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

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版次 Version	日期 Date	變更內容摘要 Description of Change
B3	2026/01/12	- 修改 2.2 內容，增加客戶專案需求的描述 Add a description of customer-specific project requirements in Chapter 2.2 - 修改 3.9 中原料的名詞定義，加上再生材料 Modify the terminology of materials in Chapter 3.9 to include recycled materials. - 將中鏈氯化石蠟(C14-17)從 5.1.3 移至於 5.1.2 Modify Alkanes, C14-17, chloro (Medium chain chlorinated paraffins) from Chapter 5.1.3 to Chapter 5.1.2 - 於 5.1.2 修改多氯化萘類(PCNs)，刪除氯原子數 3 個以上的描述 In Chapter 5.1.2, modify the entry for polychlorinated naphthalenes (PCNs) by deleting the description referring to compounds with more than 3 chlorine atoms. - 於 5.1.2 修改六溴環十二烷(HBCDD)的允許濃度(ppm) Updated Allowable concentration for Hexabromocyclododecane (HBCDD) in Chapter 5.1.2 - 於 5.1.2 修改其他溴系阻燃劑的適用對象內容 Updated application for Other Brominates Flame Retardants in Chapter 5.1.2 - 於 5.1.2 修改其氯系阻燃劑的適用對象內容 Updated application for Chlorinated Flame Retardants in Chapter 5.1.2 - 於 5.1.2 增加鈹銅合金 Added Beryllium Copper Alloy in Chapter 5.1.2 - 於 5.1.2 刪除備註: #5 異丙基化磷酸三苯酯(PIP (3:1))用於商業中加工和分銷用作粘合劑和密封劑可展延至 2025/1/6 In Chapter 5.1.2, delete Note #5. Phenol, isopropylated phosphate (3:1) (PIP (3:1)) exemption: The use for commercial processing and distribution as adhesives and sealants can be extended until January 6, 2025. - 於 5.1.2 修改 UV-328 的備註 Updated the note for UV-328 in Chapter 5.1.2. - 於 5.1.3 增加鄰苯二甲酸二異壬酯 (DINP)，鄰苯二甲酸二異癸酯 (DIDP) Added di-isononyl phthalate (DINP), di-isodecyl phthalate (DIDP) in Chapter 5.1.3 - 於 5.1.3 增加鄰苯二甲二異辛酯(DIOP)，間苯二酚 Added Diisooctyl phthalate(DIOP), 1,3-benzenediol (Resorcinol)in Chapter 5.1.3 - 於 5.2 更新 EU 包材法規(EU) 2025/40 Added Packaging Regulation (EU) 2025/40 in Chapter 5.2 - 於 5.2 更新 MOAH 的豁免項目 Updated the exemption note for MOAH - 於 5.2 刪除備註#16. MOSH 豁免對象: 在 2024 年 12 月 31 前不限制此類物質在油墨中的濃度。 In Chapter 5.2, delete Note #16. MOSH exemption: Until December 31, 2024, there is no restriction on the concentration of MOSH substances in ink. - 於 6.1 更新歐盟 RoHS 指令除外條款為最新狀態 Updated the exemption clauses of the EU RoHS Directive to the latest status in Chapter 6.1

		17. 於 6.5 更新 POPs 管制物質 Updated the substances of POPs in Chapter 6.5 18. 更新參考法規 in Appendix 6.9 Updated the reference of law information in Appendix 6.9.			
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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:

1. 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。

2. ODM專案將不僅限於本規範中規定的標準。

Note:

1. 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 not clearly regulated in this standard.
2. ODM projects will not be limited to the standards specified in this specification.

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 2): 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 3): 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 4): 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 2): Need to provide the analysis reports or the declaration of maker.
2. Declaration substances (See table 3): Don't need analysis reports.
The manufactory or supplier shall promise that the products meet the standard for such substances on table 3.
3. Substances of concern (See table 4): 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 低鹵 Low Halogen

若零件或產品符合”低鹵”,其每個均質材料皆需符合表 1 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 1.

表 1. (Table 1.)

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

研華並無強制要求符合”低鹵”，但為因應研華綠色設計產品的新需求、客戶以及國際趨勢，部分材料、部件、產品將會強制要求符合”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”. However, in response to the new demands of Advantech's green design products, customer needs, and international trends, certain materials, components, and products will be required to comply with "low halogen."

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

3.9 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、**再生材料**、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, **recycled materials**, 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/kg=%*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.

四. 對供應商的要求 Expectations of Suppliers

1. 供應商交付的材料、部件、產品、包裝材料、電池以及輔耗材需符合本標準章節五. “監管物質”的要求。
2. 供應商交付低鹵的材料、部件、產品、包裝材料、電池以及輔耗材需符合本標準章節 3.8 表一的要求並提交相關的佐證文件證明符合。
3. 供應商須提供以下文件或其他相關文件以證明交付給研華的材料、部件、產品，包裝材料、電池以及輔耗材均符合研華 GPM 監管物質標準。
 - (1) 簽屬 Q-14-F02 不使用有害物質聲明書或提供材質成分表
 - (2) 提交研華 MCD 調查表
 - (3) 提交表 2 檢測物質的檢測報告或聲明文件

提供給研華的資料必須是正確有效的，例如完整正確的檢測報告；提供的研華 MCD 調查表所揭露的訊息需以均質材質來作業；當提供的材質成分表，物質 CAS NO 為未知或是原廠機密,都需要保證這些物質可以符合研華 GPM 監管物質標準。

1. Materials, components, products, packaging materials, batteries, and consumables delivered by suppliers must comply with the requirements of Chapter 5. Regulated Substances.
2. Materials, components, products, packaging materials, batteries, and consumables delivered by suppliers as low-halogen must meet the requirements specified in Table 1 of Chapter 3.8 of this standard and provide relevant supporting documents as proof of compliance.If the materials and parts meet the “Low Halogen ” that need to provide the documents to prove it.
3. Suppliers are required to provide the following documents or other related documents to demonstrate that the materials, components, products, packaging materials, batteries, and consumables delivered to Advantech comply with Advantech's GPM Regulated Substances Standard.
 - (1) Sign the Q-14-F02 Declaration of Non-Use Hazardous Substances or provide material composition Declaration.
 - (2) Provide the Advantech MCD Survey Form.
 - (3) Provide testing reports or declaration documents for the substances under table 2. All documents provided to Advantech shall be shall be accurate, true and complete. For instance, complete and accurate testing reports should be furnished. The information disclosed in the provided Advantech MCD Survey Form should be processed using homogeneous material. When providing material composition

tables, if substance CAS numbers are unknown or considered proprietary by the manufacturer, it is essential to ensure that these substances still comply with the Advantech GPM Substance Regulation Standard.

