



ICP Test Report Certification Packet

Company name: Littelfuse, Inc.
Product Series: SCR / Diode Array for ESD
Product #: SP721APP, SP723APP
Issue Date: August 13, 2012

It is hereby certified by Littelfuse, Inc. that there is neither RoHS (EU Directive 2002/95/EC, 2011/65/EU)-restricted substance nor such use, for materials to be used for unit parts, for packing/packaging materials, and for additives and the like in the manufacturing processes. In addition, it is hereby reported to you that the parts and sub-materials, the materials to be used for unit parts, the packing/packaging materials, and the additives and the like in the manufacturing processes, are all composed of the following components.

Issued by:


KRISTEEN BACILA

<Global EHS Engineer>

(1) Parts, sub-materials and unit parts

This document covers the SCR / Diode Array for ESD RoHS-Compliant series products manufactured by Littelfuse, Inc.

< Raw Materials Used

Please see Table 1

(2) The ICP data on all measurable substances

Please see appropriate pages as identified in Table 1

Remarks : .



Table 1: List of Raw Materials covered by this report

Total Parts	Raw Material Part Number	Raw Material Description	Page(s)
1	A194	Lead Frame	3-41
2	84-1LMISR4	Adhesive	42-67
3	N/A	Gold Bonding Wire	68-81
4	N/A	Epoxy Molding Compound (RoHS)	82-90
5	Sn99.99	Tin Anode	91-97
6	N/A	IC Wafer	98-101

測試報告 Test Report

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ASM HK & ASM TECHNOLOGY SINGAPORE

4/F, WATSON CENTRE, 16 KUNG YIP ST., KWAI CHUNG, HONG KONG (ASM HK), 2 YISHUN AVENUE 7,
SINGAPORE (ASM TECHNOLOGY SINGAPORE)

以下測試樣品係由客戶送樣，且由客戶聲稱並經客戶確認如下 (The following samples was/were submitted and identified by/on behalf of the client as):

樣品名稱(Sample Description)	: A194 ALLOY
收件日期(Sample Receiving Date)	: 2011/12/23
測試期間(Testing Period)	: 2011/12/23 TO 2012/01/05
送樣廠商(Sample Submitted By)	: 香港商先進太平洋股份有限公司 (ASM HK & ASM TECHNOLOGY SINGAPORE)

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測試結果(Test Results) : 請見下一頁 (Please refer to next pages).



Ray Chang / Asst. Manager
Signed for and on behalf of
SGS Taiwan Limited

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測試結果(Test Results)

測試部位(PART NAME) NO.1 : 銅紅色 A194 ALLOY (COPPER RED A194 ALLOY)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
鎘 / Cadmium (Cd)	mg/kg	參考IEC 62321: 2008方法, 用感應耦合電漿原子發射光譜儀檢測。 / With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
鉛 / Lead (Pb)	mg/kg	參考IEC 62321: 2008方法, 用感應耦合電漿原子發射光譜儀檢測。 / With reference to IEC 62321: 2008 and performed by ICP-AES.	2	23.5
汞 / Mercury (Hg)	mg/kg	參考IEC 62321: 2008方法, 用感應耦合電漿原子發射光譜儀檢測。 / With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
六價鉻 / Hexavalent Chromium Cr(VI) by boiling water extraction#	**	參考IEC 62321: 2008方法, 用 boiling water extraction方法檢測。 / With reference to IEC 62321: 2008 and performed by boiling water extraction Method.	0.02mg/kg with 50 cm ² surface area	Negative
銻 / Antimony (Sb)	mg/kg	參考US EPA 3052方法, 用感應耦合電漿原子發射光譜儀檢測銻含量。 / With reference to US EPA Method 3052 for Antimony Content. Analysis was performed by ICP-AES.	2	n.d.
鈹 / Beryllium (Be)	mg/kg	參考US EPA 3052方法, 用感應耦合電漿原子發射光譜儀檢測鈹含量。 / With reference to US EPA Method 3052 for Beryllium Content. Analysis was performed by ICP-AES.	2	n.d.

