

I. 目的 :

在友達光電的環境政策中揭示了企業的生產及營運應考慮到對於環境的負面影響，為了達成上述環境政策；遵守法令規定，因此友達光電建立此一管理規定，明確規範限用於產品製造與銷售過程中所使用到的非 BOM 耗材包材中的化學物質，防止環境有害物質混入產品中，來達到減輕對環境及生態影響之目的；善盡企業對於環境維護之責任。

I-1. 友達光電之責任

確認所有使用於友達光電產品製造過程中所使用到的非 BOM 耗材包材能符合此一管理規定之要求。

I-2. 友達光電非 BOM 耗材包材供應商之責任

I-2-1 供應商應確認並保證所有銷售給友達光電之非 BOM 耗材包材能符合此一管理規定之要求外，亦需符合當時國內外相關的適用法令。

I-2-2 供應商應確認並保證所有依據此管理規定而提交的文件及資料是正確且真實的。

I-2-3 對於已經認可的非 BOM 耗材包材所進行的任何變更，供應商應主動通知友達光電。

I-3. 友達光電外包商之責任

I-3-1 外包商應確認並保證由友達光電所委託製造的產品或部品中所使用的非 BOM 耗材包材皆能符合此一管理規定之要求外，亦需符合當時國內外相關的適用法令。

I-3-2 外包商應確認並保證所有依據此管理規定而提交的文件及資料是正確且真實的。

I-3-3 對於已經使用在友達の產品上的非 BOM 耗材包材所進行的任何變更，外包商應主動通知友達

I. Purpose :

The AUO environmental policy calls for all of the company's production and business operations to take any negative consequences to the environment into account. AUO has therefore defined this management regulation to realize the above environmental policy and comply with the relevant laws and regulations. This management regulation provides clear rules on the chemical substances contained in non-BOM material and packaging used during production and sales. This ensures that hazardous substances do not end up in AUO products, reducing the environmental/ecological impact while also realizing AUO's corporate responsibility to the environment.

I-1 AUO Responsibility

Confirm that all non-BOM material and packaging used during AUO's production process complies with the requirements of this management regulation.

I-2 AUO non-BOM material and packaging Supplier's Responsibility

I-2-1 The supplier must not only confirm and guarantee that all non-BOM material and packaging sold to AUO conforms to this management regulation but also complies with the relevant local and overseas regulations at the time.

I-2-2 The supplier must confirm and guarantee that all documentation and information submitted in accordance with this management regulations are true and correct.

I-2-3 The supplier should proactively notify AUO of any changes to previously qualified non-BOM material and packaging.

I-3 AUO subcontractor 's Responsibility

I-3-1 The subcontractor must not only confirm and guarantee that all non-BOM material and packaging of the products or components that entrust by AUO that can conforms to this management regulation but also complies with the relevant local and overseas regulations at the time.

I-3-2 The subcontractor must confirm and guarantee that all documentation and information submitted in accordance with this management regulations are true and correct.

I-3-3 The subcontractor should proactively notify AUO of any changes to non-BOM material and packaging provided by the subcontractor to AUO for use during the production process.

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2. 適用範圍 :

- 2-1.由友達光電公司製造與銷售過程中所使用到的非 BOM 耗材包材。
- 2-2.若友達客戶有其自身的規範，且與本規範有不同規定時，得從友達客戶之規定。
- 2-3.由友達光電公司委託之第三者於製造與銷售過程中所使用到的非 BOM 耗材包材。

3. 名詞定義 :

3-1.環境影響物質

友達光電依據現行國際公約，各國法規及客戶的產品規範所彙整出對於生態、環境及人體有危害的化學物質。

3-2.刻意添加物質 (Intentionally added)

為了要改變產品或材料的物理或化學特性 (例如改變外觀、顏色、增加耐火性、抗化性、導電性、強度等) 因而在製造過程中故意添加，且添加後該物質會持續存在於產品或材料中。

3-3.雜質 (Impurity)

- a. 原本即存在於天然材料中，在精鍊過程中，技術上卻無法將其完全去除，而會存在於精鍊後材料中之物質。
- b. 或是在材料合成反應過程中產生，且在技術上無法完全去除的物質。

3-4.均質材料 (Homogeneous material)

為混合均勻且無法以機械力將其分離成兩種不同材料，例如電源線可分成：外層包覆塑膠、金屬導線、印字油墨等均質材料。

3-5.容許濃度 (Threshold)

指在一均質材料中所允許含有該物質的最大濃度值。

3-6.包裝材料 (Packaging)

2. Scope :

- 2-1.Applicable to all non-BOM *material* and packaging used by AUO during production and sale.
- 2-2. If the regulation of AUO's customer is different from AUO's, suppliers need to comply with the regulation of AUO's customer.
- 2-3 .Applicable to all non-BOM material and packaging used by 3'rd party that entrusted by AUO,during production and sale.