五. 監管物質 Regulated Substances

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

5.1.1. 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 2 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 2 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 6.3.1
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 6.3.2
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 6.3.3
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 6.3.4
物質 Substances	適用對象 Application	允許濃度(ppm) ^{#3} Allowable concentration concentration	參考 Reference

		(mg/kg=ppm)	
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 6.3.5
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 6.3.6
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 6.3.7
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 6.3.7
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 6.3.7
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 6.3.7

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 6.1)。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 6.1)

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

表 3.保證物質項目

Table 3.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)	Appendix 6.2.1
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)	Appendix 6.2.2
二辛基錫化合物(DOT) Diocetyl tin (DOT) compounds	(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)	1000 ppm of tin(Sn)	Appendix 6.2.2
鎳(Ni)及其化合物 Nickel (Ni) / Nickel Compounds	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.	禁止使用 Prohibited	Appendix 6.2.3
石棉類 Asbestos	所有產品,零組件及材質 All products, parts, components and materials	禁止使用 Prohibited	Appendix 6.2.4
特定偶氮化合物 Specific Azo Compounds	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.	禁止使用 Prohibited	Appendix 6.2.5

物質 Substances	適用對象 Application	允許濃度(ppm) Allowable concentration (mg/kg=ppm)	參考 Reference.
臭氣層破壞物質(ODS) (CFC,Halon,HFBC,HCFC,others) Ozone Depleting Substances(ODS) (CFC,Halon,HFBC,HCFC,others)	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	禁止使用 Prohibited	Appendix 6.2.6
放射性物質 Radioactive substances	所有產品,零組件及材質 All products, parts, components and materials	禁止使用 Prohibited	Appendix 6.2.7
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 6.2.8
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 6.2.9
多氯化萘類(PCNs) Polychlorinated naphthalenes (PCNs)	所有產品,零組件及材質 All products, parts, components and materials	禁止使用 Prohibited	Appendix 6.2.10
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 6.2.11
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 6.2.12
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	75 ppm	Appendix 6.2.13
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 6.2.14
甲醛 Formaldehyde	複合木 Composite wood	禁止使用 Prohibited	Appendix 6.2.15
	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 6.2.16

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 6.2.17 Controlled in the different product type. See Appendix 6.2.17.		Appendix 6.2.17
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 6.4.1
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 6.2.18
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 6.2.31
全氟己烷磺酸(PFHxS)及其鹽類及 其相關化合物 Perfluorohexane-1-sulphonic acid (PFHxS), its salts, and related compounds	所有產品,零組件及材質 All products, parts, components and materials	禁止使用 Prohibited	Appendix 6.2.38
含 9-14 個碳原子的全氟羧酸 (C9-C14 PFCA) 及其鹽類及其 相關化合物 Perfluorocarboxylic acids (PFCAs) C9-C14, its salts, and related compounds	所有產品,零組件及材質 All products, parts, components and materials	禁止使用 Prohibited	Appendix 6.2.38
長鏈含 9-21 個碳原子全氟羧酸 (C9-C21 LC-PFCA) 及其鹽類和相 關化合物 Long-chain (C9-C21) perfluorocarboxylic acids (LC- PFCAs), its salts, and related compounds	所有產品,零組件及材質 All products, parts, components and materials	禁止使用 Prohibited	Appendix 6.2.38
持久性有機污染物(源)(POPs) Persistent Organic Pollutants(POPs)	遵循 POPs 法規要求內容實施 To practice in compliance with the content of POPs requirements		Appendix 6.5
其他溴系阻燃劑(PBBs, PBDEs, HBCDD 除外) #4 Other Brominated Flame Retardants (except PBBs, PBDEs, HBCDD) #4	作為產品外殼或支架的零件 The parts as the enclosure and stand in products #4	1000ppm	Appendix 6.2.28
氯系阻燃劑 #4 Chlorinated Flame Retardants #4	作為產品外殼或支架的零件 The parts as the enclosure and stand in products #4	1000ppm	Appendix 6.2.30

物質 Substances	適用對象 Application	允許濃度(ppm) Allowable concentration (mg/kg=ppm)	參考 Reference.
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 6.2.34
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 6.2.35
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 6.2.36
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 ^{#6} Prohibited ^{#6}	Appendix 6.2.32
紅磷 ^{#7} Red phosphorus ^{#7}	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 ^{#8} Prohibited ^{#8}	Appendix 6.2.33
得克隆 TM 1,6,7,8,9,14,15,16,17,17,18,18- Dodecachloropentacyclo [12.2.1.16,9.02,13.05,10]octadeca- 7,15-diene (“Dechlorane Plus” TM) [covering any of its individual anti- and syn-isomers or any combination thereofDechlorane Plus]	所有產品,零組件及材質 All products, parts, components and materials	禁止使用 Prohibited	Appendix 6.2.40
2-(2-羥基-3,5-二-叔-戊基苯基)-苯 並三唑(UV-328) 2-(2H-benzotriazol-2-yl)-4,6- ditertpentylphenol (UV-328)	所有產品,零組件及材質 All products, parts, components and materials	禁止使用 ^{#9} Prohibited	Appendix 6.2.41
中鏈氯化石蠟(C14-17) (MCCPs) Medium chained chlorinated paraffins(C 14-17 alkyl chain) (MCCPs)	所有產品,零組件及材質 All products, parts, components and materials	禁止使用 ^{#10} Prohibited	Appendix 6.2.37
天然乳膠 Natural latex	作為醫療產品的零件 The parts in medical devices	禁止使用 Prohibited	Appendix 6.2.45
歐盟法規所定義殺生物劑產品 Biocidal product as defined in EU Regulation 528/2012	所有產品,零組件及材質 All products, parts, components and materials	禁止使用 Prohibited	Appendix 6.6

