlorodifluoromethane (HCFC 22)	氯二氟甲烷 (HCFC22)	75-45-6	
Chlorofluoromethane (HCFC 31)	氯氟甲烷 (HCFC 31)	593-70-4	
Tetrachlorofluoroethane (HCFC 121)	四氯一氟乙烷 (HCFC 121)	134237-32-4	
1-Fluoro-1,1,2,2-tetrachloroethane(HCFC-121)	1-氟-1,1,2,2-四氯乙烷	354-14-3	
Trichlorodifluoroethane (HCFC 122)	三氯氟乙烷 (HCFC 122)	41834-16-6	
1,1-Difluoro-1,2,2-trichloroethane(HCFC-122)	1,2,2-三氯-1,1-二氟乙烷	354-21-2	
Dichlorotrifluoroethane(HCFC 123)	二氯三氟乙烷 (HCFC 123)	34077-87-7	
2,2-Dichloro-1,1,1-trifluoroethane(HCFC-123)	2,2-二氯-1,1,1-三氟乙烷	306-83-2	
Chlorotetrafluoroethane (HCFC 124)	氯四氟乙烷 (HCFC 124)	63938-10-3	
2-Chloro-1,1,1,2-tetrafluoroethane(HCFC-124)	2-氯-1,1,1,2-四氟乙烷	2837-89-0	
Trichlorofluoroethane (HCFC 131)	三氯氟乙烷 (HCFC 131)	27154-33-2	
1-Fluoro-1,2,2-trichloroethane(HCFC-131)	1-氟-1,2,2-三氯乙烷	359-28-4	
Dichlorodifluoroethane (HCFC 132)	二氯二氟乙烷 (HCFC 132)	25915-78-0	
1,1-Dichloro-2,2-difluoroethane(HCFC-132a)	1,1-二氯-2,2-二氟乙烷	471-43-2	
Chlorotrifluoroethane (HCFC 133)	一氯三氟乙烷 (HCFC 133)	1330-45-6	
2-Chloro-1,1,1-trifluoroethane(HCFC-133A)	2-氯-1,1,1-氟乙烷(HCFC-133A)	75-88-7	
Dichlorofluoroethane(HCFC 141)	二氯氟乙烷 (HCFC 141)	1717-00-6	
Chlorodifluoroethane (HCFC 142)	一氯二氟乙烷 (HCFC22)	25497-29-4	
Hexachlorofluoropropane (HCFC 221)	六氯氟丙烷 (HCFC 221)	134237-35-7	
1,1,1,2,2,3-Hexachloro-3-fluoropropane(HCFC-221)	1,1,1,2,2,3-六氯-3-氟丙烷	422-26-4	
Pentachlorodifluoropropane (HCFC 222)	五氯二氟丙烷 (HCFC 222)	134237-36-8	
1,2,2,3,3-pentachloro-1,1-difluoro-propane(HCFC-222)	1,2,2,3,3-五氯-1,1-二氟丙烷	422-30-0	
Tetrachlorotrifluoropropane (HCFC 223)	四氯三氟丙烷 (HCFC 223)	134237-37-9	
Trichlorotetrafluoropropane (HCFC 224)	三氯四氟丙烷 (HCFC 224)	134237-38-0	
1,2-Dichloro-1,1,3,3,3-Pentafluoropropane(HCFC 225)	二氯五氟丙烷 (HCFC 225)	127564-92-5	
3,3-Dichloro-1,1,1,2,2-pentafluoropropane(HCFC 225CA)	3,3-二氯-1,1,1,2,2-五氟丙烷 (HCFC 225CA)	422-56-0	
1,3-Dichloro-1,1,2,2,3-pentafluoropropane(HCFC-225cb)	1,3-二氯-1,1,2,2,3-五氟丙烷	507-55-1	
Chlorohexafluoropropane (HCFC 226)	氯氟丙烷 (HCFC 226)	134308-72-8	
2-Chloro-1,1,1,3,3,3-hexafluoropropane(HCFC-226)	2-氯-1,1,1,3,3,3-六氟丙烷	431-87-8	
Pentachlorofluoropropane (HCFC 231)	七氯氟丙烷 (HCFC 231)	134190-48-0	
Tetrachlorodifluoropropane (HCFC 232)	四氯二氟丙烷 (HCFC 232)	134237-39-1	
Trichlorotrifluoropropane (HCFC 233)	三氯三氟丙烷 (HCFC 233)	134237-40-4	
Dichlorotetrafluoropropane (HCFC 234)	二氯四氟丙烷 (HCFC 234)	127564-83-4	
Chloropentafluoropropane (HCFC 235)	氯五氟丙烷. (HCFC 235)	134237-41-5	
Chlorofluoroethane	氯氟(HCFC-151)	110587-14-9	
1-Chloro-2-fluoroethane	1-氯-2-氟乙烷(HCFC-151)	762-50-5	
1-Chloro-1-fluoroethane	1-氯-1-氟(HCFC-151a)	1615-75-4	
Tetrachlorofluoropropane	四氯氟丙烷(HCFC-241)	134190-49-1	

物質 Substances		CAS Numbers	應用 Examples of Use
1,1,2,3-Tetrachloro-1-fluoropropane	1,1,2,3-四氯-1-氟丙烷(HCFC-241db)	666-27-3	
Trichlorodifluoropropane	三氯二氟丙烷(HCFC-242)	134237-42-6	
1,3,3-Trichloro-1,1-difluoropropane	1,3,3,三氯-1,1-二氟丙烷(HCFC-242fa)	460-63-9	
Dichlorotrifluoropropane	二氯三氟丙烷(HCFC-243)	134237-43-7	
1,1-Dichloro-1,2,2-trifluoropropane	1,1-二氯-1,2,2-三氟丙烷(HCFC-243cc)	7125-99-7	
2,3-Dichloro-1,1,1-trifluoropropane	2,3-二氯-1,1,1-三氟丙烷(HCFC-243db)	338-75-0	
3,3-Dichloro-1,1,1-trifluoropropane	3,3-二氯-1,1,1-三氟丙烷(HCFC-243fa)	460-69-5	
Chlorotetrafluoropropane	氯四氟丙烷(HCFC-244)	134190-50-4	
3-Chloro-1,1,2,2-tetrafluoropropane	3-氯-1,1,2,2-四氟丙烷(HCFC-244ca)	679-85-6	
1-Chloro-1,1,2,2-tetrafluoropropane	1-氯-1,1,2,2-四氟丙烷(HCFC-244cc)	421-75-0	
Trichlorofluoropropane	三氯氟丙烷(HCFC-251)	134190-51-5	
1,1,3-Trichloro-1-fluoropropane	1,1,3-三氯-1-氟丙烷(HCFC-251fb)	818-99-5	
1,1,2-Trichloro-1-fluoropropane	1,1,2-三氯-1-氟丙烷(HCFC-251dc)	421-41-0	
Dichlorodifluoropropane	二氯二氟丙烷(HCFC-252)	134190-52-6	
1,3-Dichloro-1,1-difluoropropane	1,3-二氯-1,1-二氟丙烷(HCFC-252fb)	819-00-1	
Chlorotrifluoropropane	氯三氟丙烷(HCFC-253)	134237-44-8	
3-Chloro-1,1,1-trifluoropropane	3-氯-1,1,1-三氟丙烷(HCFC-253fb)	460-35-5	
Dichlorofluoropropane	二氯氟丙烷(HCFC-261)	134237-45-9	
1,1-Dichloro-1-fluoropropane	1,1-二氯-1-氟丙烷(HCFC-261fc)	7799-56-6	
1,2-Dichloro-2-fluoro-propane	1,2-二氯-2-氟丙烷(HCFC-261ba)	420-97-3	
Chlorodifluoropropane	一氯二氟丙烷(HCFC-262)	134190-53-7	
1-Chloro-2,2-difluoropropane	1-氯-2,2-二氟丙烷(HCFC-262ca)	420-99-5	
2-Chloro-1,3-difluoropropane	2-氯-1,3-二氟丙烷(HCFC-262da)	102738-79-4	
1-Chloro-1,1-difluoropropane	1-氯-1,1-二氟丙烷(HCFC-262fc)	421-02-3	
Chlorofluoropropane	氯氟丙烷(HCFC-271)	134190-54-8	
2-Chloro-2-fluoropropane	2-氯-2-氟丙烷(HCFC-271ba)	420-44-0	
1-Chloro-1-fluoropropane	1-氯-1-氟丙烷(HCFC-271fb)	430-55-7	

5.2.7 放射性物質 Radioactive substances

物質 Substances		CAS Numbers	應用 Examples of Use
Uranium-238	鈾-238	7440-61-6	
Plutonium	鈾	7440-07-5	
Radon	氡	10043-92-2	
Americium-241	銻-241	7440-35-9;14596-10-2	
Thorium-232	鈾-232	7440-29-1	
Cesium-137	銻-137	10045-97-3	
Strontium-90	銻-90	10098-97-2	

5.2.8 多氯三聯苯(PCT) Polychlorinated Terphenyls (PCT)

