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會簽單位							
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版本變更記錄表 (Version Change Record)

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版本	發行說明	撰寫	發行日期	頁次	版本	頁次	版本
C	1. 新增插入 M13 及 M20 /四溴丙二酚 及發泡聚乙烯之標準 Page 19、23	Show	12/20/'06	1	G	24	G
	2. 修改物質量測標準 Page 28、29			2	G	25	G
	3. 增加十溴聯苯醚屬於管制對象 Page 19			3	G	26	G
	4. 聚氯乙烯及其混合物管制對象為 所有包裝材 Page 22			4	G	27	G
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				7	G	30	G
D	1. 新增物質 M06/M11~M13/M18/M28~M40 之 管制標準 Page17、19~21、26~30	Show	05/28/'08	8	G	31	G
	2. 修改 Page3、4、7 內容			9	G	32	G
	3. 修改表 5.1 環境管理物質一覽表 Page8、9			10	G	33	G
	4. 修改環境負荷之檢測 Page 34、35			11	G	34	G
E	1. 修訂 4.參考資料	Show	03/05/'09	12	G	35	G
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	3. 增、修訂表 5.2 內容			14	G	37	G
	4. 增訂表 5.2d			15	G	38	G
	5. 修訂 7. 環境負荷物質之檢測內容			16	G	39	G
	6. 增訂 5.3 無鹵產品之定義			17	G		
	7. 增訂 3.7 均質材料定義			18	G		
F	1. 新增 4.11 歐盟富馬酸二甲酯限制使用指令	Show	07/17/'09	19	G		
	2. 增列 5.1 表 富馬酸二甲酯			20	G		
	3. 增列 5.2 物質 M44: 富馬酸二甲酯			21	G		
	4. 增列 7 30. 富馬酸二甲酯			22	G		
G	修訂 4.1	Show	08/08/'12	23	G		

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1、 目的：

本公司為保護生態環境、降低產品產出時使用之所有材料、零件所造成之環境負荷並且順應客戶對綠色環保之要求及法令之規定，針對 UNIFOSA 綠色產品的所有材料制定此管制標準

For protecting the living environment, reducing the environment loading due to the usage of material and component while manufacturing product and conform the request about Green Environment Protection of customer and the law. We create the control criteria for all material of UNIFOSA Green Product..

2、 適用範圍：

2. SCOPE

2.1 產品適用範圍

Scope applicable to products

- a) 由 UNIFOSA 所自行設計、製造、銷售指定列入環境管理的 HSF 產品。
- b) 由 OEM 客戶委託 UNIFOSA 製造或代工，指定列入環境管理的 HSF 產品。

- a) Products that are designed, manufactured, sold by UNIFOSA and are identified to be an environment managed hazardous substance free Products.
- b) Products that are identified to be an environment managed hazardous substance free Product by UNIFOSA OEM customers.

2.2 零件、副資材和材料的適用範圍

Scope applicable to parts ,sub-material and material

適用於 UNIFOSA 自行採購或客戶提供之零組件、原物料，這些零組件、材料必須符合本綠色產品管制標準。

零件和材料對象：

- 零組件（電子零組件、機構件、半導體元件、印刷電路板、維修零件）
- 製程中所使用的附屬材料、消耗品（例如：接著劑、膠帶、焊接材料等）
- 說明書
- 運送和保護產品及零組件所使用的包裝材料（例如：托盤、捲軸、包裝袋、緩衝材料、訂書針、紙張、包覆物、膠帶、標籤、皺折硬紙板、聚乙烯塑膠袋、印刷油墨及塗料等）

Targets are the parts, materials, and others that are purchased by UNIFOSA or provided by

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UNIFOSA OEM Customers. The targets need to satisfy the Green Product criteria specified.

Target parts and materials

- Parts (electrical parts, mechanical parts, semiconductor devices, PCBs, repair parts)
- recording media, packing materials, and packing components)
- The material employed in subsidiary parts and materials (e.g. adhesives, adhesive tapes, and soldering material) used for products
- Introduction manuals
- The packing materials that parts suppliers use for delivery and protection (e.g. trays, reels, bags, cushions, staples, sheets, wraps, tapes, labels, corrugated cardboard, wooden frames, vinyl ties, and inks or paints for printing)

3、定義 Definition：

本標準對術語定義如下：

In the criteria, terms are defined as follow:

3.1 環境管理物質

“Environment -related Substances to be Controlled
(The controlled substances’)”

零組件或原物料組成中經判斷界定含有對地球生態環境會造成顯著影響而於國內外法規或客戶訂定標準中所限制使用之物質。

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

3.2 有害物質 Hazardous substances(縮寫為 HS)

經由商丞判斷在零件部、副資材與材料的組合中，含有對人類及地球環境存在顯著影響之物質。(或稱為限制物質 Restricted substances，縮寫為 RS)。

Among the substances contained in parts, sub-materials, and materials, the hazardous substances are those that, according to Unifosa judgment, have significant environmental-impact on both humans and the globe.

3.3 無有害物質 Hazardous substances free(縮寫為 HSF)

泛指減少或禁用任何列表於商丞環境管理物質管制標準的物質。

Hazardous Substances Free(abbreviation: HSF) refers to the reduction or elimination of any substance as listed in Unifosa Environment Management Substances Control Criteria.

3.4 管制等級

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Control Level

環境管理物質，按照以下 4 種管制等級管理。

To manage the above-mentioned substances, the following four levels are used.

a)第 1 級管制物質

針對此級之物質及/或其用途，須立即禁止使用。

Level 1

The substances and/or their purposes classified at this level are those whose use must be banned immediately.

b)第 2 級管制物質

此級之物質及/或其用途，規定一定時期後予以禁止使用。

到達或超過規定日期後，此級物質轉為“第 1 級”予以禁止使用。

Level 2

The substances and/or their purposes classified at this level are those for which a period for phase-out is individually set.

On or after the date set in each table, the substances in the respective table will be classified at Level 1 and must not be contained in parts and materials.

c)第 3 級管制物質

此級物質於零組件及原物料雖然目前沒有規定日期及削減目標,但其含量及用途依指定必須削減使用

Level 3

No periods or targets for reduction are currently set for the substances and purposes classified at this level. If ASUS identifies alternative substances for parts and materials and these are appropriate substitutes for the substances listed in this standard, ASUS will actively introduce and use the alternative substances.

4)第 4 級除外項目

此級物質含量及用途沒有規定日期及削減目標，尚未納入管制，於零組件及原物料尚無替代方案前，被歸屬於管制外物質。

Excepted item

No periods or targets for reduction are set for the substances and purposes classified at this level. If alternative substances for the parts and materials not found.

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3.5 含有

Contained

『含有』係指無論是否有意或無意，在產品使用的零組件或元件，或使用的材料中，添加、填充、混入或粘附該物質。(在產品中或製程加工中無意地加入該物質亦視為含有)。

“Contained” is a situation in which a substance is added to, fills up, mingles with, or adheres to (1) the parts or devices employed in products, or (2) the materials used for the parts or devices, regardless if the situation is intentionally created or not.

(When a substance is unintentionally contained in, or added to a product in a processing process, this is also regarded as “Contained.”)

3.6 雜質

Impurity

滿足下列任一狀況即稱為雜質：

- a) 包含於天然材料中，在精製過程技術上不能完全去除的物質（天然雜質）
- b) 合成反應過程中產生，而在技術上不能完全去除的物質。

備註:

- I 為了改變材料的特性而將稱為“雜質”的物質加入主原料中即被視為“含有”處理；混入或粘附於零組件或元件時，其濃度亦必須符合綠色產品管制標準規定的允許濃度。
- II 在製造半導體元件時有意添加的摻雜物，若半導體元件中有極微量殘存，這種情況不被視為“含有”處理。

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 impurities); and
 - b) One generated in a synthesis process, the total removal of which is technically impossible.
- Additionally, there are substances called “Impurities”, 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”.

1. 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.
2. When the allowable concentration of a “Controlled Substance” is specified in this Standard, the concentration must be observed even if the substance, as an “Impurity”, mingles with or adheres to parts or devices.

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3.7 均質材料：

Homogenous material

均質材料是指用機械方法不能再分成不同成份的物質。均質材料均勻的成份構成或形態，如塑膠、合金、塗料、玻璃和陶瓷等。

Homogenous material means a material that cannot be mechanically disjointed into different material. Homogenous material consist a uniform composition phase and include plastic, alloy, finsishes, glass, ceramics, etc...