物質 Substances	適用對象 Application	允許濃度(ppm) Allowable concentration (mg/kg=ppm)	參考 Reference.
日本化審法第一類特定化學物質 Class I specified chemical substance in Japan Chemical Substances Control Law (Japan CSCL)	所有產品,零組件及材質 All products, parts, components and materials	禁止使用 Prohibited	Appendix 6.7
鈹銅合金 ^{#11} Beryllium Copper Alloy ^{#11}	所有產品,零組件及材質 All products, parts, components and materials	禁止使用 Prohibited	Appendix 6.2.23

備註:

#4.依據歐盟指令 (EU) 2019/2021 電子顯示器生態設計以及研華綠色生態化設計政策要求，產品(包含顯示器)的外殼或支架零件全面要求符合研華低鹵標準

#6. 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

#7. 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。

#8. 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

#9. UV-328 豁免對象: 用於以下應用時可豁免至 2030 年

(1)機動車輛零件

(2)機動車輛、工程機械、軌道交通車輛的工業塗料

(3)採血管中的機械分離器

(4)偏光片中的三乙醯纖維素(TAC)薄膜

(5)相紙

#10. MCCPs 豁免對象: 以斯德哥爾摩公約締約國大會(COP12)內容為主

(1)氯化程度低於 45% (按重量計氯含量) 的 MCCPs

(2)用於特定用途的聚氯乙烯 (PVC)、粘合劑、密封劑、膠帶，可豁免至 2030 年

(3)用於特定用途的金屬加工液，可豁免至 2036 年

(4)用於特定用途的替換零件中的聚合物和橡膠，可豁免至 2041 年

#11.鈹銅合金的禁止是基於要符合 EPEAT 以及研華綠色生態化設計所特別要求

Notes:

#4. In accordance with the EU Directive (EU) 2019/2021 on the Ecodesign Requirements for Electronic Displays and Advantech's Green Eco-Design Policy, all enclosure or stand components of products (including displays) are required to comply with Advantech's Low Halogen Standard.

#6. BNST exemption: Additive in rubber but except in tires.

#7. Red phosphorus is not banned by environmental laws or regulations. However, ADVANTECH is banning its use to prevent accidents and ensure product safety.

#8. Red phosphorus exemption: The plastic parts of connector or cable which don't contact with electrode conductor.

#9. UV-328 exemption: exemptions apply until 2030 for the following applications:

(1) Automotive components

(2) Industrial coatings for motor vehicles, construction machinery, and rail transit vehicles

(3) Mechanical separators in blood collection tubes

(4) Triacetate cellulose (TAC) film in polarizing sheets

(5) Photographic paper

#10. MCCPs exemption: Based on the content of the Stockholm Convention Conference of the Parties (COP12)

(1) MCCPs with a chlorine content of less than 45% by weight

(2) MCCPs used in specific applications such as polyvinyl chloride (PVC), adhesives, sealants, and tapes are exempted until 2030

(3) MCCPs used in specific applications of metalworking fluids are exempted until 2036

(4) MCCPs used in specific applications of polymers and rubbers in replacement parts are exempted until 2041

#11. The restriction on beryllium copper alloys is specifically required to comply with EPEAT and Advantech's Green Eco-Design standards.

5.1.3 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^{#12}。

備註:

#12. 此表的部分物質可能同時出現在表 2 或是表 3，請以較嚴格級別的內容通報

Substances of concern (See table 4): 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.

Notes:

#12. Some substances listed in the table 4 may also appear in Table 2 or Table 3. Please declare based on the stricter level of content.

表 4 監視物質項目

Table 4. 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 6.2.20
鄰苯二甲酸二異壬酯 (DINP) di-isononyl phthalate (DINP)	所有產品,零組件及材質 All products, parts,components and materials	Appendix 6.2.46
鄰苯二甲酸二異癸酯 (DIDP) di-isodecyl phthalate (DIDP)	所有產品,零組件及材質 All products, parts,components and materials	Appendix 6.2.47
鄰苯二甲二異辛酯(DIOP) Diisooctyl phthalate(DIOP)	所有產品,零組件及材質 All products, parts,components and materials	Appendix 6.2.48
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 6.2 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 6.2.22

物質 Substances	適用對象 Application	參考 Reference.
鈹(Be)及其化合物 Beryllium(Be) / Beryllium Compounds	除表 3 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 3)	Appendix 6.2.23
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 6.2.24
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 6.2.26
聚氯乙烯及其共聚化合物(PVC) Polyvinyl chloride (PVC) & PVC Copolymers	除表 6 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 6)	Appendix 6.2.27
過氯酸鹽 Perchlorates	所有產品,零組件及材質 All products, parts, components and materials	Appendix 6.2.19
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 6.2.39
十溴二苯乙烷(DBDPE) Decabromodiphenyl Ethane (DBDPE)	所有產品,零組件及材質 All products, parts, components and materials	Appendix 6.2.42
其他溴系阻燃劑(PBBs, PBDEs, HBCDD 除外) Other Brominated Flame Retardants (except PBBs, PBDEs, HBCDD)	除表 3 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 3)	Appendix 6.2.28
氯化磷酸酯系阻燃劑 (磷酸三(1,3-二氯-2-丙基)酯(TDCPP)、磷酸三氯乙酯(TCEP)、磷酸三氯丙酯(TCPP)) Three chlorinated Phosphate ester flame retardants(Tris (1,3-dichloro-2-propyl) phosphate(TDCPP), Tris(2-chloroethyl)phosphate (TCEP), Tris(1-chloro-2-propyl)phosphate (TCPP))	所有產品,零組件及材質 All products, parts, components and materials	Appendix 6.2.43
其他氯系阻燃劑 Chlorinated flame retardants (CFR)	除表 3 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 3)	Appendix 6.2.30
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)	所有產品,零組件及材質 All products, parts, components and materials	Appendix 6.2.29
鎳(Ni)及其化合物 Nickel (Ni) / Nickel Compounds	除表 3 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 3)	Appendix 6.2.3
特定偶氮化合物 Specific Azo Compounds	除表 3 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 3)	Appendix 6.2.5