物質 Substances		CAS Numbers	應用 Examples of Use
Polychlorinated Terphenyls (PCT)	多氯三聯苯(PCT)	61788-33-8	潤滑油、電氣絕緣介質、溶劑、阻燃劑 lubricant oil, Electrical insulation medium, solvent, flame Retardant

5.2.9 多氯聯苯(PCBs)及特定代替物質

Polychlorinated Biphenyls(PCBs) and those specific place of substance

物質 Substances		CAS Numbers	應用 Examples of Use
Polychlorinated Biphenyls(PCBs)	多氯聯苯類	1336-36-3	潤滑油、電氣絕緣介質、溶劑、阻燃劑 lubricant oil, electrical insulation medium, solvent, flame Retardant
Monomethyl-tetrachloro-diphenyl methane	甲基-四氯二苯基甲烷	76253-60-6	
Monomethyl-dichloro-diphenyl methane	甲基二氯二苯基甲烷	81161-70-8	
Monomethyl-dibromo-diphenyl methane (DBBT)	甲基二溴二苯基甲烷(DBBT)	99688-47-8	
Aroclor 1260(PCB 1260)	多氯聯苯 1260	11096-82-5	
Aroclor 1254(PCB 1254)	多氯聯苯 1254	11097-69-1	
Aroclor	氯化三聯苯	12767-79-2	
chloro-1,1'-biphenyl	氯-1,1'-聯苯	27323-18-8	

5.2.10 多氯化萘類(PCNs)(氯原子數 3 個以上)(PCNs)

Polychlorinated naphthalenes (PCNs)(more than 3 chlorine atoms)

物質 Substances		CAS Numbers	應用 Examples of Use
Polychlorinated naphthalenes (PCNs)(more than 3 chlorine atoms)	多氯化萘類(PCNs)(氯原子數 3 個以上)(PCNs)	70776-03-3	潤滑劑、油漆、穩定劑、阻燃劑 Lubricant, paint, stabilizer, flame retardant
Other polychlorinated Naphthalenes	其他多氯化萘類		

5.2.11 氟族溫室效應氣體

Fluorinated greenhouse gases (PFC、SF6、HFC)

物質 Substances		CAS Numbers	應用 Examples of Use
Carbon tetrafluoride (Perfluoromethane)	四氟化碳 (四氟甲烷)	75-73-0	冷媒、噴塗劑、消火劑、洗滌劑、絕緣材料等 Refrigerant, spraying agent, eliminate the fire, detergents, insulation materials, etc.
Perfluoroethane (Hexafluoroethane)	六氟乙烷 (全氟乙烷)	76-16-4	
Perfluoropropane (Octafluoropropane)	八氟丙烷 (全氟丙烷)	76-19-7	
Perfluorobutane (Decafluorobutane)	十氟丁烷 (全氟丁烷)	355-25-9	
Perfluoropentane (Dodecafluoropentane)	十二氟戊烷 (全氟戊烷)	678-26-2	
Perfluorohexane (Tetradecafluorohexane)	十四氟己烷 (全氟己烷)	355-42-0	
Perfluorocyclobutane	八氟環丁烷	115-25-3	
Sulfur Hexafluoride (SF6)	六氟化硫	2551-62-4	
Trifluoromethane(HFC-23)	三氟甲烷(HFC-23)	75-46-7	
Difluoromethane(HFC-32)	二氟甲烷(HFC-32)	75-10-5	
Methyl fluoride(HFC-41)	氟甲烷(HFC-41)	593-53-3	
2H,3H-Decafluoropentane(HFC-43-10mee)	1,1,1,2,2,3,4,5,5,5 - 十氟戊烷 (HFC-43-10mee)	138495-42-8	
Pentafluoroethane (HFC-125)	五氟乙烷(HFC-125)	354-33-6	
1,1,2,2-Tetrafluoroethane(HFC-134)	1,1,2,2-四氟乙烷(HFC-134)	359-35-3	
1,1,1,2-Tetrafluoroethane(HFC-134a)	1,1,1,2-四氟乙烷(HFC-134a)	811-97-2	
1,1-Difluoroethane(HFC-152a)	1,1-二氟乙烷(HFC-152a)	75-37-6	
1,1,2-Trifluoroethane(HFC-143)	1,1,2-三氟乙烷(HFC-143)	430-66-0	
1,1,1-Trifluoroethane(HFC-143a)	1,1,1-三氟乙烷(HFC-143a)	420-46-2	
2H-Heptafluoropropane(HFC-227ea)	1,1,1,2,3,3,3-七氟丙烷(HFC-227ea)	431-89-0	
1,1,1,2,2,3-hexafluoro-propane (HFC-236cb)	1,1,1,2,2,3-六氟丙烷(HFC-236cb)	677-56-5	
1,1,1,2,3,3-Hexafluoropropane (HFC-236ea)	1,1,1,2,3,3-六氟丙烷(HFC-236ea)	431-63-0	
1,1,1,3,3,3-Hexafluoropropane(HFC-236fa)	1,1,1,3,3,3-六氟丙烷(HFC-236fa)	690-39-1	
1,1,2,2,3-Pentafluoropropane(HFC-245ca)	1,1,2,2,3-五氟丙烷(HFC-245ca)	679-86-7	
1,1,1,3,3-Pentafluoropropane(HFC-245fa)	1,1,1,3,3-五氟丙烷(HFC-245fa)	460-73-1	
1,1,1,3,3-Pentafluorobutane(HFC-365mfc)	1,1,1,3,3-五氟丁烷(HFC-365mfc)	406-58-6	

5.2.12 特定苯並三氮唑 (酚、2-(2H-苯並三唑-2-yl)-4,6-雙(1,1-二甲乙基))

Phenol,2-(2H-benzotriazol-2-yl)-4,6-bis(1,1-dimethylethyl)

物質 Substances		CAS Numbers	應用 Examples of Use
Phenol,2-(2H-benzotriazol-2-yl)-4,6-bis(1,1-dimethylethyl)	特定苯並三氮唑 (酚、2-(2H-苯並三唑-2-yl)-4,6-雙(1,1-二甲乙基))	3846-71-7	膠粘劑、塗料、印刷油墨、塑料、墨色帶子、嵌縫或密封填料 Adhesives, paints, printing inks, plastics, inked ribbons, putty, caulking or sealing fillers

5.2.13 六溴環十二烷(HBCDD)及其異構物

Hexabromocyclododecane (HBCDD) and all major diastereoisomers

物質 Substances		CAS Numbers	應用 Examples of Use
Hexabromocyclododecane	六溴環十二烷 (HBCDD)	25637-99-4	阻燃劑 Flame retardant
1,2,5,6,9,10-Hexabromocyclododecane	六溴環十二烷 (HBCDD)	3194-55-6	
alpha-hexabromocyclododecane	α-六溴環十二烷	134237-50-6	
beta-hexabromocyclododecane	β-六溴環十二烷	134237-51-7	
gamma-hexabromocyclododecane	γ-六溴環十二烷	134237-52-8	

5.2.14 短鏈氯化石蠟

Short Chain Chlorinated Paraffins(SSCPs)

物質 Substances		CAS Numbers	應用 Examples of Use
Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	短鏈氯化石蠟(C10-13)	85535-84-8	增塑劑 Plasticizer
Alkanes, C10-12, chloro	烷烴, C10-12, 氯	108171-26-2	
Alkanes, C12-13, chloro	烷烴, C12-13, 氯	71011-12-6	
Alkanes, chloro	氯代烷	61788-76-9	

5.2.15 甲醛 Formaldehyde

物質 Substances		CAS Numbers	應用 Examples of Use
Formaldehyde	甲醛	50-00-0	用於氨基塑料、尿素和三聚氰胺樹脂、泡沫塑料、殺菌劑、集成板硬木膠合板(HWPW) aminoplasts, urea- and melamine resins, foam plastics, vulcanization accelerators, wood panel. Hardwood Plywood (HWPW)

5.2.16 富馬酸二甲酯(DMF) Dimethyl fumarate(DMF)

物質 Substances		CAS Numbers	應用 Examples of Use
Dimethyl fumarate (DMF)	富馬酸二甲酯(DMF)	624-49-7	防黴劑 Fungicides

5.2.17 多環芳香烴(PAHs) Polycyclic Aromatic Hydrocarbons (PAHs)

物質 Substances		CAS Numbers	應用 Examples of Use
Benzo(a)anthracene	苯并(a)蒽	56-55-3	擴展油(用於橡膠的柔韌性)(工具)手柄 電纜護套 Extender oils (used to give flexibility to rubber)(Tool) handles Cable sheaths
Benzo(b)fluoranthene	苯并(b)芘	205-99-2	
Benzo(k)fluoranthene	苯并(k)芘	207-08-9	
Benzo(a)Pyrene	苯并(a)芘	50-32-8	
Chrysene	屈	218-01-9	
Dibenz(a,h)anthracene	二苯并(a,h)蒽	53-70-3	
Benzo(j)fluoranthene	苯并(j)芘	205-82-3	
Benzo(e)pyrene	苯并(e)芘	192-97-2	
Benzo(g,h,i)perylene	苯并(g,h,i)芘	191-24-2	
Indeno(1,2,3-c,d)pyrene	茚并(1,2,3-cd)芘	193-39-5	
Anthracene	蒽	120-12-7	
Acenaphthene	芴	83-32-9	
Acenaphthylene	芴烯	208-96-8	
Fluorene	芴	86-73-7	
Fluoranthene	芘	206-44-0	
Pyrene	芘	129-00-0	
Phenanthrene	菲	85-01-8	
Naphthalene	萘	91-20-3	

1. 依據 REACH 附錄 17，外部或是人體接觸到表面的橡膠或塑料材料不能含有每個 PAH 的濃度大於 0.0001% (1ppm)。

Rubber or plastic material on the external or user accessed surfaces of a product must not contain the Polycyclic Aromatic Hydrocarbons (PAHs) in concentrations greater than 0.0001 % (1ppm) by weight (per PAH).