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ASM HK & ASM TECHNOLOGY SINGAPORE

4/F, WATSON CENTRE, 16 KUNG YIP ST., KWAI CHUNG, HONG KONG (ASM HK), 2 YISHUN AVENUE 7, SINGAPORE (ASM TECHNOLOGY SINGAPORE)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
多氯聯苯 / Polychlorinated Biphenyls (PCBs) (CAS No.: 001336-36-3)	mg/kg	參考US EPA 3540C方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 3540C method. Analysis was performed by GC/MS.	0.5	n.d.
多氯奈 / Polychlorinated Naphthalene (PCNs)	mg/kg	參考US EPA 3540C方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 3540C method. Analysis was performed by GC/MS.	5	n.d.
多氯三聯苯 / Polychlorinated Terphenyls (PCTs)	mg/kg	參考US EPA 3540C方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 3540C method. Analysis was performed by GC/MS.	0.5	n.d.
氯化石蠟 / Chlorinated Paraffin (C10~C13) (CAS No.: 085535-84-8)	%	參考US EPA 3540C: 1996方法, 以氣相層析儀/電子捕捉偵測器檢測。 / With reference to US EPA 3540C: 1996 method. Analysis was performed by GC/ECD.	0.01	n.d.
2-(3', 5'-二叔丁基-2'-羟基苯基)苯並三氮唑 / 2-(3,5-di-tert-butyl-2-hydroxyphenyl)-2H-benzotriazole (CAS No.: 003846-71-7)	mg/kg	參考US EPA 3540C方法, 以氣相層析質譜儀檢測之。 / With reference to US EPA 3540C method. Analysis was performed by GC/MS.	5	n.d.
全氟辛烷磺酸 / Perfluorooctane sulfonates (PFOS) PFOS - Acid PFOS - Metal Salt PFOS - Amide	mg/kg	參考US EPA 3540C: 1996方法, 以液相層析質譜儀檢測全氟辛烷磺酸含量。 / With reference to US EPA 3540C: 1996 method for PFOS Content. Analysis was performed by LC/MS.	10	n.d.
全氟辛酸(銨) / PFOA (CAS No.: 000335-67-1)	mg/kg	參考US EPA 3540C: 1996方法, 以液相層析質譜儀檢測全氟辛酸(銨)含量。 / With reference to US EPA 3540C: 1996 method for PFOA Content. Analysis was performed by LC/MS.	10	n.d.

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ASM HK & ASM TECHNOLOGY SINGAPORE

4/F, WATSON CENTRE, 16 KUNG YIP ST., KWAI CHUNG, HONG KONG (ASM HK), 2 YISHUN AVENUE 7, SINGAPORE (ASM TECHNOLOGY SINGAPORE)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
聚氯乙烯 / PVC	**	以紅外光譜分析及焰色法檢測。 / Analysis was performed by FTIR and FLAME Test.	-	Negative
鹵素 / Halogen				
鹵素 (氟) / Halogen-Fluorine (F) (CAS No.: 014762-94-8)	mg/kg	參考BS EN 14582:2007, 以離子層析儀分析。 / With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.
鹵素 (氯) / Halogen-Chlorine (Cl) (CAS No.: 022537-15-1)	mg/kg	參考BS EN 14582:2007, 以離子層析儀分析。 / With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.
鹵素 (溴) / Halogen-Bromine (Br) (CAS No.: 010097-32-2)	mg/kg	參考BS EN 14582:2007, 以離子層析儀分析。 / With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.
鹵素 (碘) / Halogen-Iodine (I) (CAS No.: 014362-44-8)	mg/kg	參考BS EN 14582:2007, 以離子層析儀分析。 / With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.
石棉 / Asbestos				
陽起石 / Actinolite (CAS No.: 77536-66-4)	%	參考EPA 600/R-93/116 / 立體顯微鏡, 偏光顯微鏡 (PLM)及X光繞射定性分析法 (XRD) / With reference to EPA 600/R-	1	Negative
斜方角閃石 / Anthophyllite (CAS No.: 77536-67-5)	%	參考EPA 600/R-93/116 / 立體顯微鏡, 偏光顯微鏡 (PLM)及X光繞射定性分析法 (XRD) / With reference to EPA 600/R-	1	Negative
棕石棉 / Amosite (CAS No.: 12172-73-5)	%	參考EPA 600/R-93/116 / 立體顯微鏡, 偏光顯微鏡 (PLM)及X光繞射定性分析法 (XRD) / With reference to EPA 600/R-	1	Negative
白石棉 / Chrysotile (CAS No.: 12001-29-5)	%	參考EPA 600/R-93/116 / 立體顯微鏡, 偏光顯微鏡 (PLM)及X光繞射定性分析法 (XRD) / With reference to EPA 600/R-	1	Negative