物質 Substances	適用對象 Application	參考 Reference.
多環芳香烴(PAHs) Polycyclic Aromatic Hydrocarbons (PAHs)	除表 3 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 3)	Appendix 6.2.17
甲醛 Formaldehyde	除表 3 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 3)	Appendix 6.2.15
紅磷 Red phosphorus	除表 3 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 3)	Appendix 6.2.33
全氟/多氟烷基物質 (Perfluoroalkyl and polyfluoroalkyl substances, PFAS)	除表 6 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 6)	Appendix 6.2.38
奈米材料 Nanomaterials	所有產品,零組件及材質 All products, parts, components and materials	Appendix 6.2.44
天然乳膠 Natural latex	除表 3 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 3)	Appendix 6.2.45
間苯二酚 1,3-benzenediol (Resorcinol)	所有產品,零組件及材質 All products, parts, components and materials	Appendix 6.2.49

5.1.4 REACH 高關注物質: Substances of REACH SVHC

表 5 REACH SVHC

Table 5. 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 ^{#13}	所有產品,零組件及材質 All products, parts, components and materials	1000 ppm	Appendix 6.4.2

備註:

#13. 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:

#13. 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.

5.2. 包裝材 Packaging materials

研華包裝材除需符合 5.1 所述的規範外,亦需保證符合以下法規**列管的危害物質**要求:美國包裝材毒性物質訊息交流中心(Toxics in Packaging)

Clearinghouse, TPCH)、法國第 2020-105 號法令以及歐盟包材法規(EU) 2025/40 (簡稱 PPWR) (表 6)

Advantech packaging material shall comply with the specifications mentioned in chapter 5.1 and ensure compliance with the **hazardous substance requirements regulated under the following** regulations: US Toxics in Packaging Clearinghouse, French Decree 2020-105, EU packaging **Regulation (EU) 2025/40 (PPWR)** 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)
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
鄰苯二甲酸鹽類 Phthalates Compounds	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
聚氯乙烯及其共聚化合物(PVC) Polyvinyl chloride (PVC) & PVC Copolymers	所有包裝材 ^{#14} all packaging materials ^{#14}	禁止使用 ^{#14} Prohibited ^{#14}
由 1~7 個芳香環組成的礦物油芳香烴 (MOAH) Mineral oil aromatic hydrocarbons consisting of 1 to 7 aromatic cycles (MOAH)	包裝和印刷品中的油墨 Ink in Packaging and Printing Materials	小於 1 ppm ^{#15} < 1 ppm ^{#15}
由 16~35 個碳原子組成的礦物油飽和烴 (MOSH) Mineral oil saturated hydrocarbons consisting of 16 to 35 carbon atoms (MOSH)	包裝和印刷品中的油墨 Ink in Packaging and Printing Materials	小於 1000 ppm < 1000 ppm

備註:

#14. PVC 豁免對象: 非包裝箱、包裝袋、緩衝材、膠帶的材質可允許使用。

#15. MOAH 豁免對象: 非 3~7 芳香環組成的礦物油芳香烴在油墨中的含量不可大於 0.1%

Notes:

#14. PVC exemption: Materials other than cartons, packaging bags, cushioning materials, and tape are allowed for use.

#15. MOAH exemption: The concentration of MOAH (mineral oil aromatic hydrocarbons not composed of 3–7 aromatic rings) in the ink shall not exceed 0.1%.

5.3 電池 Battery

研華電池除需符合 5.1 所述的規範外，亦需符合歐盟電池指令 2006/66/EC、修訂指令 2013/56/EU 以及電池法規(EU) 2023/1542 列管的危害物質要求(表 7)

Advantech batteries, in addition to complying with the specifications described in chapter 5.1, must also meet the hazardous substance requirements listed in the EU Battery Directive 2006/66/EC, the amended Directive 2013/56/EU, and the Battery Regulation (EU) 2023/1542 (Table 7).

表 7. (Table 7.)

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

六.附錄 Appendix

6.1 RoHS 除外條款 RoHS Exemptions

研華的產品會應用於歐盟 RoHS 所定義類別 1 到類別 11^{#17} 的領域，因此會採用更嚴格的標準來管制零組件所能使用的除外條款項目。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，詳細的內容請依照歐盟網站公告為主。可至下列網站查詢：

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

Advantech's products will be applied in the fields defined by the EU RoHS categories from Cat.1 to Cat.11^{#17}. Therefore, stricter standards will be adopted to regulate the exemptions that components can use.