3. Terms Definition :

3-1 Environment-related Substance

Chemical substances that are considered hazardous to the ecology, environment and human body as compiled by AUO based on international conventions, national regulations and customer product specifications.

3-2. Intentionally added

Substance intentionally added to a product or material to change its physical or chemical properties (such as change its appearance or color, or boosted fire resistance, chemical resistance, conductivity and strength) that also continues to remain present in the product or material after it was added.

3-3. Impurity

- a. Substance that exists in natural materials but can't be completely removed during the refining process with current technology and will continue to be present in the refined material.
- b. Or substance that appears during the materials' synthesis and can't be wholly removed with current technology.

3-4. Homogeneous material

Material that is thoroughly mixed and can't be mechanically separated into two different materials. For example, electrical wiring consists of homogenous materials such as the plastic sheath, metal conductor and printing ink.

3-5. Threshold

Refers to the maximum concentration permitted for that substance in a homogenous material.

3-6. Packaging

Refers to material used to protect, load/unload and label AUO products during transportation and storage. (e.g.

指於儲存及運送過程中，用以保護、裝卸及標示 AUO 產品所使用之材料。〔例如棧板、紙箱、緩衝材料、塑膠袋、膠帶、標籤和黏著劑等〕，同時也包含標示所使用的墨水或染料。

pallets, cartons, padding, plastic bags, tape, labels and adhesives). Also includes ink or dyes used for marking.

3-7. AUO 關心的部品

3-7-1. 非 BOM 耗材：與產品有接觸且明顯會殘留在產品上

3-7-2. 非 BOM 包材：使用於成品/半成品上出貨給客戶的非 BOM 包裝材料

3-7 Articles of AUO concern

3-7-1. All non-BOM material comes into contact with the product and leaves obvious residue .

3-7-2. All non-BOM packing material that uses in product or final products or semi assemblies for shipping to customer .

4. 作業流程與內容：

4-1. 環境影響物質的管理

友達光電所考量的環境影響物質共分成以下：

4-1-1. 產品中禁止使用的化學物質

為現行國際公約、各國法規或客戶的產品規範中已明令禁止使用或已設定其禁止使用期限日的化學物質。供應商必須確認及保證這類化學物質在本規範中設定的禁用日期之後，並沒有被故意添加在供應給友達光電製造與銷售過程中所使用到的非 BOM 耗材包材中。

4-1-2. 產品包裝材料中的禁用化學物質

友達光電產品所使用的非 BOM 包裝材料，除需符合 4-1-1 之規定外，同時亦要符合歐盟的包裝及包裝廢棄物指令的規定。

4-1-3. 上述環境影響物質及其容許濃度請詳見附件一

『 AUO “Environment-related substances ” for Non-BOM Material and Packaging Checklist 』。

4.2. 供應商所需提送之文件及文件有效期限

4-2-1. 非 BOM 耗材/包材供應商需提送之相關資料：

供應商針對所有提供給友達光電製造過程中所

4. Procedure & Subject Matter :

4-1 Environment-related Substance Management

Environment-related substances that AUO take into account include the following :

4-1-1 Banned chemical substances

This refers to chemical substances that have been specifically banned or that have a defined deadline set by international conventions, national regulations or customer specifications. Suppliers must confirm and guarantee that these types of chemical substances are not intentionally added to non-BOM material and packaging supplied to AUO for use in production and sales after the ban date set in this management regulation.

4-1-2. Substances prohibited from use in product packaging.

Packaging material that sold by AUO's suppliers, subcontractors or use in AUO's products requested to fully comply with not only the rules specified in clause 4-1-1, but also the EU packaging and packaging waste directive.

4-1-3 Please see Appendix I for a list of the environment-related substances and their thresholds

『 AUO “Environment-related substances ” for Non-BOM Material and Packaging Checklist 』。

4.2 Required supplier documentation and document expiry date

4-2-1 Information that non-BOM material and packaging supplier must provide :

If the non-BOM material and packaging provided

使用到的非 BOM 耗材包材，若會與產品接觸且明確會殘留在產品上，則必須提供相關資料，經友達專責單位審核。

a. 『AUOQS-04-001-001 非 BOM 耗材包材環境關聯物質不使用保證書』或

『AUOQS-04-001-002 Guarantee of Non-use of Environment-Related Substances for Non-BOM Material and Packaging』，供應商應該詳細閱讀本規範各項規定，確認所有供應給友達光電的非 BOM 耗材包材皆符合本管理規定之要求。供應商確認無誤後，須加蓋公司大小章，小章若以代表人簽名方式簽署，則需註明職稱，以示負責。