3.8 塑膠之定義

Define of Plastics

- 由高分子聚合物組成之材料以及原物料-包含：樹脂、薄膜、膠帶、模型、合成橡膠產品，以及植物原物料提煉之塑膠。
- 天然樹脂與上述任一物質所合成之物質稱為塑膠。

- Materials and raw materials composed of synthetic high-molecular polymers-
More specifically, “plastics” mainly mean the following articles composed of synthetic high-molecular polymers: resins, films, adhesives, adhesive tapes, molded products, products made of synthetic rubber, and plastics made from raw materials of plant origin.
- When a natural resin is synthesized with any one of the above articles, the synthetic substance is a plastic.

3.9 禁用時期

Forbidden Date

禁止超出綠色產品管制標準之零組件、原物料供應給 UNIFOSA 的日期。

This indicates the date on or after which UNIFOSA won't accept the parts specified in the column.

4、參考資料

Reference:

4.1. 歐盟電器及電子設備危害物質限制指令(含延伸指令)

Restriction of the use of certain Hazardous Substances in Electrical and Electronic Equipment Directive (RoHS) [2011/65/EC](#), and the amending Directives.

4.2 歐盟包裝及包裝廢棄物指令(含延伸指令)

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European Union packs and packs the offal order(including the order of extending) Packaging and Packaging Waste Directive 94/62/EC and the amending Directives.

4.3 歐盟關於化學品註冊、評估、授權和限制法規(REACH)

Regulation of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals(REACH), 1907/2006/EC, December 2006.

4.4 蒙特婁破壞臭氧層物質管制議定書(含延伸修正案)

Destroy the substance of the ozonosphere and control the protocol in Montreal(including the amendment of extending)

Montreal Protocol(on Substances that Deplete the Ozone Layer) and the amendments.

4.5 挪威消費性產品有害物質禁令(PoHS)

Norway Prohibition on Certain Hazardous Substances in consumer Products(PoHS).

4.6 華碩 GreenASUS 技術標準

GreenASUS TECHNICAL STANDARDS

4.7 和碩聯合 HSF 技術標準

PUreGMS HSF TECHNICAL STANDARDS

4.8 宏碁產品限用物質管制指南

Acer Guidance of Restricted Substances In Products

4.9 精英供應商產品限用物質管制規範

ECS Guidance of Restricted Substances In Supplier's Products

4.10 緯創供應商之綠色採購要求事項

Wistron's Supplier Green Procurement Requirement

4.11 歐盟富馬酸二甲酯限制使用指令(2009/251/EC)

COMMISSION DECISION of 17 March 2009 requiring Member States to ensure that products containing the biocide dimethylfumarate are not placed or made available on

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The market (2009/251/EC)

5. 綠色產品管制質標準

CRITERIA FOR “Environment -related SUBSTANCES TO BE CONTROLLED”

5.1 環境管理物質

“Environment -related Substances to be controlled (‘The Controlled Substances’)”

本管制標準中環境管理物質名稱請見表 5.1 環境管理物質一覽表

The “controlled substances” regulated in this Criteria please refer to

Table 5.1 List of “Environment -related Substances to be Controlled”

表 5.1 環境管理物質一覽表

Table 5.1 List of “Environment -related Substances to be Controlled”

物質名稱 Substances		
重金屬 (Heavy metals)	鎘(Cd)及其化合物 (Cadmium and cadmium compounds)	M01
	鉛(Pb)及其化合物 (Lead and lead compounds)	M02
	汞(Hg)及其化合物 (Mercury and mercury compounds)	M03
	鎳以及鎳化合物 (Nickel and nickel compounds)	M04
	六價鉻(Cr ⁺⁶) 及其化合物 (Hexavalent chromium compounds)	M05
	砷以及砷化合物 (Arsenic(AS) and arsenic compounds)	M06
	銻以及銻化合物 (Antimony(Sb) and its compounds)	M41
	鈹以及鈹化合物 (Beryllium (Be) and its compounds)	M42
	鉍以及鉍化合物 (Bismuth(Bi) and its compounds)	M43
有機氯化物 (Chlorinated organic compounds)	多氯聯苯 (PCB) Polychlorinated biphenyls	M07
	多氯化萘 (PCN) Polychlorinated naphthalenes	M08
	多氯三聯苯 (PCT) Polychlorinated terphenyls	M09
	氯化烷烴(氯化石蠟) (CP) Chlorinated paraffins	M10
	六氯環己烷 (HCH) Hexachlorocyclohexane isomers	M11
	多氯聯苯戴奧辛 (PCDDs) Polychlorinated dibenzodioxins	M12
	多氯聯苯夫喃 (PCDFs) Polychlorinated dibenzofurans	M13

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	聚氯乙炔及聚氯乙炔混合物 Polyvinyl chloride (PVC) and PVC blends	M24
	其他有機氯化物 Other chlorinated organic compounds	M14
有機溴化物 (Brominated organic compounds)	多溴聯苯 (PBB) Polybrominated biphenyls	M15
	多溴聯苯醚 (PBDE) Polybrominated diphenylethers	M16
	四溴丙二酚 (TBBP-A) Tetrabromobisphenol-A	M17
	六溴環十二烷 (HBCD) Hexabromocyclododecane	M18
	其他有機溴化物 Other brominated organic compounds	M19
有機錫化物(三丁基錫化合物、三苯基錫化合物及三丁基氧化錫(TBTO)) Organic tin compounds (Tributyl tin compounds, Triphenyl tin compounds, Tributyl Tin Oxide)		M20
石棉 Asbestos		M21
特定偶氮化合物 Specific Azo compounds		M22
甲醛 Formaldehyde		M23
發泡聚苯乙烯 (EPS) Expanded Polystyrene		M25
臭氧危害物質 Ozone depleting substances		M26
放射性物質 Radioactive substances		M27
鹵化二苯基甲烷 Halogenated diphenyl methanes		M28
全氟辛烷硫磺酸(PFOS) Perfluorooctane sulfonates		M29
全氟辛烷酸(PFOA)及其鹽類與酯類 Perfluorooctyl acid and individual salts and esters of PFOA		M30
鄰苯二甲酸酯(Phthalate)		M31
雙酚 A (Bisphenol-A)		M32
氣味物質(二甲苯麝香及銅麝香) Fragrance substance(Musk xylene and Musk ketone)		M33
界面活性劑 DTDMAC, DODMAC/DSDMAC and DHTDMAC(Surfactants)		M34
五氯酚 (PCP) Pentachlorophenol		M35
三氯沙 Triclosan		M36
壬基酚與壬基酚聚氧乙炔醚及相關物質 Nonylphenol/ethoxylates(NP/NPEs)and related substances		M37
多環芳香烴化合物 (PAHs) Polyaromatic Aromatic Hydrocarbons		M38
烷基酚 Alkylphenols		M39

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蒙特婁議定書規範臭氧破壞物質(包括氟氯碳化合物、海龍、四氯化碳、1,1,1-三氯乙烷、氟氯烴化物、氟溴烴化物、氯溴甲烷、溴化甲烷) Ozone Depleting Substances based on Montreal Protocol(Include CFCs,Halons,carbon tetrachloride, 1,1,1-trichloroethane,HCFs,HBFCs, bromochloromethane, methyl bromide)	M40
富馬酸二甲酯 Dimethylfumarate(DMF)	M44

5.2 分級、管制對象、禁用日期請參照表 5-2

The Classifications, Targets, Forbidden Date please refer to Table 5.2

表 5-2 環境管理物質分級、管制對象、禁用日期

Table 5.2 The classifications, targets, forbidden date of
“Environment -related Substances to be Controlled”

物質 M01：鎘(Cd)及其化合物 Substances M01: Cadmium and cadmium compounds	
所有金屬、合金、無機化合物、有機金屬化合物、無機鹽類、有機鹽及其他含鎘物質 Metals, alloys, inorganic compounds, metal-organic compounds, inorganic salt, organic salts, and other Cadmium substances	
管制對象 Controlled Targets	禁用日期 Forbidden Date