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 detailed 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

備註 Note :

#17. 各類別如下 The categories are as follows:

- Cat.1:大型家用電器 Large household appliances
- Cat.2:小型家用電器 Small household appliances
- Cat.3:計算和通信設備 Computing & communications equipment
- Cat.4:民生設備 Consumer electronics
- Cat.5:照明設備 Lighting
- Cat.6:電動工具 Power tools
- Cat.7:玩具、休閒，運動設備 Toys, leisure and sports equipment
- Cat.8:醫療設備 Medical devices and equipment
- Cat.9:包括工業用在內的監控，控制設備 Monitoring and control equipment
- Cat.10:自動販賣機 Automatic dispensers
- Cat.11:不屬於上述類別的其他電氣電子設備 Catch-all

6.2 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)

6.2.1 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	-	

6.2.2 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	
Dibutuyltin 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		

6.2.3 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	

6.2.4 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	

6.2.5 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-氯基聯苯	92-67-1	
6-methoxy-m-toluidine	6-甲氧-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	
2,4,5-Trimethylaniline	2,4,5 - 三甲基苯胺	

6.2.6 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)	
Dichlorodifluoromethane (CFC12)	二氯二氟甲烷 (CFC12)	
Chlorotrifluoromethane (CFC 13)	氯三氟甲烷 (氯氟化碳 13)	
Pentachlorofluoroethane (CFC 111)	氟五氯乙烷 (氯氟化碳 111)	
Tetrachlorodifluoroethane (CFC 112)	二氟四氯乙烷 (氯氟化碳 112)	
Trichlorotrifluoroethane (CFC 113)	三氯三氟乙烷 (氯氟化碳 113)	
1,1,2 Trichlorotrifluoroethane	1,1,2 - 三氯三氟乙烷	
Dichlorotetrafluoroethane (CFC 114)	1,2 - 二氯四氟乙烷 (氯氟化碳 114)	
Monochloropentafluoroethane (CFC 115)	五氟氯乙烷 (氯氟化碳 115)	
Heptachlorofluoropropane (CFC 211)	七氯氟丙烷 (氯氟化碳 211)	
Hexachlorodifluoropropane (CFC 212)	六氯二氟丙烷 (氯氟化碳 212)	
Pentachlorotrifluoropropane (CFC 213)	氯三氟丙烷 (氯氟化碳 213)	
Tetrachlorotetrafluoropropane (CFC 214)	四氯四氟丙烷 (氯氟化碳 214)	
1,1,1,3-Tetrachlorotetrafluoropropane	1,1,1,3 - 四氯四氟丙烷	
Trichloropentafluoropropane (CFC 215)	三氯五氟丙烷 (氯氟化碳 215)	
1,1,1-Trichloropentafluoropropane	1,1,1 - 三氯五氟丙烷	
1,2,3-Trichloropentafluoropropane	1,2,3 - 三氯五氟丙烷	
Dichlorohexafluoropropane (CFC 216)	二氯六氟丙烷 (氯氟化碳 216)	
Monochloroheptafluoropropane (CFC 217)	氯七氟丙烷 (氯氟化碳 217)	
Halons (HCFCs)	哈龍	
Bromochlorodifluoromethane (Halon 1211)	溴氯二氟甲烷 (哈龍 1211)	
Bromotrifluoromethane (Halon 1301)	三氟溴甲烷 (哈龍 1301)	
Dibromotetrafluoroethane (Halon 2402)	二溴四氟乙烷 (哈龍 2402)	
Dibromodifluoromethane (Halon 1202)	二溴二氟乙烷 (哈龍 1202)	
Hydrobromofluorocarbons (HBFCs)	鹵化氟溴化物(HBFC-22 B1)	
Dibromofluoromethane	二溴氟甲烷(HBFC-21 B2)	
Bromofluoromethane	氟溴甲烷(HBFC-31 B1)	
Tetrabromofluoroethane	四溴氟(HBFC-121 B4)	
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)	

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)	三碘氟甲烷	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)	氯六氟丙烷 (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)	五氯氟丙烷 (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	

6.2.7 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	銂-241	7440-35-9;14596-10-2	
Thorium-232	釷-232	7440-29-1	
Cesium-137	銫-137	10045-97-3	
Strontium-90	銣-90	10098-97-2	

6.2.8 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

6.2.9 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	

6.2.10 多氯化萘類(PCNs) Polychlorinated naphthalenes (PCNs)

物質 Substances		CAS Numbers	應用 Examples of Use
Polychlorinated naphthalenes (PCNs)	多氯化萘類(PCNs)	70776-03-3	潤滑劑、油漆、穩定劑、阻燃劑 Lubricant, paint, stabilizer, flame retardant
Dichloronaphthalene	二氯萘	28699-88-9	
Trichloronaphthalene	三氯萘	1321-65-9	
Tetrachloronaphthalene	四氯萘	1335-88-2	
Pentachloronaphthalene	五氯萘	1321-64-8	
Hexachloronaphthalene	六氯萘	1335-87-1	
Heptachloronaphthalene	七氯萘	32241-08-0	
Octachloronaphthalene	八氯萘	2234-13-1	
Other polychlorinated Naphthalenes	其他多氯化萘類		

6.2.11 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	

6.2.12 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

6.2.13 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	

6.2.14 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	

6.2.15 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、集成板材硬木膠合板(HWPW) aminoplasts, urea- and melamine resins, foam plastics, vulcanization accelerators, wood panel. Hardwood Plywood (HWPW)

6.2.16 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

6.2.17 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

6.2.18 全氟辛烷磺酸(PFOS)及其鹽類

Perfluorooctane Sulfonates (PFOS) and salts, etc see (for a more comprehensive list of PFOA CAS numbers see OECD)

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) C ₈ F ₁₇ SO ₂ X, where X = OR, NR or other derivative	全氟辛烷磺酸鹽(PFOS) C ₈ F ₁₇ SO ₂ X, X 為 OR, NR 或其他衍生品		
2-Propenoic acid, 2-methyl-, dodecyl ester, polymers with 2-[methyl[(perfluoro-C ₄ -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	

6.2.19 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	

6.2.20 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	-	

6.2.21 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 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-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	
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	

物質 Substances		CAS Numbers	應用 Examples of Use
Diundecyl phthalate	鄰苯二甲酸雙十一烷基酯	3648-20-2	增塑劑、燃料、顏料、 塗料、油墨、粘合劑、 潤滑劑 plasticizer, dye, pigment, paint, ink, adhesive, lubricant 增塑劑、燃料、顏 料、塗料、油墨、 粘合劑、潤滑劑 plasticizer, dye, pigment, paint, ink, adhesive, lubricant
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，支鏈及直鏈	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	
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 支鏈與直鏈)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，直鏈及支鏈	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	-	

6.2.22 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 antimonide	銻化銦	1312-41-0	
Other antimony compound	其他銻化合物	-	