(Reference REACH ANNEX XVII)

類別 Category	產品 Product	
		苯并(a)蒽, 苯并(b)芘, 苯并(k)芘, 苯并(a)芘, 屈, 二苯并(a,h)蒽, 苯并(j)芘, 苯并(e)芘(單一 PAH) Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Chrysene, Dibenz(a,h)anthracene, Benzo(j)fluoranthene, Benzo(e)pyrene (Per PAH)
1	外部或是人體接觸到表面的橡膠或塑料材料 Rubber or plastic material on the external or user accessed	1 ppm

5.2.18 全氟辛烷磺酸(PFOS)及其鹽類

Perfluorooctane Sulfonates (PFOS) and salts, etc

物質 Substances		CAS Numbers	應用 Examples of Use
Perfluorooctane sulfonic acid	十七氟辛烷磺酸溶液	1763-23-1	介面活性劑、分散劑, 塗料及塗飾物, 電鍍產品、電鍍材料, 焊錫, 潤滑油等 Surfactants, dispersants, coatings and painted ornaments, electroplating products, electroplating materials, solder, lubricants, etc
Didecan-1-yl(dimethyl)ammonium perfluorooctane-1-sulfonate		251099-16-8	
Potassium perfluorooctanesulfonate	全氟辛基磺酸鉀	2795-39-3	
Ammonium heptadecafluoro-octanesulphonate	十七氟辛烷磺酸胺	29081-56-9	
Lithium perfluorooctane sulfonate	十七氟辛烷磺酸鋰	29457-72-5	
perfluorooctane sulfonyl fluoride(PFOSF)	全氟辛基磺醯氟	307-35-7	
Sodium perfluoro(octane-1-sulfonate)	全氟(辛烷-1-磺酸)	4021-47-0	
Tetraethyl ammonium perfluorooctane-1-sulfonate	四乙基銨全氟辛烷-1-磺酸鹽	56773-42-3	
Heptadecafluoro-1-octanesulfonic acid compound with diethanolamine	十七氟辛烷磺酸與亞氨基雙[乙醇](1:1)的化合物	70225-14-8	
Piperidin-1-ium perfluorooctane-1-sulfonate		71463-74-6	
Magnesium bis(perfluorooctane-1-sulfonate)		91036-71-4	
Perfluorooctane Sulfonates (PFOS) C8F17SO2X, where X = OR, NR or other derivative	全氟辛烷磺酸鹽(PFOS) C8F17SO2X, X 為 OR, NR 或其他衍生品		
2-Propenoic acid, 2-methyl-, dodecyl ester, polymers with 2-[methyl[(perfluoro-C4-8-alkyl)- sulfonyl]amino]ethyl acrylate and vinylidene chloride		306975-62-2	
Glycine, N-ethyl-N-[(heptadecafluorooctyl)sulfonyl]-, potassium salt	N-乙基-N-[(十七烷氟辛基)磺醯基]-甘氨酸鉀鹽	2991-51-7	
Perfluorooctanoic acid sodium salt	全氟辛酸鈉鹽	335-95-5	

5.2.19 過氯酸鹽 Perchlorates

物質 Substances		CAS Numbers	應用 Examples of Use
Perchlorates	過氯酸鹽	7791-03-9	鈕扣電池的氧化劑 Oxidants of coin cell batteries
Ammonium perchlorate	高氯酸銨	7790-98-9	
Barium perchlorate	高氯酸鋇	13465-95-7	
Magnesium Perchlorate	高氯酸鎂	10034-81-8	
Perchloric acid, cobalt (2+) salt	高氯酸鈷(2+)鹽	13455-31-7	
Perchloric acid, mercury(2+) salt	高氯酸汞(II)六水合物	7616-83-3	
Perchloric acid, nickel(2+) salt, hexahydrate	高氯酸鎳	13520-61-1	
Nickel perchlorate	高氯酸鎳(II)水合物	13637-71-3	
Potassium Perchlorate	高氯酸鉀	7778-74-7	
Sodium Perchlorate	高氯酸鈉	7601-89-0	
Thallium(3+) perchlorate	高氯酸鉍	15596-83-5	

5.2.20 砷(As)及其化合物 (As) / Arsenic Compounds

物質 Substances		CAS Numbers	應用 Examples of Use
Triethyl arsenate	三乙基砷酸鹽	15606-95-8	
Arsenic pentoxide	五氧化二砷	1303-28-2	
Diarsenic trioxide	三氧化二砷	1327-53-3	
Calcium arsenate	砷酸鈣	7778-44-1	
Arsenic acid	砷酸	7778-39-4	
Arsenic	砷	7440-38-2	
Gallium arsenide	砷化鎵	1303-00-0	
Calcium arsenite	亞砷酸鈣	27152-57-4	
Potassium arsenite	亞砷酸鉀	10124-50-2	
Potassium arsenate	砷酸二氫鉀	7784-41-0	
Aluminum Gallium Arsenide	鋁砷化鎵	37382-15-3	
Other arsenic compounds	其他砷化合物	-	

5.2.21 其他鄰苯二甲酸鹽類(DEHP, BBP, DBP, DIBP 除外) Other phthalates Compounds(except DEHP, BBP, DBP, DIBP)

物質 Substances		CAS Numbers	應用 Examples of Use
Dinitrophenylhydrazonen (DNHP)	鄰苯二甲酸正二己酯(DNHP)	84-75-3	增塑劑、燃料、顏料、塗料、油墨、粘合劑、潤滑劑 plasticizer, dye, pigment, paint, ink, adhesive, lubricant
1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP)	鄰苯二甲酸二(C6-8 支鏈與直鏈)烷基酯, 富 C7	71888-89-6	
1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)	鄰苯二甲酸二(C7-11 支鏈與直鏈)烷基酯	68515-42-4	
Bis(2-methoxyethyl) phthalate (DMEP)	鄰苯二甲酸二甲氧乙酯 (DMEP)	117-82-8	
1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	1,2-苯二羧二戊酯(支鏈和直鏈)	84777-06-0	
N-pentyl-isopentylphthalate	鄰苯二甲酸正戊基異戊基酯	776297-69-9	
Hexahydro-1-methylphthalic anhydride	甲基六氫化鄰苯二甲酸酐	48122-14-1	
Hexahydrophthalic anhydride	順環己烷-1,2-二羧酸酐 (六氫鄰苯二甲酸酐 HHPA)	85-42-7	
cis-cyclohexane-1,2-dicarboxylic anhydride	順環己烷-1,2-二羧酸酐 (六氫鄰苯二甲酸酐 HHPA)	13149-00-3	
Diisopentylphthalate(DIPP)	鄰苯二甲酸二異戊酯(DIPP)	605-50-5	
Dipentyl Phthalate(DPP)	鄰苯二甲酸二戊酯(DPP)	131-18-0	
1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	鄰苯二甲酸二己酯	68515-50-4	
di-isononyl phthalate (DINP)	鄰苯二甲酸二異壬酯 (DINP)	28553-12-0;68515-48-0	
di-isodecyl phthalate (DIDP)	鄰苯二甲酸二異癸酯 (DIDP)	26761-40-0;68515-49-1	
di-n-octyl phthalate (DNOP)	鄰苯二甲酸二正辛酯 (DNOP)	117-84-0	
Dicyclohexyl phthalate	鄰苯二甲酸二環己酯	84-61-7	