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Level 1	<p>包裝材料： 產品包裝紙盒、產品箱、用於搬運零部件包裝上的產品。(例如木框、紙箱、塑膠袋、隔板、繩索、棧板、膠膜、保護膜、緩衝材料固定器具、薄板、硬紙箱、塗料、墨水、膠帶、網綁帶、標籤、膠墊等。)</p> <p>Packaging parts (Refer to Table Additional rules for packing materials) (e.g. handles, cushions, wraps, foil, trays, reels, tapes, paints, inks, sticks, polyethylene bags, magazines sticks [including stoppers], bulk cases, and vinyl ties)</p> <p>- 塑膠材料 (包含橡膠) 中使用的穩定劑、顏料、染料 (例如電器連接的絕緣體、按鍵、束帶、熱縮套管、電子零部件的外裝樹脂、Polarizer、Color filter、高低壓線材外被、塑膠外框、PCB 板、O-ring、tape、標籤、背光板所有之 film 材、LGP 等)。</p> <p>The stabilizers, pigments, or dyes used for plastics (including rubber) materials (e.g. labels, cabinets, phonograph records, vinyl ties, the keys of remote controllers, the outer plastic resins of electrical parts, and the insulators of electrical wiring)</p> <p>- 塗料、墨水 Paints, inks</p> <p>- 表面處理 (電鍍等)、塗層 Surface treatment (e.g. plating), coating.</p> <p>- 相片底片 Photographic films</p> <p>- 日光燈 (小型日光燈、直管日光燈)。 Fluorescent lamps (small-sized ones, straight-tube ones)</p>	立即禁止 Promptly Forbidden
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Level 1	<p>- 3 級以外的所有用途。舉例如下： All purposes except those classified at “Level 3” Typical examples are given below.</p> <ul style="list-style-type: none"> - 直流電動機、開關、繼電器、斷路器等電接點。 Switches, relays, breakers, DC motors, and other electrical contact points. - 溫度保險絲的可熔體。 Fuse elements of temperature fuses. - 玻璃以及玻璃塗料的顏料、染料（用於玻璃的顏料、染料以及玻璃用塗料）。 Glass, and the pigments as well as dyes of glass paints (paints for glass and the pigments as well as dyes used for glass) - 焊錫(鎘含量為 20ppm 以上的鎘錫)。 Solder (whose cadmium concentration is 20 ppm or more) - 燈管螢光顯示的塗佈螢光劑。 CdS-photocells and the phosphors contained in fluorescent display devices - 電阻（玻璃料）等。 Resistor elements (glass frit) - 金屬部份如黃銅、鋅壓鑄件等含有鋅之零部件（鎘含量超過 100 ppm）。 Parts composed of metals containing zinc (e.g. brass, zinc for die casting) Whose cadmium concentration is more than 100 ppm. 	立即禁止 Promptly Forbidden
Level 3	<ul style="list-style-type: none"> - 電子接點的電鍍，其要求可靠性高 (high reliability)，而且沒有替代性材料。 The plating of electrical contacts, for which high reliability is required and which has no substitute materials - 光學鏡片;濾光片 Optical glass, filter glass 	
<p>Allowable concentration: Less than 75 ppm 允許含量: 低於 75 ppm</p>		

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物質 M02 :鉛以及鉛化合物 Substances M02: Lead and lead compounds		
所有金屬、合金、無機化合物、有機金屬化合物、無機鹽類、有機鹽及其他含鉛物質 All metals, metal alloys, inorganic compounds, organic compounds, inorganic salts, organic salts, and other substances		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	<p>包裝材料：</p> <p>產品包裝紙盒、產品箱、用於搬運零部件包裝上的產品(例如木框、紙箱、塑膠袋、隔板、繩索、棧板、膠膜、保護膜、緩衝材料固定器具、薄板、硬紙箱、塗料、墨水、膠帶、網綁帶、標籤、膠墊等。</p> <p>Packaging materials Packaging parts (Refer to Table 5. 3Additional rules for packing materials)(e.g. handles, cushions, wraps, foil, trays, reels, tapes, paints, inks, sticks, polyethylene bags, magazines sticks [including stoppers], bulk cases, and vinyl ties)</p> <p>用於印刷電路板而使用鉛的顏料、染料、油墨</p> <p>The paints, pigments, and inks containing lead, which are used for PWBs</p> <p>在小型密封鉛電池中作為新型零部件而供貨的產品。</p> <p>The batteries (excluding small-size sealed acid-ones) and battery packs whose lead content, in proportion to the total weight of each one is 0.4% or more</p> <p>零部件的外部電極、引導端子等的鍍錫處理（例如電氣零部件、半導體設備、散熱片等）。</p> <p>Surface coatings (plating) for the external electrodes, lead wires, and other areas of parts.(e.g. electrical parts, semiconductor devices, and heat sinks)</p> <p>外部及外露零部件之塑膠材料（包括橡膠）中所含的穩定劑、顏料、塗料及墨水。交流電插座、電源電纜、連接電纜、遙控器、滑鼠、設備外露部位等</p> <p>The stabilizers, pigments, dyes, paints, or inks contained in the plastic (including rubber) materials that are used for an outer and exposed part of the following articles: mice, devices, AC adaptors, connection cords, remote controllers, power supply cords.</p>	立即禁止 Promptly Forbidden

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Level1	<p>3 級以外的所有用途。舉例如下：</p> <p>All purposes except those classified at level 3 Typical examples are given below.</p> <ul style="list-style-type: none"> - 非高熔點鉛錫材料 (鉛含量小於 85 wt% 之有鉛鉛錫)、所含有的鉛含量在 1000ppm 以上的產品。 Of the types of not-high-melting point leaded solder, those that satisfy both of the following conditions: (1) Leaded solder that contain less than 85 wt% of lead; and (2) Leaded solder whose lead concentration is 1000 ppm or more. - 含有允許濃度以上的各種合金 (包括鉛錫材料) All kinds of alloys (including solder materials) whose individual lead/lead compound concentrations exceeds the regulated allowable concentration - 所有小型密封鉛電池。 All small-size sealed lead-acid ones - 其他非外部及外露零部件中的穩定劑、顏料、塗料及墨水。 The other paints and inks used for non-outer and exposed areas of devices. - 使用於無電鍍金與無電鍍鎳的穩定劑與含鉛添加劑 Stabilizer used for electroless gold plating as well as electroless nickel plating and lead contained in additives. 	立即禁止 Promptly Forbidden
除外項目 excepted	<p>用於零部件、設備的內部連接之高熔點鉛錫材料 (鉛含量 85 wt% 以上之有鉛鉛錫)。 High-melting point solder for internal connections used for parts and devices (the leaded solder whose lead content is at least 85 wt%)</p> <ul style="list-style-type: none"> - 電子陶瓷零部件 (例如壓電元件、陶瓷感應材料等)。 Electronic ceramic parts (e.g. piezoelectric elements, dielectric ones, and magnetic ones [ferrites]) - 顯像管、電子零部件、螢光燈管所使用的玻璃材料。 電子零部件中使用的玻璃材料和密封材料, 包括電阻、導電膠、黏接劑、玻璃料等。 Glass materials used for electrical parts, cathode-ray tubes, or vacuum fluorescent displays. The above glass materials include adhesives, resistor elements, glass frit, conductive pastes (silver or copper ones), and sealing materials. 	

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除外項目
excepted

光學玻璃, 濾光玻璃
Optical glass, filter glass.

半導體晶片與承載電路板間電性訊號連接用鉛錫
Solder paste used under C4 (Controlled Collapse Chip Connection) bumps

- 含鉛的各種合金, 其鉛含量之允許濃度:

Allowable concentration of lead as an additive in the following alloys:

合金形式 Type of alloy
允許濃度
Allowable content of lead

鋼 Steel
低於 0.35 wt%
Less than 0.35 wt%

鋁合金 Aluminum alloys
低於 0.4 wt%
Less than 0.4 wt%

銅合金(含黃銅與磷青銅)
Copper alloys (including brass and phosphor bronze)
低於 4 wt%
Less than 4 wt%

鉛的允許濃度為小於 800 ppm。對象: 塑膠(含橡膠), 塗料, 油墨需小於 100 ppm
Allowable concentration: Less than 800 ppm . Less than 100 ppm for plastics (including rubber), paints, and inks

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物質 M03 :汞及其化合物 Substances M03 : Mercury and mercury compounds		
所有金屬、合金、無機化合物、有機金屬化合物、無機鹽類、有機鹽及其他含汞物質 All metals, alloys, inorganic compounds, organic compounds, inorganic salts, organic salts, and other mercury-contained substances.		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	<ul style="list-style-type: none"> - 包裝材料：產品包裝紙盒、產品箱、用於搬運零部件包裝上的產品。 Packaging materials (Refer to Additional rules for packing materials) - 塗料、顏料、墨水 Pigments, paints, and inks - 計時器。 Hour meters - 小型日光燈(液晶背光等):每一支的汞含量超過 10mg Small-sized fluorescent lamps (e.g. those for the back lights of liquid crystal displays): whose mercury content (per lamp) is more than 10mg - 直管日光燈：每一支的汞含量超過 20mg Straight-tube fluorescent lamps: whose mercury content (per lamp) is more than 20 mg - 使用汞作為電接點的繼電器、開關、感應器 The relays, switches, or sensors whose contacts contain mercury - 塑膠中含汞添加劑: Mercury or its compounds mixed in plastics - 所有其他未列於 1 級或 3 級的所有用途。 All purposes except those classified at Level 1 or 3 - 小型日光燈：每一支的汞含量為 5 mg 以上 10mg 以下。 mall-sized fluorescent lamps whose mercury content is between 5 mg and 10mg - 直管日光燈：每一支的汞含量為 10 mg 以上 20mg 以下。 Straight-tube fluorescent lamps whose mercury content is between 5 mg and 20mg. 	立即禁止 Promptly Forbidden
除外項目 Excluded	<ul style="list-style-type: none"> - 小型日光燈和直管日光燈以外之燈（例如：高壓汞燈）。 Lamps other than small-sized fluorescent lamps and straight-tube ones (e.g. High-pressure mercury lamps) 	