6.2.23 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	-	

6.2.24 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	鉍酸鉍	12048-51-0	
Other bismuth compounds	其他鉍化合物	-	

6.2.26 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	-	

6.2.27 聚氯乙烯及其共聚化合物(PVC)

Polyvinyl chloride (PVC) & PVC Copolymers

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

6.2.28 其他溴系阻燃劑(PBBs，PBDEs，HBCDD 除外)

Other Brominated 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 阻燃劑 Flame Retardant
Tetra-decabromo-diphenoxy-benzene	四十溴-p-二苯氧苯	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	
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	三溴苯新戊醇	36483-57-5	

物質 Substances		CAS Numbers	應用 Examples of Use
Poly tribromo-styrene	聚三溴苯乙烯	57137-10-7	阻燃劑 Flame Retardant
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)異氰脲酸酯	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	
Decabromodiphenyl Ethane (DBDPE)	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	
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-羥苯基)-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	

物質 Substances		CAS Numbers	應用 Examples of Use
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]		阻燃劑 Flame Retardant
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/脂環溴化合物結合銻化合物]		
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) 結合銻化合物]		
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	

6.2.29 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)	鹼性紫 3;結晶紫	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

6.2.30 氯系阻燃劑 Chlorinated Flame Retardants

物質 Substances		CAS Numbers	應用 Examples of Use
Tetrakis(2-chloroethyl)dichloroisopentyldiphosphate	四(2-氯乙基)二氯異戊烯基二磷酸	38051-10-4	阻燃劑 Flame Retardant
Tris(2,3-dichloro-1-propyl)phosphate	三(2,3-二氯-1-丙基)磷酸酯	66108-37-0	
Other Chlorinated Flame Retardants			

6.2.31 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-deca-octanoic 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-deca-octanoic 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-deca-octanoic 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-deca-octanoic 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	-	

6.2.32 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)

6.2.33 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

6.2.34 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.

6.2.35 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

6.2.36 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

6.2.37 中鏈氯化石蠟(C14-17) (MCCPs)

Medium chained chlorinated paraffins(C 14-17 alkyl chain) (MCCPs)

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

- 6.2.38 全氟/多氟烷基物質(PFAS)、全氟己烷磺酸(PFHxS)及其鹽類及其相關化合物、含 9-14 個碳原子的全氟羧酸 (C9-C14 PFCA)、長鏈含 9-21 個碳原子全氟羧酸 (C9-C21 LC-PFCA)及其鹽類和相關化合物
Perfluoroalkyl and polyfluoroalkyl substances (PFAS), Perfluorohexane-1-sulphonic acid (PFHxS), its salts, and related compounds, (C9-C14) perfluorocarboxylic acids (PFCAs), Long-chain (C9-C21) perfluorocarboxylic acids (LC-PFCAs), its salts, and related compounds

物質 Substances	CAS Numbers	應用 Examples of Use
The list of PFAS, PFHxS and PFCAs CAS numbers see OECD Comprehensive Global Database of PFASs at https://www.oecd.org/chemicalsafety/portal-perfluorinated-chemicals/	-	介面活性劑、塗料、電鍍產品、焊錫、潤滑油等 Surfactants, coatings, electroplating, solder, lubricants, etc

6.2.39 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

6.2.40 得克隆™

1,6,7,8,9,14,15,16,17,17,18,18- Dodecachloropentacyclo [12.2.1.16,9.02,13.05,10]octadeca-7,15-diene (“Dechlorane Plus”™) [covering any of its individual anti- and syn-isomers or any combination thereofDechlorane Plus]

物質 Substances	CAS Numbers	應用 Examples of Use
1,6,7,8,9,14,15,16,17,17,18,18- Dodecachloropentacyclo [12.2.1.16,9.02,13.05,10]octadeca-7,15-diene (“Dechlorane Plus”™) [covering any of its individual anti- and syn-isomers or any combination thereofDechlorane Plus]	得克隆™ 13560-89-9; 135821-74-8; 135821-03-3	阻燃劑，膠水，密封劑，金屬表面處理，塑膠及橡膠生產 Flame retardants, adhesives, sealants, metal surface treatment, plastic and rubber production.

6.2.41 2-(2-羥基-3,5-二-叔-戊基苯基)-苯並三唑(UV-328)
2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)

物質 Substances		CAS Numbers	應用 Examples of Use
2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	2-(2-羥基-3,5-二-叔-戊基苯基)-苯並三唑(UV-328)	25973-55-1	塑膠, PU 與橡膠的 UV 安定劑, 用於塗料的配方 UV stabilizers for plastics, polyurethane (PU), and rubber, used in paint formulations.

6.2.42 十溴二苯乙烷(DBDPE) Decabromodiphenyl Ethane (DBDPE)

物質 Substances		CAS Numbers	應用 Examples of Use
Decabromodiphenyl Ethane (DBDPE)	十溴二苯乙烷(DBDPE)	84852-53-9	阻燃劑 Flame Retardant

6.2.43 氯化磷酸酯系阻燃劑(磷酸三(1,3-二氯-2-丙基)酯(TDCPP)、磷酸三氯乙酯(TCEP)、磷酸三氯丙酯(TCPP))

Three chlorinated Phosphate ester flame retardants (Tris (1,3-dichloro-2-propyl) phosphate(TDCPP) ,Tris(2-chloroethyl)phosphate (TCEP) ,Tris(1-chloro-2-propyl)phosphate (TCPP))

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
Tris(1-chloro-2-propyl)phosphate (TCPP)	三(1-氯-2-丙基)磷酸酯(TCPP)	13674-84-5	
Tris (1,3-dichloro-2-propyl) phosphate(TDCPP)	三(1,3-二氯-2-丙基)磷酸(TDCPP)	13674-87-8	

6.2.44 奈米材料 Nanomaterials

物質 Substances		CAS Numbers	應用 Examples of Use
Nanomaterials (Ex: silver nanoparticles, iron nanoparticles)	奈米材料 (例: 納米銀、納米鐵)	-	光觸媒, 導電油墨 Photocatalyst, Conductive ink

6.2.45 天然乳膠 Natural latex

物質 Substances		CAS Numbers	應用 Examples of Use
Natural latex	天然乳膠	9006-04-6	醫用手套, 工業手套, 橡膠線, 氣球 Medical gloves, industrial gloves, rubber cords, balloons.