『AUOQS-04-001-001 非 BOM 耗材包材環境關聯物質不使用保證書』或

『AUOQS-04-001-002 Guarantee of Non-use of Environment-Related Substances for Non-BOM Material and Packaging』需繳交正本給友達光電。

b. 化驗報告：

供應商應提出化驗報告以證明供應部品中無添加 AUO 規定的禁用物質。各類部品依據其組成材質不同，所要求的化驗項目如下：

- 1) 金屬、玻璃及陶瓷材料，不包含其膏狀物(如錫膏、銀膏、陶瓷膏)：鉛、鎘、汞、六價鉻*Note 1。
- 2) 塑膠類材料：鉛、鎘、汞、六價鉻、PBBs、PBDEs、DEHP、DBP、BBP、DIBP、Cl、Br。
- 3) 木製品：鉛、鎘、汞、六價鉻、PBBs、PBDEs、DEHP、DBP、BBP、DIBP、Cl、Br、甲

by the supplier to AUO for use during the production process will come into contact with the product and leave an obvious residue, the relevant information must be submitted for review by the responsible AUO unit.

a. 『AUOQS-04-001-001 Guarantee of Non-Use of Environment-Related Substances for Non-BOM material and Packaging』or

『AUOQS-04-001-002 Guarantee of Non-use of Environment-Related Substances for Non-BOM Material and Packaging』,The supplier should read carefully through all the rules set out in this regulation and confirm that all non-BOM material and packaging they supply to AUO conforms to the requirements of this management regulation. Once the supplier has done so, shall be imprinted supplier's official company large and small seal. When authorized representative's signature replace small seal, it should sign their name and job title.

The original 『AUOQS-04-001-001 Guarantee of Non-Use of Environment-Related Substances for Non-BOM Material and Packaging』or『AUOQS-04-001-002 Guarantee of Non-use of Environment-Related Substances for Non-BOM Material and Packaging』 must be submitted to AUO.

b. Related substances analysis report (RSAR) :

The supplier should submit a RSAR to prove that none of the substances banned by AUO were added to the supplied item. The chemical tests required for each type of material are as follows :

- 1) Metal, Glass and Ceramic Materials, except paste(ex. Solder paste, silver paste, ceramic paste...ect.) : Lead, Cadmium, Mercury, Hexavalent Chromium *Note 1.
- 2) Plastic Materials : Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs, PBDEs, DEHP, DBP, BBP, DIBP, Cl, Br.
- 3) Wooden products : Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs, PBDEs, DEHP, DBP, BBP, DIBP, Cl, Br.

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formaldehyde.

4) 其他材料：鉛、鎘、汞、六價鉻、PBBs、PBDEs、DEHP、DBP、BBP、DIBP、Cl、Br。

4) Other materials : Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs, PBDEs, DEHP, DBP, BBP, DIBP, Cl, Br.

*Note 1 : 若為金屬材質，六價鉻測試結果的證明依據需利用 Boiling-Water 測試方法而非僅做 Spot-Test 的方式。

*Note 1 : For hexavalent chromium (Cr6+) examination of metal materials, only using spot-test is not acceptable. It must do further boiling-water test to confirm the absence of hexavalent chromium.

*Note 2 : 不接受 In-house 之化驗方法。

*Note 2: Test method of In-house is not acceptable.

*Note 3 : 當 AUO 客戶有額外物質加驗需求，需配合提供相關的化驗報告(例如: PFOS、PFOA...等)。

*Note 3: When AUO's customers have testing requests for extra substances, please cooperate to provide the related chemical analysis report (example for PFOA, PFOS etc.).

禁用物質化驗必須於合格的實驗室中進行，有關實驗室的資格規定、部品拆解原則、化驗方法及報告內容之要求，請詳本規定附件二『化驗實驗室資格、化驗方式及化驗報告內容規定』。

Testing for banned substances must be carried out by a qualified laboratory. For rules governing laboratory qualification, sample disassembly, testing method and report contents, please see Appendix 2 "The requirements of qualified laboratory, analytical test method and the format of RSAR."

4-2-2.化驗報告有效期限

均質材料承認時所檢附的化驗報告必須在 2 年有效期限內。

*Note 1 : 針對仍然在使用的材料，若 GP 驗證超過 3 年，必須針對該零件於 Green IDM 系統進行更新，更新驗證時所檢附的化驗報告也必須符合 2 年有效期限。

4-2-2 RSAR Expiry Date

When homogeneous material is going to apply for AUO's sample approval, the test date of attached analytical test report shall not exceed 2 years.

*Note 1: When non-BOM material GP approved over 3 years and the material still used, then user must update GP information on Green IDM system, and the test date of attached analytical test report shall not exceed 2 years.