物質 Substances	CAS Numbers	應用 Examples of Use
Butyl cyclohexyl phthalate	鄰苯二甲酸丁基環己酯	84-64-0
Dimethyl phthalate	鄰苯二甲酸二甲酯	131-11-3
Dibenzyl phthalate(DBzP)	鄰苯二甲酸二苄酯(DBzP)	523-31-9
Diundecyl phthalate	鄰苯二甲酸雙十一烷基酯	3648-20-2
Cyclohexyl isobutyl phthalate	鄰苯二甲酸環己基異丁酯	5334-09-8
Benzyl 3-isobutyryloxy-1-isopropyl-2,2-dimethylpropyl phthalate	鄰苯二甲酸苄基(3-異丁醯氧基-1-異丙基-2,2-二甲基丙基)酯	16883-83-3
Benzyl 2-ethylhexyl phthalate	鄰苯二甲酸苄基 2-乙基己酯	27215-22-1
Bis(methylcyclohexyl) phthalate	二甲基環己酯	27987-25-3
Benzyl octyl phthalate	苄基辛基酯	68515-40-2
Diundecyl phthalate, branched and linear	鄰苯二甲酸雙十一烷基酯, 支鍊及直鍊	85507-79-5
Diethyl phthalate(DEP)	鄰苯二甲酸二乙酯(DEP)	84-66-2
Dipropyl phthalate(DPrP)	鄰苯二甲酸二丙酯(DPrP)	131-16-8
Diallyl phthalate	鄰苯二甲酸二烯丙酯	131-17-9
Diisooctyl phthalate(DIOP)	鄰苯二甲二異辛酯(DIOP)	27554-26-3
Ditridecyl phthalate	鄰苯二甲酸雙十三酯	119-06-2
Bis(2-propylheptyl) phthalate(DPHP)	鄰苯二甲酸二(2-丙基庚基)酯(DPHP)	53306-54-0
(C9-C11) dialkyl phthalate	鄰苯二甲酸二(C9-11 支鍊與直鍊)烷基酯, 富 C7	68515-43-5
Undecyl dodecyl phthalate	鄰苯二甲酸十一十二烷基酯	68515-47-9
Mixed hexyl, octyl, decyl phthalates	鄰苯二甲酸己辛癸酯	68648-93-1
Heptyl nonyl phthalate, branched and linear	鄰苯二甲酸庚壬基酯, 直鍊及支鍊	111381-89-6
1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters; 1,2-benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters with $\geq 0.3\%$ of dihexyl phthalate	鄰苯二甲酸二(C6-C6) 烷基酯:(癸基, 己基, 辛基)酯與 1,2-鄰苯二甲酸的複合物且 鄰苯二甲酸二己酯含量 $\geq 0.3\%$	68515-51-5;68648-93-1
4-METHYL TETRAHYDROPHthalic ANHYDRIDE	甲基四氫鄰苯二甲酸酐	11070-44-3
Diallyl phthalate prepolymer	鄰苯二甲酸二烯丙酯	25053-15-0
Diphenyl Phthalate(DPhP)	鄰苯二甲酸二苯酯	84-62-8
Dinonyl Phthalate (DNP)	鄰苯二甲酸二壬酯	84-76-4
Other phthalates compounds	其他鄰苯二甲酸鹽類	-

5.2.22 銻(Sb)及其化合物

Antimony (Sb) / Antimony Compounds

物質 Substances		CAS Numbers	應用 Examples of Use
Antimony	銻	7440-36-0	燈具中的高硼矽玻璃塗料、催化劑、無鉛焊料、阻燃劑 In soda lime glass for lamps pigment, paint, catalyst, lead free solder, stabilizer, n-type dopant, flame retardant, catalyst
Antimony trioxide	三氧化二銻	1309-64-4	
Antimony pentoxide	五氧化二銻	1314-60-9	
Antimony trichloride	三氯化銻	10025-91-9	
Sodium antimonate	銻酸鈉	15432-85-6	
Indium antimonid	銻化銦	1312-41-0	
Other antimony compound	其他銻化合物	-	

5.2.23 鈹(Be)及其化合物 Beryllium(Be) / Beryllium Compounds

物質 Substances		CAS Numbers	應用 Examples of Use
Beryllium (Be)	鈹	7440-41-7	陶瓷、電子元件、金屬合金、鈹銅合金、催化劑 Ceramics, electronic components, metal alloy, copper beryllium alloy, catalyst,
Beryllium Carbonate	碳酸鈹	66104-24-3	
Beryllium Chloride	氯化鈹	7787-47-5	
Beryllium Copper Alloy	鈹銅合金	-	
Beryllium Fluoride	氟化鈹	7787-49-7	
Beryllium Hydroxide	氫氧化鈹	13327-32-7	
Beryllium Nitrate	硝酸鈹	13597-99-4	
Beryllium Phosphate	磷酸鈹	13598-15-7	
Beryllium Sulfate	硫酸鈹	13510-49-1	
Beryllium Sulphate Tetrahydrate	硫酸鈹四水合物	7787-56-6	
Beryllium-Aluminum Alloy	鈹鋁合金	12770-50-2	
Beryllium oxide	氧化鈹	1304-56-9	
Beryl ore	鈹礦石	1302-52-9	
Other Beryllium compounds	其他鈹化合物	-	

5.2.24 鉍(Bi)及其化合物 Bismuth(Bi) / Bismuth Compounds

物質 Substances		CAS Numbers	應用 Examples of Use
Bismuth	鉍	7440-69-9	焊錫合金 Solder alloy
Bismuth trioxide	氧化鉍	1304-76-3	
Bismuth nitrate	硝酸鉍	10361-44-1	
Bismuth titanate	鉍酸鈦	12048-51-0	
Other bismuth compounds	其他鉍化合物		

5.2.26 硒(Se)及其化合物 Selenium(Se) / Selenium Compounds

物質 Substances		CAS Numbers	應用 Examples of Use
Selenium	硒	7782-49-2	二極管和光探測器 (鉛硒),光電塗料 Diodes and light detectors (lead selenide),photoelectric coating
Hydrogen selenide	硒化氫	7783-07-5	
Sodium selenide	硒酸鈉	1313-85-5	
Selenium dioxide	二氧化硒	7446-08-4	
Sodium selenate	硒酸鈉	10112-94-4	
Dimethyl selenide	二甲基硒	593-79-3	
Selenium oxide	氧化硒	12640-89-0	
Other selenium compounds	其他硒化合物		

5.2.27 聚氯乙稀及其共聚化合物(PVC)

Polyvinyl chloride (PVC) & PVC Copolymers

物質 Substances		CAS Numbers	應用 Examples of Use
Polyvinyl chloride (PVC)	聚氯乙稀	9002-86-2	塑料、外殼，電纜 Plastic, housings, electrical cables

5.2.28 其他溴系阻燃劑(PBBs，PBDEs，HBCDD 除外)

Other Brominates Flame Retardants (except PBBs，PBDEs，HBCDD)

物質 Substances		CAS Numbers	應用 Examples of Use
Poly(2,6-dibromo-phenylene oxide)	二溴 (2,6 - 二溴次苯基環氧)	69882-11-7	阻燃劑 Flame Retardant
Tetra-decabromo-diphenoxy-benzene	四十溴-p-二苯氧基	58965-66-5	
1,2-Bis(2,4,6-tribromo-phenoxy) ethane	1,2 - 雙 (2,4,6 - 三溴苯氧基) 乙烷	37853-59-1	
Tetrabromobisphenol A (TBBP-A)	四溴雙酚 A (TBBP-A)	79-94-7	
TBBA, unspecified	四溴雙酚 A，結構未特定	30496-13-0	
TBBA-epichlorhydrin oligomer	四溴雙酚 A (表氯醇低聚物)	40039-93-8	
TBBA-TBBA-diglycidyl-ether oligomer	四溴雙酚 A -環氧甘油醚低聚物)	70682-74-5	
TBBA carbonate oligomer	四溴雙酚 A (碳酸低聚物)	28906-13-0	
TBBA carbonate oligomer, phenoxy end capped	四溴雙酚 A 碳酸低聚物， 苯氧基	94334-64-2	
TBBA carbonate oligomer, 2,4,6-tribromo-phenol terminated	四溴雙酚 A 碳酸低聚物，2,4,6 三溴苯酚終止	71342-77-3	
Brominated epoxy resin end-capped with tribromophenol	溴化環氧樹脂端帽，三溴酚	139638-58-7; 135229-48-0	
TBBA-(2,3-dibromo-propyl-ether)	四溴雙酚 A - (2,3 - 二溴丙醚)	21850-44-2	
TBBA bis-(2-hydroxy-ethyl-ether)	四溴雙酚 A 雙 (2 - 羥基乙基乙 醚)	4162-45-2	
TBBA-bis-(allyl-ether)	四溴雙酚 A - 二 (烯丙基醚)	25327-89-3	
TBBA-dimethyl-ether	四溴雙酚 A - 二甲基乙醚	37853-61-5	
Tetrabromo-bisphenol S	四溴雙酚 S	39635-79-5	