6.2.46 鄰苯二甲酸二異壬酯 (DINP) di-isononyl phthalate (DINP)

物質 Substances		CAS Numbers	應用 Examples of Use
di-isononyl phthalate (DINP)	鄰苯二甲酸二異壬酯 (DINP)	28553-12-0;68515-48-0	增塑劑、燃料、顏料、塗料、油墨、 粘合劑、潤滑劑 plasticizer, dye, pigment, paint, ink, adhesive, lubricant

6.2.47 鄰苯二甲酸二異癸酯 (DIDP) di-isodecyl phthalate (DIDP)

物質 Substances		CAS Numbers	應用 Examples of Use
di-isodecyl phthalate (DIDP)	鄰苯二甲酸二異癸酯 (DIDP)	26761-40-0;68515-49-1	增塑劑、燃料、顏料、塗料、油墨、 粘合劑、潤滑劑 plasticizer, dye, pigment, paint, ink, adhesive, lubricant

6.2.48 鄰苯二甲二異辛酯(DIOP) Diisooctyl phthalate(DIOP)

物質 Substances		CAS Numbers	應用 Examples of Use
Diisooctyl phthalate(DIOP)	鄰苯二甲二異辛酯(DIOP)	27554-26-3	增塑劑、燃料、顏料、塗料、油墨、 粘合劑、潤滑劑 plasticizer, dye, pigment, paint, ink, adhesive, lubricant

6.2.49 間苯二酚 1,3-benzenediol (Resorcinol)

物質 Substances		CAS Numbers	應用 Examples of Use
1,3-benzenediol (Resorcinol)	間苯二酚	108-46-3	黏合劑、染料、醫藥品、化妝品 Adhesives, dyes, pharmaceuticals, cosmetics.

6.3 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.)

6.3.1 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		

6.3.2 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 Rubber hardener, Pigment, paint, lubricant, plastic stabilizer, optical materials, X-ray shielding in CRT glass, solder materials, curing agent, vulcanizing agent, plating, metal alloy colorant
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	Zinc carbon batteries, alkaline button cells Colorant in plastics, Colorant in paint
Dioxobis(stearato)trilead	雙(十八酸基)二氧代三鉛	12578-12-0	
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 (H2Si2O5), 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	

物質 Substances		CAS Numbers	應用 Examples of Use
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	
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		

6.3.3 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		

6.3.4 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	
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 hydroxyoctaoxodizincatedi-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		

6.3.5 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	

6.3.6 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	1163-19-5	

6.3.7 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	

6.4 REACH 相關資訊細節

Details of REACH information

6.4.1 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>

6.4.2 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](#)

6.4.3 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>

6.5 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，詳細的內容請依照官方網站公告為主)

Details of Persistent Organic Pollutants (POPs) (This list is not exhaustive and is provided for reference only. For detailed information, please refer to the official website announcements.)

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	
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

物質 Substances		CAS Numbers	應用 Examples of Use
Hexabromobiphenyl (PBB group, Same as Table 2)	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 2)	六溴聯苯醚	36483-60-0	
Heptabromodiphenyl ether (PBDE group, Same as Table 2)	七溴聯苯醚	68928-80-3	
Tetrabromodiphenyl ether (PBDE group, Same as Table 2)	四溴聯苯醚	40088-47-9	
Pentabromodiphenyl ether (PBDE group, Same as Table 2)	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 3)	短鏈氯化石蠟(C10-13)	85535-84-8	增塑劑(Plasticizers)
Polychlorinated Biphenyls(PCBs) (Same as Table 3)	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 3)	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 (Same as Table 3)	全氟辛基磺酸鉀	2795-39-3	
Ammonium heptadecafluoro-o ctanesulphonate (Same as Table 3)	十七氟辛烷磺酸胺	29081-56-9	
Lithium perfluorooctane sulfonate (Same as Table 3)	十七氟辛烷磺酸鋰	29457-72-5	
perfluorooctane sulfonyl fluoride(PFOSF) (Same as Table 3)	全氟辛基磺醯氟	307-35-7	
Sodium perfluoro(octane-1-sulfonate) (Same as Table 3)	全氟(辛烷-1 - 磺酸)	4021-47-0	
Tetraethyl ammonium perfluorooctane-1-sulfonate (Same as Table 3)	四乙基銨全氟辛烷-1 - 磺酸鹽	56773-42-3	
Heptadecafluoro-1-octanesulfonic acid compound with diethanolamine (Same as Table 3)	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(Same as Table 3)		71463-74-6	