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item	<ul style="list-style-type: none"> - 小型日光燈：每一支的汞含量低於 5mg。 Small-sized fluorescent lamps whose mercury content (per lamp) is less than 5 mg - 直管日光燈：每一支的汞含量低於 5mg。 Straight-tube fluorescent lamps whose mercury content (per lamp) is less than 5 mg 	
<ul style="list-style-type: none"> - 汞及汞化合物含量的允許濃度低於 800 ppm(對象為電池與燈館外之所有用途) Allowable concentration: Less than 800 ppm (all purpose excepted battery and fluorescent lamps). 		

物質 M04 :鎳以及鎳化合物 Substances M04 : Nickel and Nickel compounds		
所有金屬、合金、無機化合物、有機金屬化合物、無機鹽類、有機鹽及其他含鎳之物質 All metals, alloys, inorganic compounds, organic compounds, inorganic salts, organic salts, and other nickel-contained substances.		
	管制對象 Controlled Targets	禁用日期 Forbidden Date
Level 1	<ul style="list-style-type: none"> - 含有有機鎳化合物之各式用途，如用於塑膠之光安定劑等。 All purposed which contained with organo-nickel compounds (e.g. light stabilizer used in plastics) - 含有金屬鎳或鎳合金物質，但不會與人體皮膚直接接觸之外購模組、零部件及其外露部份，如底框、外架等。 Metallic nickel or nickel alloy in the application of modules, parts and also the outer and exposed areas likely to result in prolonged exposure and direct contact with skin (e.g. external chassis, case parts) 	立即禁止 Promptly Forbidden
Level 3	<ul style="list-style-type: none"> - 含有金屬鎳或鎳合金物質，但不會與人體直接接觸、或有保護層可隔絕和人體皮膚不直接接觸之各種用途，如不銹鋼零件、外購模組或零部件外露部份的表面處理、抗腐蝕處理和裝飾鍍層等。 Metallic nickel or nickel alloy in all applications that not result in prolonged exposure and direct contact with skin, or with protective layer to prevent skin contact (e.g. surface treatment, anti-corrosion treatment, and decorative plating which are used for outer or exposed ares of stainless steel components, modules or parts) 	
鎳以及鎳化合物之含量允許濃度：小於 1000 ppm (對象為針對 1 級所列之各式用途) Allowable concentration : Less than 1000 ppm for all purposes classified at Level 1.		

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物質 M05 :六價鉻(Cr+6) 化合物 Substances M05 : Hexavalent chromium compounds	
所有無機化合物、有機化合物、無機鹽類、有機鹽及其他含鉻物質(金屬鉻及合金鉻除外) All inorganic compounds, organic compounds, inorganic salts, organic salts, and other substances Metal chromium and chromium contained in alloys are excluded from the targets.	
管制對象 Controlled Targets	禁用日期 Forbidden Date
Level 1 - 產品包裝紙盒、產品箱、用於搬運零部件包裝上的產品。 (例如木框、紙箱、塑膠袋、隔板、繩索、棧板、膠膜、保護膜、緩衝材料 固定器具、薄板、硬紙箱、塗料、墨水、膠帶、綑綁帶、標籤、膠墊等) Packaging parts (Refer to Table Additional rules for packing materials) (e.g. handles, cushions, wraps, foil, trays, reels, tapes, paints, inks, sticks, polyethylene bags, magazines sticks [including stoppers], bulk cases, and vinyl ties) - 所有的用途 (例如電鍍防鏽處理 (螺絲、網板等)、含有作為墨水/塗料的顏 料等成分的產品等)。 All purposes (e.g. those used for tanning, contained in inks and paints as components of their pigments, and applied for preventing rust on surfaces of plating [on screws, steel plates] etc.)	立即禁用 Promptly Forbidden
允許濃度:所有運用均須小於 800 ppm Allowable concentration: Less than 800 ppm for all applications	

物質 M06 :砷(As)以及砷化合物 Substances M06 : Arsenic(As) and Arsenic compounds	
所有無機化合物、有機化合物、無機鹽類、有機鹽 All inorganic compounds, organic compounds, inorganic salts, organic salts.	
管制對象 Controlled Targets	禁用日期 Forbidden Date
Level 3 - 所有的用途，如半導體材料。 All purposes (e.g. semiconductor materials)	
允許濃度:所有運用均須小於 100 ppm Allowable concentration: Less than 100 ppm for all applications	

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物質 M07 :多氯聯苯(PCB) Substance M07 : Polychlorinated biphenyls (PCB)		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	所有用途如:電容器、潤滑油、絕緣油、油浸變壓器及用於塑膠中之阻燃劑 All purposes (e.g. ones for capacitors, lubricants, insulating oils, transformers containing oil, and flame retardants contained in plastics)	立即禁止 Promptly Forbidden

物質 M08 :多氯化萘(PCN) Substance M08 : Polychlorinated naphthalenes (PCN)		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	所有用途 (例如潤滑油、塗料等)。以氯原子數為 3 個以上的產品作為對象。 All purposes (e.g. ones for lubricants and paints) The targets are PCN, which contain at least 3 chlorine substituents.	立即禁止 Promptly Forbidden

物質 M09:多氯三聯苯(PCT) Substance M09 : Polychlorinated triphenyls (PCT)		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	各式用途如:電容器、潤滑油、絕緣油、油浸變壓器及用於塑膠中之阻燃劑 All purposes (e.g. ones for capacitors, lubricants, insulating oils, transformers containing oil, and flame retardants contained in plastics)	立即禁止 Promptly Forbidden

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物質 M10 :氯化烷烴(氯化石蠟) Substance M10: Chlorinated paraffins (CP)		
以碳 10-13 鏈、含氯量為 48 wt% 以上的短鏈型氯化烷烴(SCCP)為對象 Short-chain chlorinated paraffins with the following characteristics: C10-13, Cl = 48 wt % or more 以碳 14-17 之中鏈型氯化烷烴(MCCP) Medium-chain chlorinated paraffins(MCCP)		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	- 短鏈型氯化烷烴(SCCP)用於產品(含配件)的外殼和印刷電路板等用途。 Short-chain chlorinated paraffins(SCCP): the external cases and PCBs of products(including accessories)	立即禁止 Promptly Forbidden
Level 3	- 1 級以外的所有用途。(如聚合物和彈性體用增塑劑和阻燃劑) All purposes except those classified at Level 1(e.g. those for the flame retardants and plasticizers contained in polymers.)	
短鏈型氯化烷烴之允許濃度：小於 1000 ppm 中鏈型氯化烷烴之允許濃度：小於 1000 ppm Allowable concentration for SCCP : Less than 1000 ppm. Allowable concentration for MCCP : Less than 1000 ppm.		