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
青石棉 / Crocidolite (CAS No.: 12001-28-4)	%	參考EPA 600/R-93/116 / 立體顯微鏡, 偏光顯微鏡 (PLM)及X光繞射定性分析法 (XRD) / With reference to EPA 600/R-	1	Negative
透閃石 / Tremolite (CAS No.: 77536-68-6)	%	參考EPA 600/R-93/116 / 立體顯微鏡, 偏光顯微鏡 (PLM)及X光繞射定性分析法 (XRD) / With reference to EPA 600/R-	1	Negative
有機錫 / Organic-tin compounds				
三丁基錫 / Tributyl Tin (TBT)	mg/kg	本測試參考DIN 38407-13方法, 以氣相層析儀/火焰光度偵測器檢測。 / With reference to DIN 38407-13. Analysis was performed by GC/FPD.	0.03	n.d.
三苯基錫 / Triphenyl Tin (TphT)	mg/kg	本測試參考DIN 38407-13方法, 以氣相層析儀/火焰光度偵測器檢測。 / With reference to DIN 38407-13. Analysis was performed by GC/FPD.	0.03	n.d.
三丁基錫氧化物 / Tributyl Tin Oxide (TBTO)** (CAS No.: 000056-35-9)	mg/kg	本測試參考DIN 38407-13方法, 以氣相層析儀/火焰光度偵測器檢測。 / With reference to DIN 38407-13. Analysis was performed by GC/FPD.	-	n.d.
多溴聯苯總和 / Sum of PBBs				
一溴聯苯 / Monobromobiphenyl	mg/kg	參考IEC 62321: 2008方法, 以氣相層析儀/質譜儀檢測。 / With reference to IEC 62321: 2008 and performed by GC/MS.	-	n.d.
二溴聯苯 / Dibromobiphenyl			5	n.d.
三溴聯苯 / Tribromobiphenyl			5	n.d.
四溴聯苯 / Tetrabromobiphenyl			5	n.d.
五溴聯苯 / Pentabromobiphenyl			5	n.d.
六溴聯苯 / Hexabromobiphenyl			5	n.d.
七溴聯苯 / Heptabromobiphenyl			5	n.d.
八溴聯苯 / Octabromobiphenyl			5	n.d.
九溴聯苯 / Nonabromobiphenyl			5	n.d.
十溴聯苯 / Decabromobiphenyl			5	n.d.