4-2-3.變更管理

若供應商對於所供應的非 BOM 耗材包材要進行材質或生產原物料的變更，供應商應先通知友達光電，友達光電將重新進行相關綠色文件的驗證。

4-2-3 Change Management

Whenever the supplier intends to change the material or raw materials used for non-BOM material and packaging it supplies to AUO, the supplier should notify AUO in advance and AUO will perform the green documentation qualification process again.

文件管制中心管制文件

Control Document

Form.071 No. : 54224

AUO 友達光電
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4.3 本管理規定的建立、改版及內容修訂：

4-3-1.有關本管理規定的建立、改版及廢除皆需經過友

4.3 Creation, revision and modification of this management regulation :

4-3-1 The creation, revision or abolishing of this

達光電“Green Product core team”開會同意後方可進行。

4-3-2.本管理規定應至少每年討論及 review 相關條文。

4-3-3.有關環境管理物質的適用性應至少每年檢討一次，檢討內容應包括：

a.國內外的環保及禁用物質法規的變更及修訂
〔請詳附件三『禁用物質的法規依據』〕。

b.客戶之要求及禁用物質的變更。

c.替代技術或評估技術的發展。

4-3-4.各項檢討的內容及決議應以會議記錄保存備查。

4-3-5.由於非 BOM 耗材包材用環境關聯物質不使用保證書之內文有對應到本管理規定之文號，因此本管理規定之文號不可更動。

4.4.商業機密保護

所有供應商提供之資料只有兩種用途，一為供給友達光電內部人員判定該材料，零件或組件是否符合本管理規範，二為當友達光電的客戶要求提供該材料、零件或組件之相關資料時。

management regulation may only proceed if approved by a meeting of the AUO "Green Product Core Team".

4-3-2 The relevant articles of this management regulation must be discussed and reviewed at least annually.

4-3-3 The applicability of content on environment-related substances must be reviewed at least annually and include :

a. Changes and revisions to local and overseas environmental and restricted substance regulations (see Appendix 3 "Regulatory Basis for Restricted Substances").

b. Customer requirements and changes to restricted substances.

c. Alternative technologies or an assessment of technical developments.

4-3-4 The contents of all discussions and resolutions should be preserved in the form of meeting minutes for future reference.

4-3-5. As the content of Guarantee of non-use of Environment-related Substances for Non-BOM material and Packaging is related to the document number of this management regulation, the document number of this management regulation can not be changed.

4.4 Protection of Commercial Confidentiality

All information provided to AUO by the supplier will only be used for two purposes. The first is for an internal review by AUO personnel to determine if the material, part or assembly conforms to this management regulation. The second is when an AUO customer requires information related to that material, part or assembly.

5. 系統表單 System Forms :

項次 Item	表單名稱 Form Title	應用系統 Application systems	路徑 Path
1.	NA		
2.			

6. 外來參考文件 External References:

項次 Item	文件名稱 Document Title	版本 Version	保管單位 Storage unit
1.	NA		
2.			

文件管制中心管制文件
Control Document

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7. 附件 Attachments :

附件一：AUO “Environment-related substances ” for Non-BOM Material and Packaging Checklist v5

Appendix I : AUO “Environment-related substances ” for Non-BOM Material and Packaging Checklist v5

產品中禁止使用的化學物質					
所有供應給友達光電 (明顯會殘留在產品上的非 BOM 耗材包材) , 均要符合本節的禁用物質規定.					
類別	化學物質名稱	禁用對象	容許濃度	禁止使用日期	
1	EU Ro.H.S. 禁用物質	鉛及鉛化合物	禁止一切使用	< 90ppm < 800ppm (焊錫)	立即執行
2		鎳及鎳化合物	禁止一切使用	不得檢出 < 75ppm (黃銅)	
3		汞及汞化合物	禁止一切使用	不得檢出	
4		六價鉻及六價鉻化合物	禁止一切使用	不得檢出	
5		多溴聯苯及其化合物 (PBBs)	禁止一切使用	不得檢出	
6		多溴聯苯醚及其氧化物 (PBDEs, PBBEs & PBDOs, PBBOs)	禁止一切使用	不得檢出	
7		鄰苯二甲酸(2-乙基己基酯) (DEHP)	禁止一切使用	不得檢出	
8		鄰苯二甲酸二丁酯 (DBP)	禁止一切使用	不得檢出	
9		鄰苯二甲酸丁苯酯 (BBP)	禁止一切使用	不得檢出	
10		鄰苯二甲酸二異丁酯 (DIBP)	禁止一切使用	不得檢出	
11		Pb+Cd+Hg+Cr ⁶⁺	禁止使用於包裝材料	容許濃度： ●4 項禁用物質的加總濃度 (Pb+Cd+Hg+Cr ⁶⁺) : < 50ppm. ●且鎘 (Cd) 的濃度需為不得檢出	
12	有機鹵化物	溴	1. 禁止一切使用	< 900 ppm	立即執行
13		氯	2.Array/ Cell /CF material/貨櫃型乾燥劑 屬排外項目	< 900 ppm	
14		溴+氯		< 1500 ppm	
15	鹵素阻燃劑 (包含四溴雙酚-A (TBBP-A) & 六溴環十二烷(HBCDD)	禁止一切使用	< 800 ppm (HBCDD:不得檢出)	立即執行	
16	PVC	聚氯乙烯(PVC)、氯乙烯及 PVC 混合物	禁止一切使用	不得檢出	立即執行
17	PFOS	全氟辛烷磺酸相關物質 (PFOS)	禁止一切使用	不得檢出	立即執行
18	DMF	富馬酸二甲酯(DMF)	禁止一切使用	不得檢出	立即執行