物質 Substances		CAS Numbers	應用 Examples of Use
TBBS-bis-(2,3-dibromo-propyl-ether)	四溴雙酚 A 雙 - (2,3 - 二溴丙醚)	42757-55-1	
2,4-Dibromo-phenol	2,4 - 二溴苯酚	615-58-7	
2,4,6-tribromo-phenol	2,4,6 - 三溴苯酚	118-79-6	
Pentabromo-phenol	五溴苯酚	608-71-9	
2,4,6-Tribromo-phenyl-alltl-ether	2,4,6 - 三溴苯烯丙醚	3278-89-5	
Tribromo-phenyl-allyl-ether, unspecified	三溴苯烯丙醚 (結構未特定)	26762-91-4	
Bis(methyl)tetrabromo-phthalate	二 (甲基) 四溴鄰苯二甲酸	55481-60-2	
Bis(2-ethylhexyl)tetrabromo-phthalate (TBPH or BEHTBP)	四溴鄰苯二甲酸雙(2 - 乙基己基)(TBPH or BEHTBP)	26040-51-7	
2-Hydroxy-propyl-2-(2-hydroxy-ethoxy)-ethyl-TBP	2-羥基-丙基-2-(2-羥基-乙氧基)-乙基-TBP	20566-35-2	
TBPA, glycol-and propylene-oxide esters	TBPA, 乙二醇-氧化丙烯酯	75790-69-1	
N,N'-Ethylene -bis-(tetrabromo-phthalimide)	N,N'-乙烯-雙-(四溴-酞醯亞胺)	32588-76-4	
Ethylene-bis (5,6-dibromo-norbornane-2,3-dicarboximide)	乙烯-雙(5,6 二溴降冰片烷-2,3-乙二胺)	52907-07-0	
2,3-Dibromo-2-butene-1,4-diol	2,3-二溴-2-丁烯-1,4-二醇	3234-02-4	
Dibromo-neopentyl-glycol	二溴新戊基乙二醇	3296-90-0	
Dibromo-propanol	二溴丙醇	96-13-9	
Tribromo-neopentyl-alcohol	三溴新戊醇	36483-57-5	
Poly tribromo-styrene	聚三溴苯乙烯	57137-10-7	
Tribromo-styrene	三溴苯乙烯	61368-34-1	
Dibromo-styrene grafted PP	二溴苯乙烯, 聚丙烯接枝物	171091-06-8	
Poly-dibromo-styrene	聚二溴苯乙烯	31780-26-4	
Bromo-/Chloro-paraffins	溴化/氯化石蠟類	68955-41-9	
Bromo-/Chloro-alpha-olefin	溴化/氯化 α 烯烴	82600-56-4	
Vinylbromide	溴代乙烯	593-60-2	
Tris-(2,3-dibromo-propyl)-isocyanurate	三(2,3-二溴丙基)異氰尿酸酯	52434-90-9	
Tris(2,4-Dibromo-phenyl) phosphate	三(2,4-二溴苯)磷酸鹽	49690-63-3	
Tris(tribromo-neopentyl) phosphate	三(三溴-新戊烷基)磷酸鹽	19186-97-1	
Chlorinated and brominated phosphate ester	氯、溴化磷酸酯	125997-20-8	
Pentabromo-toluene	五溴甲苯	87-83-2	
Pentabromo-benzyl bromide	五溴-溴化苄	38521-51-6	
1,3-Butadiene homopolymer,brominated	溴化 1,3 - 丁二烯均聚物	68441-46-3	
Pentabromo-benzyl-acrylate, monomer	五溴苄基丙烯酸(單體)	59447-55-1	
Pentabromo-benzyl-acrylate, polymer	五溴苄基丙烯酸(聚合體)	59447-57-3	
Decabromo-diphenyl-ethane	十溴二苯乙烷	84852-53-9	
Tribromo-bisphenyl-maleinimide	三溴雙苯順丁烯二醯亞胺	59789-51-4	
TBBA-bisphenol A-phosgene polymer	四溴雙酚 A 聚碳酸酯	32844-27-2	
Octabromo-1,1,3-trimethyl-1-phenylindane (FR-1808)	八溴-1,1,3-三甲基-1-苯基二氫茚 (FR-1808)	155613-93-7	

物質 Substances		CAS Numbers	應用 Examples of Use
Tetrabromo-cyclo-octane	四溴環辛烷	31454-48-5	
1,2-Dibromo-4-(1,2 dibromo-ethyl)-cyclo-hexane	1,2-二溴-4-(1,2-二溴乙基)環己烷	3322-93-8	
Tetrabromophthalic acid Na salt	四溴酸鈉鹽	25357-79-3	
Tetrabromo phthalic anhydride	四溴苯酐	632-79-1	
2-Ethylhexyl-2,3,4,5-tetrabromobenzoate (TBB)	2-乙基己基-四溴苯甲酸	183658-27-7	
Tris (2,3 dibromopropyl) phosphate	三(2,3-二溴丙基)-磷酸酯	126-72-7	
Carbonic dichloride, polymer with 4,4'-(1-methylethylidene)bis [2,6-dibromophenol] and 4,4'-(1-methylethylidene)bis[phenol], 4- (1-methyl-1-phenylethyl)phenyl ester		156042-31-8	
Phenol, 4,4'-(1-methylethylidene)bis[2,6-dibromo-, polymer with 2-(chloromethyl)oxirane and 4,4'-(1-methylethylidene)bis[phenol]	4,4'-二(1-甲基亞乙基)-2,6-二溴苯酚與氯甲基環氧乙烷和 4,4'-二(1-甲基亞乙基)苯酚的聚合物 雙酚 A、環氧氯丙烷、四溴雙酚 A 的聚合物	26265-08-7	
2,6-dibromo-4-[1-(3-bromo-4-hydroxyphenyl)-1-methylethyl]phenol	2,6-二溴-4-[1-(3-溴-4-羥基)-1-甲基乙基]苯酚	6386-73-8	
2,2'-[(1-Methylethylidene)bis[(dibromo-4,1-phenylene)oxymethylene]]bis[oxirane]-4,4'-(1-methylethylidene)bis[2,6-dibromophenol] copolymer	溴化環氧樹脂	68928-70-1	
Brominated polystyrene	溴化聚苯乙烯	88497-56-7	
Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(14) [Aliphatic/alicyclic brominated compounds]	溴化阻燃劑 ISO1043-4 代碼編號 FR 符號 (14) [脂肪族/脂環溴化合物]		
Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(15) [Aliphatic/alicyclic brominated compounds in combination with antimony compounds]	溴化阻燃劑 ISO1043-4 代碼編號 FR 符號 (15) [脂肪族/脂環溴化合物結合錫化合物]		
Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(16) [Aromatic brominated compounds excluding brominated diphenyl ether and biphenyls]	溴化阻燃劑 ISO1043-4 代碼編號 FR 符號 (16) [芳香族溴化合物不包括溴化二苯醚和聯苯]		
Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(17) [Aromatic brominated compounds excluding brominated diphenyl ether and biphenyls] in combination with antimony compounds]	溴化阻燃劑 ISO1043-4 代碼編號 FR 標記法 (17) [芳香族溴化合物不含溴化二苯基醚和聯苯) 結合錫化合物]		
Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(22) [Aliphatic/alicyclic chlorinated and brominated compounds]	溴化阻燃劑 ISO1043-4 代碼編號 FR 符號 (22) [脂肪族/脂環氯化和溴化合物]		
Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(42) [Brominated organic phosphorus compounds]	溴化阻燃劑 ISO1043-4 代碼編號 FR 符號 (42) [溴化有機磷化合物]		
Other Brominated Flame Retardants	其他溴系阻燃劑		

5.2.29 鹼性紫 3;結晶紫

4-[4,4'-bis(dimethylamino) benzhydrylidene] cyclohexa-2,5-dien-1-ylidene dimethylammonium chloride (C.I.Basic Violet 3)

物質 Substances	CAS Numbers	應用 Examples of Use
4-[4,4'-bis(dimethylamino) benzhydrylidene] cyclohexa-2,5-dien-1-ylidene dimethylammonium chloride (C.I.Basic Violet 3)	548-62-9	塑料，手機，外殼，電纜在塑料中的著色劑或塗料 Colorant in plastics or paints

5.2.30 氯系阻燃劑 Chlorinated Flame Retardants

物質 Substances	CAS Numbers	應用 Examples of Use	
Tris(2-chloroethyl)phosphate (TCEP)	三 2-(氯乙基)磷酸酯 (TCEP)	115-96-8	阻燃劑 Flame Retardant
Tetrakis(2-chloroethyl)dichloroisopentyldiphosphate	四(2-氯乙基)二氯異戊烯基二磷酸	38051-10-4	
Tris(1-chloro-2-propyl)phosphate (TCPP)	三(1-氯-2-丙基)磷酸酯(TCPP)	13674-84-5	
Tris(2,3-dichloro-1-propyl)phosphate	三(2,3-二氯-1-丙基)磷酸酯	66108-37-0	
Tris (1,3-dichloro-2-propyl) phosphate(TDCPP)	三(1,3-二氯-2-丙基)磷酸(TDCPP)	13674-87-8	
Medium chained chlorinated paraffins(C 14-17 alkyl chain) (MCCPs)	中鏈氯化石蠟(C14-17)	85535-85-9	
Other Chlorinated Flame Retardants			

5.2.31 全氟辛酸 (PFOA) 及其鹽類 Perfluorooctyl acid (PFOA) and salts (for a more comprehensive list of PFOA CAS numbers see OECD