物質 Substances		CAS Numbers	應用 Examples of Use
Magnesium bis(perfluorooctane-1-sulfonate) (Same as Table 3)		91036-71-4	
BHC (mixture of hexachlorocyclohexanes)	氯代環烷烴	608-73-1	
Kelthane	大克蟎; 三氯殺醇	115-32-2	殺蟲劑 Insecticides
Perfluorooctanoic Acid (PFOA) its salts and PFOA related compounds (Same as Table 3)	全氟辛酸(PFOA)及其鹽類及其相關化合物	335-67-1	皮革,紡織等表面處理 Coatings of Textiles and Leathers
Perfluorohexane-1-sulphonic acid and its salts(PFHxS) (Same as Table 3)	全氟己基磺酸及其鹽類	355-46-4	
Hexabromocyclododecane (HBCDD) and all major diastereoisomers (Same as Table 3)	六溴環十二烷(HBCDD)及其異構物	25637-99-4;3194-55-6; 134237-50-6; 134237-51-7; 134237-52-8	阻燃劑 Flame retardant
Pentachlorophenol(PCP)	多氯酚(五氯酚)	87-86-5	殺蟲劑 Insecticides
Sodium pentachlorophenolate	五氯酚鈉	131-52-2	
Pentachloroanisole	五氯苯甲醚	1825-21-4	
Pentachlorophenol dodecanoate	月桂酸五氯苯酯	3772-94-9	
Decabromodiphenyl ether (DecaBDE) (Same as Table 2)	十溴聯苯醚(decaBDE)	1163-19-5	阻燃劑 Flame retardant
2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328) (Same as Table 3)	2-(2'-羥基-3',5'-二-叔-戊基苯基)-苯並三唑	25973-55-1	塑膠, PU 與橡膠的 UV 安定劑, 用於塗料的配方 UV stabilizers for plastics, polyurethane (PU), and rubber, used in paint formulations
1,6,7,8,9,14,15,16,17,17,18,18-Dodecachloropentacyclo [12.2.1.16,9.02,13.05,10]octadeca-7,15-diene ("Dechlorane Plus"™) [covering any of its individual anti- and syn-isomers or any combination thereofDechlorane Plus] (Same as Table 3)	得克隆	13560-89-9; 135821-74-8; 135821-03-3	阻燃劑, 膠水, 密封劑, 金屬表面處理, 塑膠及橡膠生產 Flame retardants, adhesives, sealants, metal surface treatment, plastic and rubber production.
Long-chain (C9-C21) perfluorocarboxylic acids (LC-PFCAs), its salts, and related compounds (Same as Table 3)	含 9-14 個碳原子的全氟羧酸 (C9-C14 PFCA) 及其鹽類及其相關化合物	-	介面活性劑、塗料, 電鍍產品、焊錫、潤滑油等 Surfactants, coatings, electroplating products, solder, lubricants, etc
Medium chained chlorinated paraffins(C 14-17 alkyl chain) (MCCPs) (Same as Table 3)	中鏈氯化石蠟(C14-17) (MCCPs)	-	增塑劑、阻燃劑 Plasticizer, Flame Retardant
Methoxychlor	甲氧滴滴涕	72-43-5;30667-99-3;76733-77-2;255065-25-9;255065-26-0;59424-81-6;1348358-72-4 and others	殺蟲劑 Insecticides

6.6 歐盟殺生物劑產品法規 (EU) No 528/2012

Biocidal Products Regulation, BPR (EU) No 528/2012

所謂的殺生物劑產品係指可以用來控制對於人類和動物有害之生物體和控制會造成天然與人造材料損壞之生物體。這些殺生物劑產品本身的特性或是在使用時會對人類、動物和環境產生風險，因此歐盟制訂了BPR來管理歐盟市場上的殺生物劑相關產品。要求進口歐盟或是在歐盟內所製造的所有殺生物劑產品需要授權後才可在市場上販售，如同農藥的核可情況一樣，殺生物劑產品內所包含的有效成分也必須先獲得主管機關的核准後才可使用。詳細內容請以官方網址所公布者為準，網址如下：

<https://echa.europa.eu/regulations/biocidal-products-regulation/understanding-bpr>

The biocidal products refer to substances that can be used to control harmful organisms to humans and animals, as well as organisms that cause damage to natural and artificial materials. The characteristics of these biocidal products themselves or their use may pose risks to humans, animals, and the environment. Therefore, the European Union (EU) has established the Biocidal Products Regulation (BPR) to manage biocidal products in the EU market. Importing or manufacturing all biocidal products in the EU requires authorization before they can be sold on the market. Similar to the approval process for pesticides, the active substances contained in biocidal products must also be approved by the competent authorities before they can be used. The list is available by linking to the following website:

<https://echa.europa.eu/regulations/biocidal-products-regulation/understanding-bpr>

6.7 日本化審法第一類特定化學物質

Class I specified chemical substance in Japan Chemical Substances Control Law (Japan CSCL)

日本化審法-第一種特定化學物質是指具有持久性，高生物蓄積性，且對人類或高等捕食動物有長期毒性的化學物質。已列入的化學物質，在生產/進口前需要政府許可（除實驗研究等少數情況外，原則上禁止），未經授權不允許生產或進口。詳細內容請以官方網址所公布者為準，網址如下：

https://www.nite.go.jp/chem/jcheck/list6.action?category=211&request_locale=en

The Japanese Chemical Substances Control Law - Class I specified chemical substance refer to chemicals that are persistent, bioaccumulative, and have long-term toxicity to humans or higher-level predatory animals. Chemical substances that are listed under this category require government approval prior to

production/importation (with few exceptions such as for experimental research, but generally prohibited). Unauthorized production or importation is not allowed. The list is available by linking to the following website:

https://www.nite.go.jp/chem/jcheck/list6.action?category=211&request_locale=en

6.9 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 Regulation (EU) 2023/1542.
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. **And Regulation (EU) 2025/40**
5. Stockholm Convention on Persistent Organic Pollutants (POPs), Directive (EU) 2019/1021 and all amendments
6. International Electrotechnical Commission
IEC 62474-Material Composition Declaration for Electronic Products
7. **Canada** 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
11. US Toxics in Packaging Clearinghouse, TPCCH
12. US State of Vermont Act. 85
13. Japan Chemical Substances Control Law (CSCL)
14. French law no. 2020-105 relating to the fight against waste and the circular economy, in particular its article 112
15. Belgian Royal Decree B.S. 24-09-2014
16. Biocidal Product Regulation Regulation (EU) 528/2012
17. The US Food and Drug Administration (FDA) labelling regulation Title 21 of the Code of Federal Regulations (21 CFR 801.437)
18. **Singapore Environmental Protection and Management Act 1999 (Amendment of Second Schedule) Order 2025**
19. **EU Regulation (EC) No. 1005/2009 on Substances that deplete the ozone layer.**

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20. US California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)
 21. EU Regulation (EU) 2024/573 on fluorinated greenhouse gases
 22. Australia Department of Immigration and Border Protection Notice No. 2016/30 — “Assurances that imported goods do not contain asbestos”