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				NO.1
多溴聯苯醚總和 / Sum of PBDEs	mg/kg	參考IEC 62321: 2008方法, 以氣相層析儀/ 質譜儀檢測. / With reference to IEC 62321: 2008 and performed by GC/MS.	-	n.d.
一溴聯苯醚 / Monobromodiphenyl ether			5	n.d.
二溴聯苯醚 / Dibromodiphenyl ether			5	n.d.
三溴聯苯醚 / Tribromodiphenyl ether			5	n.d.
四溴聯苯醚 / Tetrabromodiphenyl ether			5	n.d.
五溴聯苯醚 / Pentabromodiphenyl ether			5	n.d.
六溴聯苯醚 / Hexabromodiphenyl ether			5	n.d.
七溴聯苯醚 / Heptabromodiphenyl ether			5	n.d.
八溴聯苯醚 / Octabromodiphenyl ether			5	n.d.
九溴聯苯醚 / Nonabromodiphenyl ether			5	n.d.
十溴聯苯醚 / Decabromodiphenyl ether	5	n.d.		
偶氮 (AZO)				
1): 4-氨基二苯 / 4-AMINODIPHENYL (CAS No.: 000092-67-1)	mg/kg	參考LFGB 82.02-2方法, 以氣相層析/質譜 儀檢測. / With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
2): 聯苯胺 / BENZIDINE (CAS No.: 00092-87-5)	mg/kg	參考LFGB 82.02-2方法, 以氣相層析/質譜 儀檢測. / With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
3): 4-氯鄰甲苯胺 / 4-CHLORO-O-TOLUIDINE (CAS No.: 000095-69-2)	mg/kg	參考LFGB 82.02-2方法, 以氣相層析/質譜 儀檢測. / With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
4): 2-萘胺 / 2-NAPHTHYLAMINE (CAS No.: 000091-59-8)	mg/kg	參考LFGB 82.02-2方法, 以氣相層析/質譜 儀檢測. / With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
5): 鄰氨基二甲基偶氮 / O-AMINOAZOTOLUENE (CAS No.: 000097-56-3)	mg/kg	參考LFGB 82.02-2方法, 以氣相層析/質譜 儀檢測. / With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
6): 對硝基鄰甲苯胺 / 2-AMINO-4-NITROTOLUENE (CAS No.: 000099-55-8)	mg/kg	參考LFGB 82.02-2方法, 以氣相層析/質譜儀檢測。 / With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
7): 對氯苯胺 / P-CHLOROANILINE (CAS No.: 000106-47-8)	mg/kg	參考LFGB 82.02-2方法, 以氣相層析/質譜儀檢測。 / With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
8): 4-甲氧基-間苯二胺 / 2,4-DIAMINOANISOLE (CAS No.: 000615-05-4)	mg/kg	參考LFGB 82.02-2方法, 以氣相層析/質譜儀檢測。 / With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
9): 4,4'-二氨基二苯甲烷 / 4,4'-DIAMINODIPHENYLMETHANE (CAS No.: 000101-77-9)	mg/kg	參考LFGB 82.02-2方法, 以氣相層析/質譜儀檢測。 / With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
10): 3,3'-二氯聯苯胺 / 3,3'-DICHLOROBENZIDINE (CAS No.: 000091-94-1)	mg/kg	參考LFGB 82.02-2方法, 以氣相層析/質譜儀檢測。 / With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
11): 3,3'-二甲氧基聯苯胺 / 3,3'-DIMETHOXYBENZIDINE (CAS No.: 000119-90-4)	mg/kg	參考LFGB 82.02-2方法, 以氣相層析/質譜儀檢測。 / With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
12): 3,3'-二甲基聯苯胺 / 3,3'-DIMETHYLBENZIDINE (CAS No.: 000119-93-7)	mg/kg	參考LFGB 82.02-2方法, 以氣相層析/質譜儀檢測。 / With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
13): 3,3'-二甲基-4,4'-二氨基二苯甲烷 / 3,3'-DIMETHYL-4,4'-DIAMINODIPHENYLMETHANE (CAS No.: 000838-88-0)	mg/kg	參考LFGB 82.02-2方法, 以氣相層析/質譜儀檢測。 / With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.