物質 Substances	CAS Numbers	應用 Examples of Use	
Perfluorooctanoic acid(PFOA)	全氟辛酸 (PFOA)	335-67-1	皮革, 紡織等表面處理 Coatings of Textiles and Leathers
2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-penta-decaoctanoic acid, sodium salt	fluoro-2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-五氟癸酸八鈉鹽	335-95-5	
2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-penta-decaoctanoic acid, potassium salt	fluoro-2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-五氟十辛酸，鉀鹽	2395-00-8	
2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-penta-decaoctanoic acid, silver salt	-fluoro-2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-十五碳六氟辛酸，銀鹽	335-93-3	
Acid Fluoride of PFOA	PFOA 的酸性氟化物	335-66-0	
Methyl ester of PFOA	PFOA 的甲酯	376-27-2	
Ethyl ester of PFOA	PFOA 的乙酯	3108-24-5	
2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-penta-decaoctanoic acid, ammonium salt	fluoro-2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-五癸基氟辛酸銨鹽	3825-26-1	
Octanoic acid, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluoro-, chromium(3+)	辛酸， 2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-五氟-鉻 (3+)	68141-02-6	
Ethanaminium, N,N,N-triethyl-, salt with pentadecafluorooctanoic acid (1:1)	乙胺，N，N，N-三乙基鹽與十五氟辛酸的鹽 (1:1)	98241-25-9	
Other Perfluorooctyl acid compounds	其他 PFOA 化合物	-	

5.2.32 二苯胺與苯乙烯和 2,4,4-三甲基戊烯的反應產物(BNST)

Benzenamine, N-phenyl-, reaction products with styrene and 2,4,4-trimethylpentene(BNST)

物質 Substances		CAS Numbers	應用 Examples of Use
Benzenamine, N-phenyl-, reaction products with styrene and 2,4,4-trimethylpentene(BNST)	二苯胺與苯乙烯和 2,4,4-三甲基戊烯的反應產物(BNST)	68921-45-9	潤滑油添加劑用在機電設備,存儲驅動器中 (抗氧化劑/防腐劑/變色劑/清潔劑/抗結垢劑/脫模劑) Lubricating agent in motors, storage drives;lubricant additive (antioxidant/corrosion inhibitor /tarnish inhibitor/scavenger /antiscaling agent/ mould release agent)

5.2.33 紅磷 Red phosphorus

物質 Substances		CAS Numbers	應用 Examples of Use
Red phosphorus	紅磷	7723-14-0	阻燃劑 Flame retardants

5.2.34 異丙基化磷酸三苯酯 Phenol, isopropylated phosphate (3:1) (PIP (3:1))

物質 Substances		CAS Numbers	應用 Examples of Use
Phenol, isopropylated phosphate (3:1) (PIP (3:1))	異丙基化磷酸三苯酯	68937-41-7	作為增塑劑、阻燃劑、抗磨損添加劑、或者抗壓縮添加劑 Plasticizer, a flame retardant, an anti-wear additive, or an anti-compressibility additive in hydraulic fluid, lubricating oils, lubricants and greases, various industrial coatings, adhesives, sealants, and plastic articles.

5.2.35 2,4,6 三-叔丁基苯酚 2,4,6-Tris(tert-butyl)phenol (2,4,6-TTBP)

物質 Substances		CAS Numbers	應用 Examples of Use
2,4,6-Tris(tert-butyl)phenol (2,4,6-TTBP)	2,4,6 三-叔丁基苯酚	732-26-3	加工過程的中間產物/反應物，用於燃料和燃料相關添加劑的配方中 Intermediate/reactant in processing and is incorporated into formulations destined for fuel and fuel-related additives

5.2.36 五氯硫酚 Pentachlorothiophenol (PCTP)

物質 Substances		CAS Numbers	應用 Examples of Use
Pentachlorothiophenol (PCTP)	五氯硫酚	133-49-3	用於工業，使橡膠更柔軟 Make rubber more pliable in industrial uses

5.2.37 中鏈氯化石蠟(C14-17)

Alkanes, C10-13, chloro (Medium chain chlorinated paraffins)

物質 Substances		CAS Numbers	應用 Examples of Use
Alkanes, C14-17, chloro (Medium Chain Chlorinated Paraffins)	中鏈氯化石蠟(C10-13)	85535-85-9	增塑劑、阻燃劑 Plasticizer, Flame Retardant

5.2.38 全氟/多氟烷基物質(PFAS)

Perfluoroalkyl and polyfluoroalkyl substances, PFAS

物質 Substances		CAS Numbers	應用 Examples of Use
The list of PFAS CAS numbers see OECD Comprehensive Global Database of PFASs at https://www.oecd.org/chemicalsafety/portal-perfluorinated-chemicals/		-	介面活性劑、分散劑、塗料及塗飾物,電鍍產品、電鍍材料,焊錫,潤滑油等 Surfactants, dispersants, coatings and painted ornaments, electroplating products, electroplating materials, solder, lubricants, etc

5.2.39 四溴雙酚 A (TBBP-A)

Tetrabromobisphenol A (TBBP-A)

物質 Substances	CAS Numbers	應用 Examples of Use
Tetrabromobisphenol A (TBBP-A)	四溴雙酚 A (TBBP-A) 79-94-7	阻燃劑 Flame Retardant

5.3 RoHS 2011/65/EU & (EU) 2015/863 指令所規定的十項禁用物質示例(此清單並非全面，僅作參考之用)

The example of chemical compounds for the ten restricted substances defined in RoHS 2011/65/EU directive & (EU) 2015/863 directive.(This list is not comprehensive, and should be used for reference purposes only.)

5.3.1 鎘(Cd)及其化合物 Cadmium (Cd) / Cadmium Compounds

物質 Substances	CAS Numbers	應用 Examples of Use	
Cadmium sulfide	硫化鎘	1306-23-6	連接材料,表面處理,電鍍,顏料,電池,穩定劑,油漆,油墨...等 contact, contact point, surface treatment ,plating, Pigment , Battery, stabilizer , paint, Ink...etc.
Cadmium oxide	氧化鎘	1306-19-0	
Cadmium chloride	氯化鎘	10108-64-2	
Cadmium sulphate	硫酸鎘	10124-36-4; 31119-53-6	
Cadmium fluoride	氟化鎘	7790-79-6	
Cadmium	鎘	7440-43-9	
Cadmium alloys	鎘合金		
Cadmium nitrate	硝酸鎘	10325-94-7	
Cadmium nitrate tetra hydrate	四水硝酸鎘	10022-68-1	
Cadmium stearate	硬脂鎘	2223-93-0	
Other cadmium compounds	其他鎘化合物		

5.3.2 鉛(Pb)及其化合物 Lead (Pb) / Lead Compounds

物質 Substances	CAS Numbers	應用 Examples of Use	
Lead hydrogen arsenate	砷酸氫鉛	7784-40-9	橡膠硬化劑，顏料，塗料，潤滑劑，塑料穩定劑，光學材料，X射線屏蔽在CRT玻璃，焊料材料，固化劑，硫化劑，電鍍，金屬合金 著色劑，鋅碳電池，鹼性鈕扣式電池，塑料著色劑;油漆著色劑 Rubber hardener, Pigment, paint, lubricant, plastic
Lead acetate	醋酸鉛	301-04-2	
Lead chromate molybdate sulfate red (C.I. Pigment Red 104)	紅色鉬鉻酸鉛硫酸鹽(C.I.紅色104)	12656-85-8	
Lead sulfochromate yellow (C.I. Pigment Yellow 34)	鉻酸鉛:顏色索引 (顏料黃 34)	1344-37-2	
Lead chromate	鉻酸鉛	7758-97-6	
Lead dipicrate	苦味酸鉛	6477-64-1	
Lead styphnate	收斂酸鉛	15245-44-0	
Trilead diarsenate	砷酸鉛	3687-31-8	
Lead azide Lead diazide	疊氮化鉛	13424-46-9	
Lead(II) bis(methanesulfonate)	甲基磺酸鉛	17570-76-2	
Sulfurous acid, lead salt, dibasic	亞硫酸鉛(II)	62229-08-7	
Fatty acids, C16-18, lead salts	C16-18-脂肪酸鉛鹽	91031-62-8	