物質 M11 :六氯環己烷(HCH) Substance M11 : Hexachlorocyclohexane isomers (HCH)		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	- 所有用途。 All purposes.	立即禁止 Promptly Forbidden

物質 M12 :多氯聯苯戴奧辛 (PCDDs) Substance M12 : Polychlorinated dibenzodioxins (PCDDs)		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	- 所有用途。 All purposes.	立即禁止 Promptly Forbidden

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物質 M13 :多氯聯苯夫喃 (PCDFs) Substance M13 : Polychlorinated dibenzofurans (PCDFs)		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	- 所有用途。 All purposes.	立即禁止 Promptly Forbidden

Substances: M14 其他有機氯化物 Substances M14 : Other chlorinated organic compounds		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 3	- 用於塑膠中之塑化劑及阻燃劑與印刷電路板之阻燃劑 The plasticizers or flame retardants contained in plastics, and the flame retardants used for PCBs	
允許濃度:所有運用均須小於 1000 ppm Allowable concentration: Less than 1000 ppm for all applications		

物質 M15:多溴聯苯 Substances M15 : Polybrominated diphenylethers (PBB)		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	- 各種用途:如用於塑膠中之阻燃劑 All purposes (e.g. those for the flame retardants contained in plastics)	立即禁止 Promptly Forbidden
允許濃度:針對所有用途均須低於 800 ppm Allowable concentration: Less than 800 ppm for all applications		

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物質 M16 :多溴聯苯醚 Substances M16 : Polybrominated diphenylethers (PBDE)		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	- 各種用途:如用於塑膠中之阻燃劑 All purposes (e.g. those for the flame retardants contained in plastics) 備註:十溴聯苯醚隸屬於管制對象 Note: Deca-BDE also belongs to the banned substances.	立即禁止 Promptly Forbidden
Level 1	- 2003 年元月以後新型模具禁止使用 PBDE The parts whose molding dies have been made since January 2003 must not contain PBDE	立即禁止 Promptly Forbidden
允許濃度:針對所有用途均須低於 800 ppm Allowable concentration: Less than 800 ppm for all applications		

物質 M17 :四溴丙二酚(TBBP-A) Substances M17 : Tetrabromobisphenol-A(TBBP-A)		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	- 各種用途，除了印刷電路板、IC 封裝本體、線材以及連接器以外。 All purposes(excluding PCB , IC package , wire and connector).	立即禁止 Promptly Forbidden
Level 3	- 印刷電路板、線材以及連接器。 PCB , wire and connector.	
允許濃度:針對所有用途均須低於 1000 ppm Allowable concentration: Less than 1000 ppm for all applications		

物質 M18 :六溴環十二烷 Substances M18 : Hexabromocyclododecane(HBCD)		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 3	- 各種用途:如發泡聚苯乙烯(EPS)及聚丙烯(PP)中所含的阻燃劑等。 All purposes (e.g. those for the flame retardants contained in EPS and PP.)	
允許濃度: 小於 1000 ppm Allowable concentration: Less than 1000 ppm.		

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物質 M19 :其他有機溴化合物 Substances M19 : Other brominated organic compounds		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 3	- 各種用途:如用於塑膠或用於印刷電路板中之阻燃劑 All purposes (e.g. those for the flame retardants contained in plastics, or used for PCBs.)	
允許濃度: 小於 1000 ppm Allowable concentration: Less than 1000 ppm.		

物質 M20 :有機錫(Sn)化合物: 以三丁基錫、三苯基錫化合物及三丁基氧化錫(TBTO)為對象 Substances M20 : Organic tin compounds (tributyl tin compounds, triphenyl tin compounds and Tributyl Tin Oxide(TBTO))		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	- 所有用途 (例如塗料、墨水、防鏽劑等)。 All purposes (e.g. those for paints, inks, preservatives, and fungicides)	立即禁止 Promptly Forbidden

物質 M21 :石綿 Substances M21: Asbestos		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	- 所有用途 (例如絕緣材、填充料等)。 All purposes (e.g. those for insulators and fillers)	立即禁止 Promptly Forbidden

物質 M22 :特定偶氮化合物 Substances M22 : Specific Azo compounds		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	- 按照德國食品與日用法規的檢測方法將偶氮化合物進行分解, 有可能產生受(表 5.2a)管制的胺類。 The azo compounds that may produce amines specified in next Table 5.2a when they are decomposed on the basis of a test method specified in German Law for	立即禁止 Promptly Forbidden

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	<p style="text-align: center;">Foods and Consumer Products</p> <p>- - 與人體持續接觸的產品零部件之顏料含特定偶氮化合物經分解，有可能產生受(表 5.2a)管制的胺類。(例如耳機、衣物、微型耳機、肩包的肩墊、皮帶、繩索等)</p> <p>Pigments used for the parts of products contacting human skins continuously that may produce amines specified in next Table5.2a when they are decomposed (e.g. belts, straps, ear phones, head phones, and shoulder pads for bags). Those products are originally designed on the assumption that they contact the skins.</p>	
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表 5.2a 偶氮化合物分解時不得產生的胺類一覽表

Table 5.2a List of the amines that must not be produced when Azo compounds are decomposed

CAS No.	Amines	CAS No.	胺
92-67-1	4-aminodiphenyl	92-67-1	4-氨基苯基苯
92-87-5	Benzidine	92-87-5	對二氨基聯苯
95-69-2	4-chloro-o-toluidine	95-69-2	四氯甲苯胺
91-59-8	2-naphthylamine	91-59-8	2-奈胺
97-56-3	o-aminoazotoluene	97-56-3	鄰氨基偶氮甲苯
99-55-8	2-amino-4-nitrotoluene	99-55-8	二氨基四硝基甲苯
106-47-8	p-chloroaniline	106-47-8	氯苯胺
615-05-4	2,4-diaminoanisole	615-05-4	2,4-二氨基甲氧基苯甲醚
101-77-9	4,4' -diaminodiphenylmethane	101-77-9	4,4'-二氨基苯化甲烷
91-94-1	3,3' -dichlorobenzidine	91-94-1	3,3'-二氯聯苯胺
119-90-4	3,3' -dimethoxybenzidine	119-90-4	3,3'-二甲氧基聯苯胺
119-93-7	3,3' -dimethylbenzidine	119-93-7	3,3'-二甲基聯苯胺
838-88-0	3,3' -dimethyl-4,4' -diaminodiphenylmethane	838-88-0	3,3'-二甲基-4,4'-二氨基二苯甲烷
120-71-8	p-cresidine	120-71-8	氨基對甲苯甲醚
101-14-4	4,4' -methylene-bis-(2-chloroaniline)	101-14-4	4,4'-亞甲基-雙(二氯苯胺)
101-80-4	4,4' -oxideaniline	101-80-4	4,4'-氧代苯胺
139-65-1	4,4' -thiodianiline	139-65-1	4,4'-硫雙苯胺
95-53-4	o-toluidine	95-53-4	鄰甲苯胺
95-80-7	2,4-toluylenediamine	95-80-7	2,4-甲代苯二胺
137-17-7	2,4,5-trimethylamine	137-17-7	2,4,5-均三甲苯胺
90-04-0	4-anisidine	90-04-0	鄰氨基苯甲醚
60-09-3	4-aminoazobenzene	60-09-3	4-氨基偶氮苯

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物質 M23 : 甲醛 Substances M23 : Formaldehyde		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	- 刨花板、膠合板所使用的木工產品（例如揚聲器、油漆等）。 The wooden products made from fiberboard, particleboard, or plywood, (e.g. speakers, racks)	立即禁止 Promptly Forbidden

物質 M24 : 聚氯乙烯及聚氯乙烯混合物 Substances M24: Polyvinyl chloride (PVC) and PVC blends		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	- 含有聚氯乙烯及聚乙烯的網綁帶 Polyvinyl chloride ties and polyvinyl ties - 所有包裝材料 All packing materials. - 內外部使用之絕緣板、絕緣管、絕緣護蓋 The insulation plates, tubes, and caps used for the outside of devices - 連接電纜 Connection cords, vinyl wires for internal wiring, and other units with cords - 電源供應線材 Power supply cords (except those for EU countries)	立即禁止 Promptly Forbidden
Level 3	- 畫圖紙 drawing paper - 電容器、電源開關、保險絲使用之絕緣蓋 The insulation cover, power switch, tubes, and caps employed in devices - 一級除外項目所列對象以外之零件應用 application besides level 1 excepted item	
除外項目	- 樹脂作成之粘合劑 viscose made from resin - 高電壓使用聚乙烯線材 Polyvinyl electrical wires for high voltage	

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Excepted item	<ul style="list-style-type: none"> - 接腳部位經清漆浸漬之變壓器 leads of transformer soaked by paint - 絕緣膠帶 Coating and insulating tapes for de-Gauss coils - 揚聲器托架 Speaker grilles - 出口歐洲之電源供應線材 Power-supply cords for import into EU countries - 高於 AWG(American Wire Gauge)36 規格之極細式線材 Wire higher than AWG36 	
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物質 M25 :發泡聚苯乙烯 Substances M25 : Expanded Polystyrene		
	管制對象 Controlled Targets	禁用日期 Forbidden Date
Level 1	銷往南韓的所有包裝材料。 All packing materials sold to South Korea.	立即禁止 Promptly Forbidden
Level 3	1 級以外之各式用途。 All purposes except those classified "Level 1" .	