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19	PCB&PCT	多氯聯苯類與多氯三聯苯類(PCB&PCT)	禁止一切使用	不得檢出	立即執行
20	PCPs	多氯酚及其衍生物(PCPs)	禁止一切使用	不得檢出	立即執行
21	甲醛	甲醛(Formaldehyde)	禁止使用於木製品(如木棧板)	容許濃度： ● 以測試方法 EN 717-1 : 2004 檢測結果 < 0.1 ppm ● 以測試方法 EN 120 : 1992 檢測結果 < 8 mg/100g (一次測定值) ● 以測試方法 ASTM D6007, D5116-97 檢測結果 < 0.08 ppm ● 以測試方法 ASTM E 1333-96 檢測結果 < 0.05ppm	立即執行
22	PFOA	全氟辛酸(PFOA)	禁止一切使用	< 10ppm	立即執行

Chemical Substances Banned from Product Use

All materials supplied to AUO (non-BOM material and packaging that leaves obvious residue on product) must conform to the substance restrictions stated in this section.

Category	Chemical Substance Name	Ban Type	Threshold	Ban Date	
1	Substances Banned EU RoHS	Lead and Lead Compounds	Complete ban	< 90ppm < 800ppm (solder)	Effective Immediately
2		Cadmium and Cadmium Compounds	Complete ban	Not detected < 75ppm (brass)	
3		Mercury and Mercury Compounds	Complete ban	Not detected	
4		Hexavalent Chromium and Hexavalent Chromium Compounds	Complete ban	Not detected	
5		Polybrominated biphenyls (PBBs) and PBBs Compounds	Complete ban	Not detected	
6		Polybrominated diphenyl ethers or oxide(PBDEs, PBBEs & PBDOS, PBBOs)	Complete ban	Not detected	
7		Di (2-ethylhexyl) phthalate (DEHP)	Complete ban	Not detected	
8		Di-n-butyl phthalate (DBP)	Complete ban	Not detected	
9		Butyl benzyl phthalate (BBP)	Complete ban	Not detected	
10		Diisobutyl phthalate (DIBP)	Complete ban	Not detected	
11	Organic Halogen Compounds	Pb+Cd+Hg+Cr ⁶⁺	Banned in packing material application	Threshold : ● Total concentration of the 4 restricted substance (Pb+Cd+Hg+Cr ⁶⁺) < 50ppm ● Cd concentration must be not detected.	Effective Immediately
12		Bromium	1. Banned in all application 2 Exempted by Array/ Cell / CF / Container-type desiccant material	< 900 ppm	Effective immediately
13		Chlorine		< 900 ppm	

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14		Bromium + Chlorine		< 1500 ppm	
15	Halogenated Flame Retardants	Halogenated Flame Retardants (including :TBBP-A & HBCDD)	Complete ban	< 800 ppm (HBCDD: Not detected)	Effective Immediately
16	PVC	PVC, Vinyl and PVC Compounds	Complete ban	Not detected	Effective Immediately
17	PFOS	Perfluorooctane sulphonate (PFOS) related substances	Complete ban	Not detected	Effective Immediately
18	DMF	Dimethylfumarate (DMF)	Complete ban	Not detected	Effective Immediately
19	PCB&PCT	Polychlorinated biphenyls & terphenyls (PCBs & PCTs)	Complete ban	Not detected	Effective Immediately
20	PCPs	Polychlorinated phenols and derivatives (PCPs)	Complete ban	Not detected	Effective Immediately
21	Formaldehyde	Formaldehyde	Banned in wooden application (such as pallets)	Threshold : ● Testing using EN 717-1 : 2004, test result < 0.1 ppm ● Testing using EN 120 : 1992, test result < 8mg/100g (single measurement) ● Test method ASTM D6007, D5116-97 < 0.08 ppm ● Test method ASTM E 1333-96 < 0.05 ppm	Effective Immediately
22	PFOA	PFOA	Banned in all application	< 10ppm	Effective Immediately

附件二：化驗實驗室資格，化驗方式及化驗報告內容規定

Appendix 2 : The requirements of qualified laboratory, analytical test method and the format of test report.