Dioxobis(stearato)trilead	雙(十八酸基)二氧代三鉛	12578-12-0	stabilizer, optical materials, X-ray shielding in CRT glass, solder materials, curing agent, vulcanizing agent, plating, metal alloy colorant Zinc carbon batteries, alkaline button cells Colorant in plastics, Colorant in paint
Pyrochlore, antimony lead yellow	顏料黃 41	8012-00-8	
Tetraethyllead	四乙基鉛	78-00-2	
Lead dinitrate	硝酸鉛	10099-74-8	
Silicic acid (H ₂ Si ₂ O ₅), barium salt (1:1), lead-doped	摻雜鉛的矽酸鋇	68784-75-8	
[Phthalato(2-)]dioxotrilead	二鹽基鄰苯二甲酸鉛	69011-06-9	
Lead bis(tetrafluoroborate)	氟硼酸鉛	13814-96-5	
Lead(II,IV) oxide	四氧化三鉛	1314-41-6	
Lead(II) oxide	氧化鉛	1317-36-8	
Trilead bis(carbonate)dihydroxide	鹼式碳酸鉛	1319-46-6	
Lead(II) titanate	鈦酸鉛	12060-00-3	
Tetralead trioxide sulphate	三鹼式硫酸鉛	12202-17-4	
LEAD ZIRCONIUM TITANIUM OXIDE	鈦酸鉛鋇	12626-81-2	
Pentalead tetraoxide sulphate	氧化鉛與硫酸鉛的複合物	12065-90-6	
Trilead dioxide phosphonate	磷酸氧化鉛	12141-20-7	
Lead silicate	矽酸鉛	11120-22-2	
Lead oxide sulfate	鹼式硫酸鉛	12036-76-9	
Lead cyanamidate	氨基氰鉛鹽	20837-86-9	
Acetic acid, lead salt, basic	鹼式乙酸鉛	51404-69-4	
Lead	鉛	7439-92-1	
Lead/tin alloy	鉛/錫合金	39412-44-7	
Lead (II) sulfate	硫化鉛(二價)	7446-14-2	
Lead (II) carbonate	碳酸鉛	598-63-0	
Lead hydrocarbonate	白鉛		
Lead (II) acetate, trihydrate	醋酸鉛(II)三水合物	6080-56-4	
Lead selenide	硒化鉛	12069-00-0	
Lead (IV) oxide	氧化鉛(IV)	1309-60-0	
Lead (II) sulfide	硫化鉛(II)	1314-87-0	
Lead hydroxidcarbonate	氫氧碳化鉛	1344-36-1	
Lead (II) phosphate	磷酸鉛(二價)	7446-27-7	
Lead sulfate, sulphuric acid, lead salt	硫酸鉛, 硫酸, 鉛鹽	15739-80-7	
Lead stearate	硬脂酸鉛	1072-35-1	
Lead (II,IV) oxide	三氧化二鉛	1314-27-8	
Lead (IV)fluoride	氟化鉛	7783-46-2	
Lead dichloride	氯化鉛	7758-95-4	
Lead (IV)oxide	四氯化鉛	13463-30-4	
Lead (II) iodide	碘化鉛	10101-63-0	
Lead (II)cyanide	氰化鉛	592-05-2	
LEAD SILICOFLUORIDE	氟化矽鉛	25808-74-6	
Lead perchlorate	高氯酸鉛	13637-76-8	
Lead oleate	油酸鹽鉛	1120-46-3	
Lead (IV)acetate	醋酸鉛(四價)	546-67-8	
Lead strearate	硬脂酸鉛	7428-48-0	
Lead(II)metaborate	偏硼酸鉛(二價)	10214-39-8	
Lead antimonite	亞銻酸鉛	122666-38-5	

物質 Substances		CAS Numbers	應用 Examples of Use
Lead (II)arsenite	亞砷酸鉛(二價)	10031-13-7	
Lead molybdate	鉬酸鉛	10190-55-3	
Calcium plumbate	鉛酸化鈣	12013-69-3	
Tetramethyllead	四甲基鉛	75-74-1	
Lead Monosilicate	矽酸鉛	10099-76-0	
dilead diruthenium hexaoxide	六氧化二鈳鉛	37194-88-0	
Dibasic Lead Stearate	二鹽基性硬脂酸鉛	56189-09-4	
Lead bisilicate	含鉛玻璃	65997-18-4	
Other Lead compounds	其他鉛化合物		

5.3.3 汞(Hg)及其化合物 Mercury (Hg) / Mercury compounds

物質 Substances		CAS Numbers	應用 Examples of Use
Mercury	汞	7439-97-6	螢光燈管,接點材質,顏料,防腐劑,開關,殺菌劑,電池 Fluorescent bulb, contact point material, pigment, anti-corrosion, switches, antibacterial treatment; batteries
Mercury alloys	汞合金		
Mercuric chloride	氯化汞	33631-63-9	
Mercury (II) chloride	氯化汞(II)	7487-94-7	
Mercuric sulfate	硫酸汞	7783-35-9	
Mercuric nitrate	硝酸汞(二價)	10045-94-0	
Mercuric (II) oxide	氧化汞(II)	21908-53-2	
Mercuric sulfide	硫化汞	1344-48-5	
Mercury (I) oxide	氧化亞汞	15829-53-5	
Mercury (I) chloride	二氯化氧汞	10112-91-1	
Mercury (I) sulfate	硫酸亞汞	13766-44-4	
Phenylmercury acetate	醋酸苯汞酯	62-38-4	
Phenylmercury propionate	丙酸苯汞酯	103-27-5	
Phenylmercury 2-ethylhexanoate	異辛酸苯汞酯	13302-00-6	
Phenylmercury octanoate	辛酸苯汞酯	13864-38-5	
Phenylmercury neodecanoate	新癸酸苯汞酯	26545-49-3	
Other mercury compounds	其他汞化合物		

5.3.4 六價鉻及(Cr6+)其化合物 Hexavalent-Chromium (Cr6+) Compounds

物質 Substances		CAS Numbers	應用 Examples of Use
Sodium dichromate, dihydrate	重鉻酸鈉	7789-12-0;10588-01-9	顏料,噴漆,油墨,催化劑,電鍍,抗腐蝕表面處理,染料 Pigment, paint, ink, catalyst, plating, anti-corrosion surface treatment, dye,
Potassium dichromate	重鉻酸鉀	7778-50-9	
Potassium chromate	鉻酸鉀	7789-00-6	
Sodium chromate	鉻酸鈉	7775-11-3	
Ammonium dichromate	重鉻酸銨	7789-09-5	
Oligomers of chromic acid and dichromic acid	鉻酸及重鉻酸的寡聚體		
Chromic acid	鉻酸	7738-94-5	

物質 Substances		CAS Numbers	應用 Examples of Use
Dichromic acid	重鉻酸	13530-68-2	
Chromium trioxide	三氧化鉻	1333-82-0	
Strontium chromate	鉻酸鋇	7789-06-2	
Potassium hydroxyoctaoxidizincatedi-chromate	氫氧化鉻酸鋅鉀	11103-86-9	
Dichromium tris(chromate)	鉻酸鉻	24613-89-6	
Pentazinc chromate octahydroxide	C.I.顏料黃 36	49663-84-5	
Barium chromate	鉻酸鋇	10294-40-3	
Calcium chromate	鉻酸鈣	13765-19-0	
Zinc chromate	鉻酸鋅	13530-65-9	
C.I. Pigment Black 1	顏料黑 1(Cr6+)	13007-86-8	
Other chromium VI compounds	其他六價鉻化合物		

5.3.5 多溴聯苯類(PBBs) Polybrominated biphenyls(PBBs)

物質 Substances		CAS Numbers	應用 Examples of Use
Hexabromobiphenyl	六溴聯苯	59080-40-9; 36355-01-8; 67774-32-7	阻燃劑 Flame Retardant
Monobromobiphenyl	一溴聯苯	79665-37-5	
Dibromobiphenyl	二溴聯苯	92-86-4	
Tribromobiphenyl	三溴聯苯	51202-79-0,59080-34-1	
Tetrabromobiphenyl	四溴聯苯	40088-45-7	
Pentabromobiphenyl	五溴聯苯	56307-79-0	
Heptabromobiphenyl	七溴聯苯	6355-01-8,35194-78-6,	
Octabromobiphenyl	八溴聯苯	61288-13-9	
Nonabromobiphenyl	九溴聯苯	27753-52-2	
Decabromobiphenyl	十溴聯苯	13654-09-6	
Polybrominated Biphenyls	多溴聯苯	59536-65-1	
2-Bromobiphenyl	2-溴聯苯	2052-07-5	
3-Bromobiphenyl	3-溴聯苯	2113-57-7	
4-Bromobiphenyl	4-溴聯苯	92-66-0	
2,2',3,4,4',5,5'-Heptabromobiphenyl	2,2',3,4,4',5,5'-七溴聯苯	67733-52-2	
2,4,5,3',4'-pentabromobiphenyl	2,4,5,3',4'-五溴聯苯	67888-97-5	
3,3',4,4'-Tetrabromobiphenyl	3,3',4,4'-四溴聯苯	77102-82-0	

5.3.6 多溴聯苯醚類(PBDEs) Polybrominated diphenyl ethers(PBDEs)

物質 Substances		CAS Numbers	應用 Examples of Use
Monobromodiphenyl ether	一溴聯苯醚	101-55-3	阻燃劑 Flame Retardant
Dibromodiphenyl ether	二溴聯苯醚	2050-47-7	
Tribromodiphenyl ether	三溴聯苯醚	49690-94-0	
Tetrabromodiphenyl ether	四溴聯苯醚	40088-47-9	
Pentabromodiphenyl ether	五溴聯苯醚	32534-81-9	
Hexabromodiphenyl ether	六溴聯苯醚	36483-60-0	
Heptabromodiphenyl ether	七溴聯苯醚	68928-80-3	
Octabromodiphenyl ether	八溴聯苯醚	32536-52-0	
Nonabromodiphenyl ether	九溴聯苯醚	63936-56-1	
Decabromodiphenyl ether (DecaBDE)	十溴聯苯醚(DBDPE/DBDPO)	1163-19-5	