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ASM HK & ASM TECHNOLOGY SINGAPORE

4/F, WATSON CENTRE, 16 KUNG YIP ST., KWAI CHUNG, HONG KONG (ASM HK), 2 YISHUN AVENUE 7, SINGAPORE (ASM TECHNOLOGY SINGAPORE)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
14): 2-甲氧基-5-甲基聯苯 / P-CRESIDINE (2-METHOXY-5-METHYLANILINE) (CAS No.: 000120-71-8)	mg/kg	參考LFGB 82.02-2方法, 以氣相層析/質譜 儀檢測. / With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
15): 4,4'-亞甲基雙(氯苯胺) / 4,4'- METHYLENE-BIS-(2-CHLOROANILINE) (CAS No.: 000101-14-4)	mg/kg	參考LFGB 82.02-2方法, 以氣相層析/質譜 儀檢測. / With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
16): 4,4'-氧化雙苯胺 / 4,4'- OXYDIANILINE (CAS No.: 000101-80-4)	mg/kg	參考LFGB 82.02-2方法, 以氣相層析/質譜 儀檢測. / With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
17): 4,4'-硫代雙苯胺 / 4,4'- THIODIANILINE (CAS No.: 000139-65-1)	mg/kg	參考LFGB 82.02-2方法, 以氣相層析/質譜 儀檢測. / With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
18): 鄰甲苯胺 / O-TOLUIDINE (CAS No.: 000095-53-4)	mg/kg	參考LFGB 82.02-2方法, 以氣相層析/質譜 儀檢測. / With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
19): 2,4-二氨基甲苯 / 2,4- TOLUYLENEDIAMINE (CAS No.: 000095-80-7)	mg/kg	參考LFGB 82.02-2方法, 以氣相層析/質譜 儀檢測. / With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
20): 2,4,5-三甲基苯胺 / 2,4,5- TRIMETHYLANILINE (CAS No.: 000137-17-7)	mg/kg	參考LFGB 82.02-2方法, 以氣相層析/質譜 儀檢測. / With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
21): 鄰位甲氧基苯胺 / O-ANISIDINE (CAS No.: 000090-04-0)	mg/kg	參考LFGB 82.02-2方法, 以氣相層析/質譜 儀檢測. / With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.

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4/F, WATSON CENTRE, 16 KUNG YIP ST., KWAI CHUNG, HONG KONG (ASM HK), 2 YISHUN AVENUE 7, SINGAPORE (ASM TECHNOLOGY SINGAPORE)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
22): 對氨基偶氮苯 / P-AMINOAZOBENZENE (CAS No.: 000060-09-3)	mg/kg	參考LFGB 82.02-2方法, 以氣相層析/質譜儀檢測. / With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
23): 2,4-二甲基苯胺 / 2,4-XYLIDINE (CAS No.: 000095-68-1)	mg/kg	參考LFGB 82.02-2方法, 以氣相層析/質譜儀檢測. / With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
24): 2,6-二甲基苯胺 / 2,6-XYLIDINE (CAS No.: 000087-62-7)	mg/kg	參考LFGB 82.02-2方法, 以氣相層析/質譜儀檢測. / With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
氟氯碳化物 / CFCs (Chlorofluorocarbons)				
Group I				
氟氯碳化物(Chlorofluorocarbon)-11 (CAS No.: 000075-69-4)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氯碳化物(Chlorofluorocarbon)-12 (CAS No.: 000075-71-8)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氯碳化物(Chlorofluorocarbon)-113 (CAS No.: 000076-13-1)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氯碳化物(Chlorofluorocarbon)-114 (CAS No.: 000076-14-2)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測. / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