I. 實驗室資格

為確保實驗室分析數據的品質及可靠性，友達光電要求分析實驗室需同時具備下列資格：

I-1. 實驗室需通過 ISO17025 認證並取得認可證書*Note 1,且核發證書的認證機構必須為 ILAC MRA (國際實驗室認證聯盟相互承認辦法) 簽署會員國的實驗室認證機構。

*Note 1: 證書上之測試領域須包含友達要求提供化驗報告之檢測項目，如鉛、鎘、汞、六價鉻、多溴聯苯、多溴聯苯醚、氯、溴、DEHP、DBP、BBP、DIBP。

I. Laboratory Qualification

To ensure the quality and reliability of laboratory analysis, AUO requires the laboratory to possess the following qualifications :

I-1 The laboratory must have received ISO 17025 certification*Note 1 from a accredited laboratory certification organization in a country that is a signatory to the International Laboratory Accreditation Cooperation – Mutual Recognition Agreement (ILAC MRA).

*Note 1: The testing field must include some test items, such as Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs, PBDEs, Chlorine, Bromine、DEHP、DBP、BBP、DIBP.

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I-2 國際實驗室認證機構的對照表^{*Note2} :

I-2 Cross-Reference Table for the International
Laboratory Certification Institutes^{*Note 2} :

No.	國家 Country		機構簡稱 Organization
1	Argentina	阿根廷	OAA
2	Australia	澳洲	NATA
3	Austria	奧地利	BMWFJ
4	Belgium	比利時	BELAC
5	Brazil	巴西	CGCRE
6	Canada	加拿大	CALA
7	Canada	加拿大	SCC
8	Chile	智利	INN
9	Hong Kong, China	中國香港	HKAS
10	People's Republic of China	中國	CNAS
11	Costa Rica	哥斯大黎加	ECA
12	Croatia	克羅地亞	HAA
13	Cuba	古巴	ONARC
14	Czech Republic	捷克	CAI
15	Denmark	丹麥	DANAK
16	Egypt	埃及	EGAC
17	Finland	芬蘭	FINAS
18	France	法國	COFRAC
19	Germany	德國	DAkkS
20	Greece	希臘	ESYD
21	Guatemala	瓜地馬拉	OGA
22	Hungary	匈牙利	NAT
23	India	印度	NABL
24	Indonesia	印尼	KAN
25	Ireland	愛爾蘭	INAB

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26	Israel	以色列	ISRAC
27	Italy	義大利	ACCREZIA
28	Japan	日本	IA Japan
29	Japan	日本	JAB
30	Japan	日本	VLAC
31	Kazakhstan	哈薩克斯坦	NCA
32	Republic of Korea	韓國	KOLAS
33	Luxembourg	盧森堡	OLAS
34	Malaysia	馬來西亞	STANDARDS MALAYSIA
35	Mexico	墨西哥	Ema
36	Netherlands	荷蘭	RvA
37	New Zealand	紐西蘭	IANZ
38	Norway	挪威	NA
39	Pakistan	巴基斯坦	PNAC
40	Papua New Guinea	巴布亞新幾內亞	PNFLAS
41	Philippines	菲律賓	PAO
42	Poland	波蘭	PCA
43	Portugal	葡萄牙	IPAC
44	Romania	羅馬尼亞	RENAR
45	Russian Federation	俄羅斯聯邦	AAC
46	Singapore	新加坡	SAC
47	Slovakia	斯洛伐克	SNAS
48	Slovenia	斯洛法尼亞	SA
49	South Africa	南非	SANAS
50	Spain	西班牙	ENAC
51	Sri Lanka	斯里蘭卡	SLAB

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52	Sweden	瑞典	SWEDAC
53	Switzerland	瑞士	SAS
54	Chinese Taipei	台灣	TAF
55	Thailand	泰國	BLQS-DMSc
56	Thailand	泰國	NSC – ONAC
57	Thailand	泰國	BLA-DSS
58	Tunisia	突尼西亞	TUNAC
59	Turkey	土耳其	TURKAK
60	United Arab Emirates	阿拉伯聯合酋長國	DAC
61	United Kingdom	英國	UKAS
62	Uruguay	烏拉圭	OUA
63	USA	美國	A2LA
64	USA	美國	ANSI-ASQ
65	USA	美國	AIHA-LAP, LLC
66	USA	美國	FQS
67	USA	美國	IAS
68	USA	美國	NVLAP
69	USA	美國	L-A-B
70	USA	美國	PJLA
71	USA	美國	ASCLD/LAB
72	Vietnam	越南	BoA