物質 M26 :臭氣層危害物質 Substances M26: Ozone depleting substances 【氟氯碳化物(CFCs)、海龍(Halon)、四氯化碳、1,1,1-三氯乙烷、氯溴甲烷、溴化甲烷、含氯氟烴(HCFCs)、含溴氟烴(HBFCs)】 【Chlorofluorocarbons(CFCs), Halans, Carbon tetrachloride (CCl4), 1,1,1 trichloroethane(C2H3Cl3), Bromochloromethane(CH2BrC), Methyl bromide(CH3Br), Hydrochlorofluorocarbons(HCFCs) and Hydrobromofluorocarbons(HBFCs)】		
	管制對象 Controlled Targets	禁用日期 Forbidden Date
Level 1	所有用途, 如冷媒、包裝材料使用之發泡劑、清潔溶劑。 All purposes (e.g. cold matchmaker, vesicant for the packing materials, clean solvent)	立即禁止 Promptly Forbidden

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物質 M27 :放射性物質 Substances M27: Radioactive substances 【鈾(U)、鈾(Pu)、氡(Rn)、錒(Am)、釷(Th)、銫(Cs)、銣(Sr)及其他放射性物質】 【Uranium(U)、Plutonium(Pu)、Radon(Rn)、Americium(Am)、Thorium(Th)、Cesium(Cs)、Strontium(Sr) and other radioactive substances】		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	所有用途, 如電性感測零件、磷光劑。 All purposes (e.g. instance electricity is detected the part, phosphorescence pharmaceutical etc.)	立即禁止 Promptly Forbidden

物質 M28 : 鹵化二苯基甲烷 Substances M28: Halogenated diphenyl methanes		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	所有用途, 如電容器、潤滑油、絕緣油、油浸變壓器等。 All purposes (e.g. ones for capacitors, lubricants, insulating oils, transformers containing oil.)	立即禁止 Promptly Forbidden

表 5.2b 鹵化二苯基甲烷一覽表示

Table 5.2b List of the halogenated diphenyl methanes

CAS NO.	簡稱 Abbreviation	鹵化二苯基甲烷 Halogenated diphenyl methanes
76253-60-6	Ugilec 141	單甲基四氯二苯基甲烷 Monomethyltetrachlorodiphenylmethane
81161-70-8	Ugilec 121	單甲基二氯二苯基甲烷 Monomethyldichlorodiphenylmethane
99688-47-8	DBBT	單甲基二溴二苯基甲烷 Monomethyldibromodiphenylmethane

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物質 M29: 全氟辛烷硫磺酸 Substances M29: Perfluorooctane sulfonates(PFOS)		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	所有用途(以下被列為除外項目的用途), 如半導體材料、紡織品及皮隔等。 All purposes except those classified at "Exemption" (e.g. semiconductor materials, textiles, leathers.)	立即禁止 Promptly Forbidden
除外項目 Exemption	電鍍鉻抑制劑及濕潤劑。 Mist suppressants for nondecorative hard chromium(VI) plating and wetting agents for use in controlled electroplating systems.	
允許濃度: 配製品小於 50 ppm 產品及零部件小於 1000 ppm Allowable concentration: In preparations: Less than 50 ppm. In parts, components, or products: Less than 1000 ppm.		

物質 M30: 全氟辛烷酸(PFOA)及其鹽類與酯類 Substances M30: Perfluorooctyl acid(PFOA) and individual salts and esters of PFOA		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 3	所有用途(以下被列為除外項目的用途), 如鐵氟龍(Teflon)、紡織品及皮革。 All purposes except those classified at "Exemption" (e.g. semiconductor materials, textiles, leathers.)	
允許濃度: 小於 50 ppm (紡織品及有塗層的材料需小於 1 µg/m ²)。 Allowable concentration: Less than 50 ppm. (Less than 1µg/m ² for textiles and other coated materials).		

物質 M31: 鄰苯二甲酸酯 Substances M31: Phthalate		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	所有用途, 如電源線的披覆或其他塑膠中的增塑劑、染料、油墨、黏著劑等。 All purpos. Plasticizer in cable sheath or other plastics, dye, ink, adhesive.	立即禁止 Promptly Forbidden

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<p>鄰苯二甲酸酯含量允許濃度：</p> <p>(1) 鄰苯二甲酸二(2-乙基己基)酯(DEHP)、鄰苯二甲酸二丁酯(DBP)和鄰苯二甲酸甲苯基丁酯(BBP)濃度總和小於 1000 ppm。</p> <p>(2) 鄰苯二甲酸二異壬酯(DINP)、鄰苯二甲酸二異葵酯(DIDP)和鄰苯二甲酸二正辛酯(DNOP)濃度總和小於 1000 ppm。</p> <p>(3) 鄰苯二甲酸二己酯 Di-n-hexyl phthalate (DNHP)小於 1000 ppm。</p> <p>(4) 鄰苯二甲酸二(2-甲氧乙基)酯 Bis(2-methoxyethyl) phthalate 小於 1000 ppm。</p> <p>Allowable concentration for Phthalate：</p> <p>(1) DEHP+DBP+BBP<1000 ppm.</p> <p>(2) DINP+DIDP+DNOP<1000 ppm.</p> <p>(3) DNHP<1000 ppm.</p> <p>(4) Bis(2-methoxyethyl) phthalate <1000 ppm.</p>

物質 M32：雙酚 A (Bisphenol-A) Substances M32: Bisphenol-A		
	管制對象 Controlled Targets	禁用日期 Forbidden Date
Level 3	所有用途，如環氧樹脂(epoxy resin)、聚碳酸酯樹脂(PC)及其他塑膠中。 All purposes (excluding epoxy resin, polycarbonate and other plastics.)	
<p>允許濃度: 小於 50 ppm Allowable concentration: Less than 50 ppm.</p>		

物質 M33：氣味物質(二甲苯麝香及酮麝香) Substances M33: Fragrance substance(Musk xylene and Musk ketone)		
	管制對象 Controlled Targets	禁用日期 Forbidden Date
Level 3	所有用途，如香精。 All purposes (e.g. essence)	
<p>二甲苯麝香之含量允許濃度: 小於 500 ppm 酮麝香之含量允許濃度: 小於 500 ppm Musk xylene allowable concentration: Less than 500 ppm. Musk ketone allowable concentration: Less than 500 ppm.</p>		

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物質 M34: 界面活性劑(DTDMAC,DODMAC/DSDMAC and DHTDMAC) Substances M34: Surfactants(DTDMAC,DODMAC/DSDMAC and DHTDMAC)		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 3	所有用途, 如柔軟劑。 All purposes (e.g. softener)	
允許濃度: 小於 1000 ppm Allowable concentration: Less than 1000 ppm.		

表 5.2c 界面活性劑一覽表示
Table 5.2c List of the Surfactants

CAS NO.	簡稱 Abbreviation	界面活性劑 Surfactants
68783-78-8	DTDMAC	雙牛油烷基二甲基氯化銨/二牛脂基二甲基氯化銨 (動物)脂烷基)二甲基氯化銨 Dimethyl ditallow ammonium chloride
107-64-2	DODMAC/DSDMAC	雙硬脂西先基二甲基氯化銨/二硬脂基二甲基氯化銨 Dioctyldimethylammonium chloride/Distearyl dimethyl ammonium chloride
61789-80-8	DHTDMAC	雙(氫化牛油烷基)二甲基氯化銨/二(硬化(動物)脂基)二甲基氯化銨 Dihydrogenated tallow dimethyl ammonium chloride

物質 M35: 五氯酚(PCP) Substances M35: Pentachlorophenol(PCP)		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	所有用途, 如木料防腐劑及殺蟲劑。 All purposes (e.g. preservative and pesticide.)	立即禁止 Promptly Forbidden

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物質 M36: 三氯沙(Triclosan) Substances M36: Triclosan		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 3	所有用途，如抗菌劑及殺蟲劑。 All purposes (e.g. antibacterial and pesticide.)	
允許濃度: 小於 10 ppm Allowable concentration: Less than 10 ppm.		