5.3.7 鄰苯二甲酸鹽類-禁用 Phthalates-Prohibited

物質 Substances		CAS Numbers	應用 Examples of Use
Dibutylphthalate(DBP)	鄰苯二甲酸二丁酯(DBP)	84-74-2	增塑劑、燃料、顏料、塗料、油墨、粘合劑、潤滑劑 plasticizer, dye, pigment, paint, ink, adhesive, lubricant
Bis (2-ethylhexyl) phthalate (DEHP)	鄰苯二甲酸二乙基己酯(DEHP)	117-81-7	
Buty-benzyl phthalate(BBP)	鄰苯二甲酸丁酯苯甲酯(BBP)	85-68-7	
Diisobutyl phthalate (DIBP)	鄰苯二甲酸二異丁酯(DIBP)	84-69-5	

5.4 REACH 相關資訊細節

Details of REACH information

5.4.1 REACH 法規附錄 17(ANNEX XVII)危險物質

Hazardous substances in ANNEX XVII to REACH

REACH 法規附錄十七列出了進入歐盟市場需要受到限制的化學物質，文中明列了受限用途及生產、使用、消費條件等內容。詳細內容請以歐盟網址所公布者為準，歐盟REACH網址如下：

<https://echa.europa.eu/substances-restricted-under-reach>

In Annex 17 of REACH, dangerous substances are listed in total to explain the restrictions on purpose of potential use and the conditions of producing, using, and consuming when placing in the EU market. The detailed content of the regulations shall be according to the publication on EU's websites, of which the one of REACH is as follows:

<https://echa.europa.eu/substances-restricted-under-reach>

5.4.2 高度關注物質(SVHC) SVHC of EU REACH

根據 REACH 法規，當產品內所含高關注物質(SVHC)含量大於 0.1% (w/w)，生產者或進口商有揭露其產品相關資訊給予客戶或消費者的義務與責任。

其所公布之 SVHC 清單網址連結如下：

[REACH SVHC candidate list](#)

According to REACH requirements, a manufacturer or importer is committed to inform customers or consumers on SVHC contained in products above a concentration greater than 0.1% (w/w).

SVHC list is available by linking to the following website:

[REACH SVHC candidate list](#)

5.4.3 REACH 法規附錄 14(ANNEX XIV)正式需授權物質清單

Authorisation List in ANNEX XIV to REACH

真正立法成為附錄十四的需授權物質後，每個物質會產生一個「日落日期 (sunset date)」，在此日落日期後，如果想要使用此物質，需要向ECHA 提出授權申請，並需要高額的授權規費才可使用。

(附錄14正式需授權物質清單是從REACH SVHC挑選出來)

詳細內容請以歐盟網址所公布者為準，歐盟REACH網址如下：

<https://echa.europa.eu/authorisation-list>

In Annex XIV of REACH, the substances are now needed to authorisation for being used after the sunset date.

(The authorisation list was selected from REACH SVHC list.)

Authorisation List is available by linking to the following website:

<https://echa.europa.eu/authorisation-list>

5.5 持久性有機污染物(源)(POPs) 相關資訊細節(此清單並非全面，僅作參考之用)

Details of Persistent Organic Pollutants (POPs) (This list is not comprehensive, and should be used for reference purposes only)

物質 Substances		CAS Numbers	應用 Examples of Use
Chlordane	氯丹	57-74-9	有機氯農藥， 也用作於殺蟲劑 Organic chlorine pesticides, Insecticides
Cis-Nonachlor	順式-壬氯丹	5103-73-1	
Oxychlordane	氧化氯丹	27304-13-8	
Gamma-Chlordene	六氯	3734-48-3	
Trans-Nonachlor	反式九氯	39765-80-5	
Cis- Chlordene	順式 A-氯丹	5103-71-9	

物質 Substances		CAS Numbers	應用 Examples of Use
Trans- Chlordene	反式氯丹	5103-74-2	
Mirex	滅蟻樂	2385-85-5	
Aldrin	阿特靈	309-00-2	
Dieldrin	地特靈	60-57-1	
Endrin	安特靈	72-20-8	
Heptachlor	飛佈達	76-44-8	
Toxaphene, campechlor	毒殺芬	8001-35-2	
4,4-dichlorodiph-enyl trichloroethane(DDT)	滴滴涕	50-29-3	
Hexachlorobenzene, HCB	六氯苯	118-74-1	
Pentachlorobenzene	五氯苯	608-93-5	用作殺蟲劑、阻燃劑 Insecticides、Flame Retardant
Hexabromobiphenyl (PBB group, Same as Table 1)	六溴聯苯	59080-40-9;36355-01-8;67774-32-7	阻燃劑 Flame Retardant
Hexabromodiphenyl ether (PBDE group, Same as Table 1)	六溴聯苯醚	36483-60-0	
Heptabromodiphenyl ether (PBDE group, Same as Table 1)	七溴聯苯醚	68928-80-3	
Tetrabromodiphenyl ether (PBDE group, Same as Table 1)	四溴聯苯醚	40088-47-9	
Pentabromodiphenyl ether (PBDE group, Same as Table 1)	五溴聯苯醚	32534-81-9	
Chlordecone	十氯酮(克迪康)	143-50-0	殺蟲劑 Insecticides
Lindane	靈丹	58-89-9	
Thiosulfan(Endosulfan)	硫丹(安殺番)	115-29-7;959-98-8; 33213-65-9	
Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins) (Same as Table 2)	短鏈氯化石蠟(C10-13)	85535-84-8	增塑劑(Plasticizers)
Polychlorinated Biphenyls(PCBs) (Same as Table 2)	多氯聯苯類	1336-36-3	潤滑油、電氣絕緣介質、溶劑、阻燃劑 lubricant oil, electrical insulation medium, solvent, flame Retardant
Polychlorinated naphthalenes (PCNs)(more than 3 chlorine atoms) (Same as Table 2)	多氯化萘類(PCNs)(氯原子數3個以上)(PCNs)	70776-03-3	潤滑劑、油漆、穩定劑、阻燃劑 Lubricant, paint, stabilizer, flame retardant
Alpha hexachlorocyclohexane	α-六氯環己烷	319-84-6	靈丹異構體 Lindane Isomer
Furans (polychlorinated dibenzofurans, PCDFs)	呋喃	136677-10-6	
Dioxins (polychlorinated dibenzo-p-dioxins, PCDDs)	戴奧辛	1746-01-6	
Hexachlorobutadiene	六氯丁二烯	87-68-3	
Perfluorooctane sulfonic acid	十七氟辛烷磺酸溶液	1763-23-1	

Didecan-1-yl(dimethyl)ammonium perfluorooctane-1-sulfonate		251099-16-8	
Potassium perfluorooctanesulfonate	全氟辛基磺酸鉀	2795-39-3	
Ammonium heptadecafluoro-o ctanesulphonate	十七氟辛烷磺酸胺	29081-56-9	
Lithium perfluorooctane sulfonate	十七氟辛烷磺酸鋰	29457-72-5	
perfluorooctane sulfonyl fluoride(PFOSF)	全氟辛基磺醯氟	307-35-7	
Sodium perfluoro(octane-1-sulfonate)	全氟(辛烷-1 - 磺酸)	4021-47-0	
Tetraethyl ammonium perfluorooctane-1-sulfonate	四乙基銨全氟辛烷-1 - 磺酸鹽	56773-42-3	
Heptadecafluoro-1-octanesulfonic acid compound with diethanolamine	十七氟辛烷磺酸與亞氨基雙[乙醇](1:1)的化合物	70225-14-8	
Piperidin-1-ium perfluorooctane-1-sulfonate		71463-74-6	
Magnesium bis(perfluorooctane-1-sulfonate)		91036-71-4	
BHC (mixture of hexachlorocyclohexanes)	氯代環烷烴	608-73-1	
Kelthane	三氯殺醇	115-32-2	
Perfluorooctanoic Acid (PFOA) its salts and PFOA related compounds	全氟辛酸(PFOA)及其鹽類及其相關化合物	335-67-1	

5.6 參考法規 Reference of law information

1. European Union RoHS Directive 2011/65/EU and amending Directive (EU) 2015/863).
2. Regulation of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals, 1907/2006/EC. (REACH Regulation) and ANNEX XVII of REACH Regulation (EC) No 1907/2006.
3. Directive 2006/66/EC on Batteries and Accumulators and Waste Batteries and Accumulators and Repealing Directive 91/157/EEC, September 2006. And amending Directive 2013/56/EU.
4. Directive of the European Parliament and of the Council on Packaging and Packaging waste,94/62/EC, December 1994.And amending Directive 2013/2/EU.
5. Stockholm Convention on Persistent Organic Pollutants (POPs), Directive (EU) 2019/1021
6. International Electrotechnical Commission IEC 62474-Material Composition Declaration for Electronic Products
7. Prohibition of Certain Toxic Substances Regulations.
8. EU Directive 2013/59/EURATOM laying down basic safety standards for protection against the dangers arising from exposure to ionizing radiation.
9. US TSCA (Toxic Substances Control Act)
10. Regulation (EU) 2019/2021 ecodesign requirements for electronic displays