*Note 2: 以上之清單為參考資訊，供應商請字型進入 ILAC MRA 官網確認其認證機構之最新清單，官網：
<http://www.ilac.org/membersbycategory.html> (請點開 Full Members(MRA signatories 選項))

*Note 2: The above list is the referential information. The supplier is requested to voluntarily visit the official ILAC MRA website to verify the latest certification institutes list. The official website:
<http://www.ilac.org/membersbycategory.html> (please click and open the Full Members (MRA signatories option))

2. 檢測儀器及允許的前處理方法

2 Testing Instrument and Permitted Pre-Conditioning Methods :



2-1. 進行受測樣品的前處理時，應該使樣品完全溶解成溶液，不可有沉澱物發生。若有沉澱物發生時應使用適當方法使其完全溶解。

2-1 When preparing the sample for testing, the sample should be completely dissolved with no sediments. If there any sediments, appropriate measures should be taken to ensure its complete dissolution.

2-2. 有關 R.o.H.S. 禁用物質及甲醛的檢測儀器及允許的前處理方法請詳下表：

2-2 The table below shows the testing instruments and permitted per-conditioning methods for R.o.H.S. materials and formaldehyde testing.

禁用物質 Restricted Sunstance	Equipment	Pre-conditioning
Cadmium and its compounds (鎘及其化合物)	ICP-AES、OES、MS AAS	規定使用： IEC 62321-5
Lead and its compounds (鉛及其化合物)	ICP-AES、OES、MS AAS	規定使用： IEC 62321-5
Mercury and its Compounds (汞及其化合物)	ICP-AES、OES、MS AAS	規定使用： IEC 62321-4
Hexavalent-Chromium Compounds (六價鉻化合物)	UV-VIS	規定使用： IEC 62321-7
PBBs/PBDEs (聚溴聯苯/溴聯苯醚)	GC-MS & HPLC-MS	規定使用： IEC 62321-6
Phthalate (鄰苯二甲酸酯類)	GC-MS	規定使用： IEC 62321-8
Halogen (鹵素)	IC	須為氧彈燃燒法 建議使用： EPA SW-846 5050/9056 BS EN14582
Formaldehyde (甲醛)	-	建議使用： Chamber method : ASTM E 1333-96 ; ASTM D5116-97 ; ASTM D6007 Perforator method : EN120 : 1992

3. 送測部品的拆解原則

3-1. 供應商須將所供應部品依循 Eu RoHS 機械力不可拆解之定義拆解成不同的均質材料，依各均質材料所需化驗項目送交符合資格的實驗室進行禁用物質的化驗，提供各拆分均質物質的化驗報告，有關均質材料 (homogeneous material) 的定義請參考本文 3-4 節。

部品拆解例：

a. 有色之標籤 (Label)、膠帶 (Tape)、包材等：可接

3. Part disassembly principle

3-1. Depend on Eu RoHS part disassembly principle: it cannot be separated into two different materials with mechanical power. Supplier shall disassemble part into different homogeneous material when perform the banned substances analysis to offer analysis report of homogeneous material. The definition of homogeneous material refer to 3-4.

Example :

a. The label, tape, packaging with color : doesn't need to be separated into ink and base part.



受成品直接混驗，不需分 Ink 與底材

b. 油性筆：只需化驗會與產品接觸的 ink，不需驗筆桿

c. 木棧板：化驗時分成木頭及鐵釘

d. 鋁箔袋：化驗時分成鋁箔及塑膠膜

其他部品依此原則類推。

- b. Permanent marker : only need to test ink , doesn't need to test penholder.
- c. Wooden pallet : it shall be separated into wood and nails.
- d. Aluminium-foil bag : it shall be separated into Aluminium-foil material and plastic film
The rest can be done in the same manner.

4. 化驗報告格式及內容

4-1. 化驗報告中至少需記載下列事項：

- a. 樣品描述 (零件名稱、型號等)
- b. 所使用之前處理方法
- c. 檢測方法及設備
- d. 檢測人姓名、檢測實驗室負責人姓名、分析實驗室名稱
- e. 檢測日期
- f. 檢測結果^{*Note 1} 及方法偵測極限 (MDL) ^{*Note 2}
- g. 樣品圖片^{*Note 3}
- h. 檢測流程圖^{*Note 4}