物質 M37: 壬基酚與壬基酚聚氧乙烯醚及相關物質 Substance M37 : Nonylphenol/ethoxylates(NP/NPEs)and relaed substances		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	所有用途。 All purposes.	立即禁止 Promptly Forbidden

物質 M38: 多環芳香烴化合物(PAHs) Substance M38: Polyaromatic Aromatic Hydrocarbons		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	所有用途。 All purposes.	立即禁止 Promptly Forbidden

表 5.2d、16 種多環芳香烴
Table 5.2d、16 commom PAHs

CAS NO.	多環芳香烴 PAHs	簡稱 Addreviation
91-20-3	萘 Naphthalene	Nap
208-96-8	芴烯 Acenaphthylene	AcPy
83-32-9	芴 Acenaphthene	Acp
86-73-7	芴 Fluorene	Flu

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85-01-8	菲 Phenanthrene	PA
120-12-7	蔥 Anthracene	Ant
206-44-0	熒蔥 Fluoranthene	FL
129-00-0	芘 Pyrene	Pyr
56-55-3	苯並[a]蔥 Benzo[a]anthracene	BaA
218-01-9	屈 Chrysene	CHR
205-99-2	苯並[b]熒蔥 Benzo[B]fluoranthene	BbF
207-08-9	苯並[k]熒蔥 Benzo[k]fluoranthene	BkF
50-32-8	苯並[a]芘 Benzo[a]pyrene	BaP
53-70-3	二苯並[a,h]蔥 Dibenz[a,h]anthracene	DBA
193-39-5	茛並[1,2,3-cd]芘 Indeno[1,2,3-cd]pyrene	IND
191-24-2	苯並[g,h,i]芘 Benzo[g,h,i]perylene	BghiP

物質 M39: 烷基酚 Substance M39: Alkylphenols		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	- 所有用途。 All purposes.	立即禁止 Promptly Forbidden

物質 M40: 蒙特婁議定書規範臭氧破壞物質(包括氟氯碳化合物、海龍、四氯化碳、1,1,1-三氯乙烷、氟氯烴化物、氟溴烴化物、氯溴甲烷、溴化甲烷) Substance M40: Ozone Depleting Substances based on Montreal Protocol(Include CFCs,Halons,carbon tetrachloride,1,1,1-trichloroethane,HCFs,HBFCs,bromochloromethane,methyl bromide)		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	- 所有用途。 All purposes.	立即禁止 Promptly Forbidden

物質 M41: 銻以及銻化合物(Sb) Substance M41: Antimony (Sb) and its compounds		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 3	- 所有用途，如陶瓷、合金、橡膠、阻燃劑。 All purposes.(e.g. ceramics, alloy, rubber, flame retardant).	

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銻及銻化合物之含量允許濃度：小於 1000 ppm。
Allowable concentration for antimony and its compounds：Less than 1000 ppm.

物質 M42: 鈹以及鈹化合物(Be) Substance M42: Beryllium (Be) and its compounds		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 3	- 所有用途，如製備鈹銅錫合金。 All purposes.(e.g. preparation BeCuSn alloy).	
鈹及鈹化合物之含量允許濃度：小於 1000 ppm。 Allowable concentration for Beryllium and its compounds：Less than 1000 ppm.		

物質 M43: 鉍以及鉍化合物(Bi) Substance M43: Bismuth (Bi) and its compounds		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 3	- 所有用途，無鉛助焊劑。 All purposes.(e.g. lead free solder).	
鉍及鉍化合物之含量允許濃度：小於 1000 ppm。 Allowable concentration for Bismuth and its compounds：Less than 1000 ppm.		

物質 M44: 富馬酸二甲酯(DMF) Substance M44: Dimethylfumarate (DMF)		
管制對象 Controlled Targets		禁用日期 Forbidden Date
Level 1	- 所有用途，如防腐、防霉等。 All purposes.(e.g. lead free solder).	
允許濃度：小於 0.1 ppm。 Allowable concentration：Less than 0.1 ppm.		

5.3 無鹵素產品之定義

Unifosa 無鹵素材料和產品須符合表 5.3 訂定之標準(此無鹵要求依據 IEC 61249-2-21：2003 標準)。其定義為零件、產品、或包裝材料中每種均質材料，其含溴(Bromine; Br)或氯(Chlorine; Cl)最大允許濃度為 900 ppm; 溴和氯兩種元素總濃度最大允許量為 1500 ppm，在週期表 VIIA(即 VIIA 族)所組成的其他元素，包括氟(Fluorine; F)、碘(Iodine; I)、砒(Astatine; At)不再此規範限制內。

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Requirements for Halogen-Free Products

All homogeneous materials within a component, product or packing must meet the criteria in Table 5.3 to be considered halogen-free by Unifosa(Unifosa requirements for halogen-free according to the IEC 61249-2-21 : 2003 standard). Parts and/or products are considered “halogen free” provided each homogenous material in the part or product has a maximum concentration of 900 ppm bromine(Br) or chlorine(Cl) and a maximum total concentration of 1500 ppm. Fluorine(F), Iodine(I), Astatine(At)(other Group VIIA halogens) are not restricted in this definition.

表 5.3 無鹵產品限制物質表

Table 5.3 Substance restrictions for halogen-free products and components

物質 Substance	允許濃度 Permissible Limit (by weight)
溴 (Br) Bromine	小於 900 ppm (0.09 wt%) < 900 ppm (0.09 wt%)
氯 (Cl) Chlorine	小於 900 ppm (0.09 wt%) < 900 ppm (0.09 wt%)
溴(Br)和氯(Cl)總濃度 Total concentration of bromine(Br)+chlorine(Cl)	小於 1500 ppm (0.15 wt%) < 1500 ppm (0.15 wt%)

5.4 包材的補充規定

Additional rules for packaging materials

表 5.4 包材的補充規定

Table 5.4 Additional rules for packaging materials

物質：重金屬（汞、鎘、鉛及六價鉻） Substances: Heavy metals (mercury, cadmium, lead, and hexavalent chromium)	
除滿足 5.1 之規範也須達以下條件 Articles that satisfy not only the rules specified in Clause 5.1 (Table 5.2), but also the following conditions decided by the regulations of relevant laws	
管制對象 Controlled Targets	禁用日期 Forbidden Date
Level 1 - 產品包裝紙盒、產品箱、用於搬運零部件包裝上的產品。(例如把手、木框、紙箱、塑膠袋、隔板、繩索、棧板、膠膜、保護膜、緩衝材料固定器具、薄板、硬紙箱、塗料、墨水、膠帶、綑綁帶、標籤、膠墊等) 不適用於屬供應商可回收之外箱 The articles used for product packages and packages for part transportation (e.g. handles, reels, cushions, staples, sheets, wraps, paints, inks, tapes, magazine sticks [including stoppers], corrugated cardboard, wooden frames, vinyl ties, cushioning materials, bulk cases, and foil or trays. This rule does not apply to	立即禁止 Promptly Forbidden

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	cartons for returnable boxes owned by part suppliers.	
<p>- 允許含量:</p> <p>四種重金屬（汞、鎘、鉛及六價鉻）於包裝零件允許濃度值總含量為 100ppm,但塑膠級橡膠染料與油墨中之鎘與鉛之動須符合 5.1 要求典型為包含有把手、墊子、包覆物、捲軸、膠帶、送料桿、標籤、塑膠袋、網綁袋、散裝盒金屬薄片或托盤）</p> <p>Allowable concentrations:</p> <p>“Less than 100 ppm” is determined as an allowable total-concentration of four heavy metals (mercury, cadmium, hexavalent chromium, and lead) contained in each part, ink, or paint that constitutes a package. Regarding allowable concentrations of cadmium and lead contained in plastics (including rubbers), paints, and inks, however, regulations for “Cadmium and cadmium compounds” and “Lead and lead compounds” must also be satisfied.(Typical plastic parts: handles, cushions, wraps, reels, tapes, magazine sticks [including stoppers], polyvinyl bags, vinyl ties, bulk cases, and foil or trays)</p>		

6. 各類材料/零件之環境管理物質檢測項目一覽表

Table of Test Items for variety of component belong to Environment -Management substances

Unifosa 零部件分類與測試部位 Component Category and Test Location			測試項目 Test Item							
			Pb (鉛)	Cd (鎘)	Hg (汞)	Cr6+ (六價鉻)	PBB	PBDE	Pb+Cd+ Hg+Cr6+	
Unifosa 類別 Category	材料名稱 Component	限值 Limit Criteria	備註 1 Note1	100 ppm	備註 2 Note2	1000 ppm	1000 ppm	1000 ppm	Total : 100ppm	
		測試部位 Test Location								
G01 G02 G03 G07	積體電路 IC	本體 Body	*	*	*	*	*	*		
		接腳 Lead	*	*	*	*				
		整個進行測試 Whole PCB	*	*	*	*	*	*		
G14	電感類 Inductor	鐵芯 Core	*	*	*	*				
		接腳 Lead	*	*	*	*				
		漆包線 Lacquered wire	*	*	*	*				
		塑膠座 Plastic bracket	*	*	*	*	*	*		
		晶片電感 Chip Inductor	整個進行測試 Whole inductor	*	*	*	*			
G04 G05	電阻類 Resistor	一般電阻 DIP Resistor	本體 Body	*	*	*	*	*	*	
			接腳 Lead	*	*	*	*			
		晶片電阻 Chip Resistor	整個進行測試 Whole chip	*	*	*	*			
		可變電阻 Variable Resistor	本體 Body	*	*	*	*	*	*	
			接腳 Lead	*	*	*	*			
		晶片排阻 Chip Resistor	整個進行測試 Whole chip	*	*	*	*			