*Note 1 : 檢測結果須考量所有不確定度之因素在內。

*Note 2 : 方法偵測極限 (MDL) , 可依各實驗室報告規定，但若有特殊要求(例如 pre-SA) 時，則以特殊要求認定為主。

*Note 3 : 樣品照片需清晰可見樣品的外觀，需拆除樣品外面的包裝材料，例如瓶裝液體需倒出拍照。

*Note 4 : 凡友達規範之必測項目，均需附上相對應的測試方式流程圖。

4-2. 友達要求樣品的前處理應該使樣品完全溶解成溶液，因此化驗報告前處理或流程說明中需要明確標示“受測樣品已完全溶解”的字樣。

4-3. 所提交的化驗報告須為電子檔原稿，不接受影印、刪修、塗改後之報告。

4-4. 對於違反上述要求的化驗報告將被退件並要求補正後重新提交。

4. Test Report Format and Content

4-1 The test report must at a minium record the following :

- a. Sample description (part name, model no.)
- b. Pre-conditioning method
- c. Testing method and equipment
- d. Technician name, laboratory supervisor name and laboratory name
- e. Test date
- f. Test results^{*Note 1} and Method Detection Limit (MDL)^{*Note 2}
- g. Photo of sample^{*Note 3}
- h. Testing process chart^{*Note 4}

*Note 1 : The assay results shall consider all uncertain factors.

*Note 2: The method detection limit (MDL) may depend on the reporting specification of each third party. But there are special requirements (such as pre-SA), the special requirements shall prevail.

*Note 3 : For the sample picture, the sample's external features shall be clearly visible. The sample's external packaging materials need to be removed, such as that the bottled liquid needs to be removed for taking the picture.

*Note 4 : All test items required by AUO specs must have their corresponding testing process chart attached.

4-2. When preparing the sample for testing, the sample should be completely dissolved with no sediments. The word of "sample has been totally dissolved" must be showed in somewhere of analytical test report.

4-3. Please provide the original test report, AUO do not accept the copy ,revise or alter report.

4-4 Test reports that don't meet the above requirements will be rejected and must be revised before re-submission

4-5 Test report must be in Chinese or English. Other versions



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Author : 李瑞俞

Version : 15

Document Local Name : 非BOM耗材包材有害物質管理規定

Effective Date : 2022/04/13

Document English Name : regulation of hazardous substances for Non-BOM material and packaging

4-5. 化驗報告僅接受中文及英文版內容，其餘版本文件將被
退件並要求更新後重新提交。

will be rejected and must be updated before re-submission.

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附件三：禁用物質的法規依據

Appendix 3 : Legal Basis for Restricted Substances

No.	禁用物質 Restricted Sunstamce	參考法規 Reference Legislation
1	鉛及鉛化合物 Lead & its compounds	California Proposition 65, EU REACH Regulation, 86/677/EEC, 2011/65/EC Norway's PoHS
2	鎘及鎘化合物 Cadmium and its compounds	EU REACH Regulation, EU Directive 2011/65/EC Norway's PoHS EU Directive 98/101/EC,
3	汞及汞化合物 Mercury and its compounds	EU REACH Regulation, EU Directive 2011/65/EC TCO 5.0
4	六價鉻及六價鉻化合物 Hexavalent Chromium and its compounds	EU REACH Regulation, EU Directive 2011/65/EC
5	多溴聯苯及其化合物 (PBBs)	
6	多溴聯苯醚及其氧化物 (PBDEs, PBBEs & PBDOs, PBBOs)	
7	鄰苯二甲酸(2-乙基己基酯) (DEHP)	
8	鄰苯二甲酸二丁酯 (DBP)	EU Directive 2011/65/EC
9	鄰苯二甲酸丁苯酯 (BBP)	
10	鄰苯二甲酸二異丁酯 (DIBP)	
11	溴 Bromine	IEC 61249-2-21 : 2003 JPCA-ES01 : 2003, IPC 4101
12	氯 Chlorine	
13	溴+氯 Bromine + Chlorine	
14	鹵素阻燃劑(包含四溴雙酚-A & 六溴環十二烷)	JIG-101 Ed 4.0 Blue Angel (German Eco-label) TCO 5.2 (Swedish Eco-label)
15	聚氯乙烯(PVC)、氯乙烯及 PVC 混合物 PVC, Vinyl and PVC compounds	JIG-101 Ed 2.0 Blue Angel (German Eco-label) TCO 5.0 (Swedish Eco-label)
16	全氟辛烷磺酸相關物質(PFOS)	EU Directive 2006/122/EC
17	富馬酸二甲酯(DMF) Dimethylfumarate	EU Directive 2009/251/EC
18	多氯聯苯與多氯三聯苯 (PCBs & PCTs)	EU REACH Regulation, 85/467/EEC, 91/173/EEC Germany: ChemVerbots V US:TSCA Stockholm Convention
19	多氯酚及其衍生物(PCPs)	Stockholm Convention OSPAR Germany: chemVerbotsV

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20	甲醛 Formaldehyde	JIG-101 Ed 2.0 Germany : ChemVerbots V Denmark : Danish Statutory Order No. 289
21	全氟辛酸 (PFOA)	Norwegian environmental policy

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