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G06	電容類 Capacitor	一般陶瓷電容 Ceramic Capacitor	本體 Body	*	*	*	*	*	*	
			接腳 Lead	*	*	*	*			
		晶片陶瓷電容 Chip Ceramic Capacitor	整個進行測試 Whole chip	*	*	*	*			
G06	電容類 Capacitor	電解電容 (Elec. Cap.) DIP Ceramic Cap.	套管, 橡膠 Sleeve	*	*	*	*	*	*	
			電解液, 電解紙, 鋁箔 Electrolyte, Electrolytic sheet, Aluminum foil	*	*	*	*	*	*	
			鋁殼 Aluminum shell	*	*	*	*			
			接腳 Lead	*	*	*	*			
		塑膠電容 Plastic Capacitor	本體 Body	*	*	*	*	*	*	
			接腳 Lead	*	*	*	*			
鉮質電容 Tantalum Capacitor	本體 Body	*	*	*	*	*	*			
	接腳 Lead	*	*	*	*					
G11	電晶體類 Transistor	本體 Body	*	*	*	*	*	*		
		接腳 Lead	*	*	*	*				
G12	二極體類 Diode	本體 Body	*	*	*	*	*	*		
		接腳 Lead	*	*	*	*				
G13	石英晶體類 Crystal	本體 Body	*	*	*	*	*	*		
		接腳 Lead	*	*	*	*				
G24	塑膠件類 Plastic Parts	膠框、扇葉、套管、SR、Plug、上/下蓋等 Rubber case, Fan leaf, Sleeve, Top/Bottom cover	*	*	*	*	*	*		
G23 G45 G53	金屬件類 Metal	扣環, 銅套, 鋁箔, 錫絲, 鋁框, 彈簧, 錫球, 螺絲等 Ring, Copper sleeve, Aluminum foil, Solder wire, Aluminum case, Spring, Solder ball, Screw	*	*	*	*				
G25	線材類 Wire	線材外被 Line cover	*	*	*	*	*	*		
		芯線外被 Core wire cover	*	*	*	*				
		銅線(Wire) 線材導體(漆包線) Wire conductor	*	*	*	*				
		Strain Relief	*	*	*	*	*	*		
		塑膠接頭 Plastic connector	*	*	*	*	*	*		
G31 G32 G33	包裝材料 Package	塑膠包裝袋, PE 袋, 抗靜電袋, 束線帶, 氣泡袋, REEL, 網綁帶, 膠帶, 標籤, 說明書, 保麗龍, 泡棉, 緩衝材料, 木框, 棧板, 紙箱等 Plastic bag, PE bag, ESD-bag, Bubble bag, Ties, Tapes, Label, Manuel, Buffer, Wooden frames, Corrugated, Cardboard,							*	
	生產耗材料類 Manufacture expendable	稀釋劑, 潤滑油, 助焊劑, 絕緣油, 油墨, 塗料, 清洗劑, 墨水等 Diluent, Lubricants, Flux, Insulating oils, Ink, pigment, Cleaner, Dyestuff	*	*	*	*				

備註: (1) 鉛於塑料中含量限值為 100 PPM
於端電極或者焊錫含量限值為 1000 PPM。
(2) 汞於一般電池含量限值為 5 PPM (鈕扣電池為 20000 PPM),
至於其他零件本體限值為 1000 PPM。

Remark: (1) The allowable concentration for Lead in Plastic is 100 PPM ;

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- The allowable concentration for Lead in Electric Terminal or Soldering are 1000 PPM。
- (2) The allowable concentration for Hg in general battery is 5 PPM (Coin Battery is 20000 PPM) , in other component body is 1000 PPM。

7. 環境負荷物質之檢測：

The Measurement For Enviroment Loading Substances:

1. 本規範之環境負荷物質檢測包含重金屬及化合物，需依照下表指定之標準方法執行，並於檢測報告中清楚載明，以確保數據之可靠性。

The scop of the measurement for Enviroment Loading Substances in cluding heavy metals and it's compounds. The measurement should be implemented following the assigned standard method and described on the report clearly to ensurethe reliability of the data.

2. 外部檢測機購進行檢測時，委託機構需取得國內或國際實驗室認可之證書如 CNLA/ISO 17025。

While the measurement executed by out-side test agency, The commissionedagency should be certified by National LAB or International LAB leg. CNLA / ISO 17025

3. 提交檢測報告提供檢測證明文件時應於報告中附上檢測零部件相關照片及採樣點。

The related photos and sampling location of measured parts should be attached in the report

While the report and proof provided.

檢測項目 Measurement Item	量測標準 Suggested standards for measurement
1. 鎘及其化合物 (Cd) (Cadmium and its compounds)	ICP-OES/MS or AAS(IEC 62321)
2. 鉛及其化合物 (Pb) (Lead and its compounds)	
3. 汞及其化合物 (Hg) (Mercury and its compounds)	CV-AAS/AFS、ICP-OES or ICP-MS(IEC62321)
4. 六價鉻化合物 (Cr ⁺⁶) (Hexavalent Chromium Compounds)	<p>針對外購模組、機構零件: UV-VIS(IEC62321 or ISO3613 結果需為 negative 或 not detected .</p> <p>針對電子零件、塑膠材料: UV-VIS(IEC62321 or EPA3060A)</p> <p>The metal portion of modules: UV-VIS(IEC62321 or ISO3613 test result must be negative or not detected .</p> <p>As for the electronic parts: UV-VIS(IEC62321 or EPA3060A)</p>

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5. 鎳(Ni)及其化合物 (Nickel(Ni) and Nickel compounds)	ICP-OES/MS or AAS(EPA3052 or EPA3050B)
6. 砷(As)及其化合物 (Arsenic(As) and Arsenic compounds)	
7. 多溴聯苯/多溴二苯醚 (PBB/PBDE)	GC/MS (IEC62321)
8. 四溴丙二酚 (2,3-二溴苯醚) (TBBP -A)	GC/MS、GC/ECD (DIN 53313)
9. 六溴環十二烷(HBCD) (Hexabromocyclododecane(HBCD))	GC/MS
10. 多氯聯苯 (PCBs) (Polychlorinated biphenyls)	GC/MS、GC/ECD(EPA 8082)
11. 多氯化萘 (PCN) (Polychlorinated naphthalene category)	
12. 多氯三苯 (PCT) (Polychlorinated Triphenyl)	
13. 氯化烷烴(氯化石蠟)(CP) (Chlorinated paraffins(CP))	
14. 有機錫化合物 (Organic Tin Compounds) (Tributyltin & Triphenyltin Compounds)	GC/MS (DIN38407)
15. 石棉 (Asbestos)	FT-IR
16. 偶氮化合物 (Azo Compounds)	EN 14362-1 /CEN ISO / TS 17234 / EN 14362-2
17. 甲醛 (Formaldehyde)	N 717-1 / N120 / JISA 5905
18. 聚氯乙烯及其混合物 (PVC) (Polyvinyl chloride and PVC blends)	FT-IR
19. CFCs / HCFCs / HBFC / PFC / CHC	GC/MS(EPA 8260B)
20. 甲苯(Toluen)/二甲苯(Xylene)/苯(Benzene)	GC-MS / GC-FID
21. 鹵化二苯基甲烷 (Halogenated diphenyl methanes)	GC/MS
22. 鹵素含量測試(F ⁻ 、Cl ⁻ 、Br ⁻ 、I ⁻)	IC,EN 14582 : 2007、EN50267-2-1 : 1999 or US EPA SW-846 Method 5050
23. 全氟辛烷硫磺酸(PFOS) (Perfluorooctane sulfonates(PFOS))	LC/MS or LC/MS/MS
24. 全氟辛烷酸(PFOA)及其鹽類與酯類 (Perfluorooctyl acid(PFOA) and individual salts and esters of PFOA)	
25. 鄰苯二甲酸酯 (phthalate)	GC/MS(ASTM D3421-75 or EN14372)
26. 雙酚 A(Bisphenol-A)	GC/MS
27. 五氯酚 (Pentachlorophenol(PCP))	
28. 組成成份分析 (The analysis of composed element)	SEM-EDS / XRF
29. 多環芳香烴化合物(PAHs)(Polycyclic Aromatic Hydrocarbons)	LC/MS or LC/MS/MS
30. 富馬酸二甲酯 Dimethylfumarate(DMF)	GC/MS