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4/F, WATSON CENTRE, 16 KUNG YIP ST., KWAI CHUNG, HONG KONG (ASM HK), 2 YISHUN AVENUE 7, SINGAPORE (ASM TECHNOLOGY SINGAPORE)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
氟氣碳化物(Chlorofluorocarbon)-115 (CAS No.: 000076-15-3)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Group III				n.d.
氟氣碳化物(Chlorofluorocarbon)-13 (CAS No.: 000075-72-9)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氣碳化物(Chlorofluorocarbon)-111 (CAS No.: 000354-56-3)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氣碳化物(Chlorofluorocarbon)-112 (CAS No.: 000076-12-0)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氣碳化物(Chlorofluorocarbon)-211 (CAS No.: 000422-78-6)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氣碳化物(Chlorofluorocarbon)-212 (CAS No.: 003182-26-1)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氣碳化物(Chlorofluorocarbon)-213 (CAS No.: 002354-06-5)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氣碳化物(Chlorofluorocarbon)-214 (CAS No.: 029255-31-0)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
氟氣碳化物(Chlorofluorocarbon)-215 (CAS No.: 004259-43-2)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氣碳化物(Chlorofluorocarbon)-216 (CAS No.: 000661-97-2)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氣碳化物(Chlorofluorocarbon)-217 (CAS No.: 000422-86-6)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
海龍 (Halons)				
海龍(Halon)-1211 (CAS No.: 000353-59-3)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
海龍(Halon)-1301 (CAS No.: 000075-63-8)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
海龍(Halon)-2402 (CAS No.: 000124-73-2)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氣氫碳化物 / HCFCs (Hydrochlorofluorocarbons)				
氟氣氫碳化物(HCFC)-21 (CAS No.: 000075-43-4)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氣氫碳化物(HCFC)-22 (CAS No.: 000075-45-6)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
氟氣氫碳化物(HCFC)-31 (CAS No.: 000593-70-4)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氣氫碳化物(HCFC)-121 (CAS No.: 000354-14-3)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氣氫碳化物(HCFC)-122 (CAS No.: 000354-21-2)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氣氫碳化物(HCFC)-123 (CAS No.: 000306-83-2)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氣氫碳化物(HCFC)-124 (CAS No.: 002837-89-0)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氣氫碳化物(HCFC)-131 (CAS No.: 000359-28-4)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氣氫碳化物(HCFC)-132b (CAS No.: 001649-08-7)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氣氫碳化物(HCFC)-133a (CAS No.: 000075-88-7)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
氟氣氫碳化物(HCFC)-141b (CAS No.: 001717-00-6)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氣氫碳化物(HCFC)-142b (CAS No.: 000075-68-3)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氣氫碳化物(HCFC)-221 (CAS No.: 000422-26-4)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氣氫碳化物(HCFC)-222 (CAS No.: 000422-49-1)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氣氫碳化物(HCFC)-223 (CAS No.: 000422-52-6)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氣氫碳化物(HCFC)-224 (CAS No.: 000422-54-8)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氣氫碳化物(HCFC)-225ca (CAS No.: 000422-56-0)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氣氫碳化物(HCFC)-225cb (CAS No.: 000507-55-1)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

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測試報告

Test Report

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ASM HK & ASM TECHNOLOGY SINGAPORE

4/F, WATSON CENTRE, 16 KUNG YIP ST., KWAI CHUNG, HONG KONG (ASM HK), 2 YISHUN AVENUE 7, SINGAPORE (ASM TECHNOLOGY SINGAPORE)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
氟氯氫碳化物(HCFC)-226 (CAS No.: 000431-87-8)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氯氫碳化物(HCFC)-231 (CAS No.: 000421-94-3)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氯氫碳化物(HCFC)-232 (CAS No.: 000460-89-9)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氯氫碳化物(HCFC)-233 (CAS No.: 007125-84-0)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氯氫碳化物(HCFC)-234 (CAS No.: 000425-94-5)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氯氫碳化物(HCFC)-235 (CAS No.: 000460-92-4)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氯氫碳化物(HCFC)-241(CAS No.: 000666-27-3)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氯氫碳化物(HCFC)-242 (CAS No.: 000460-63-9)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

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測試報告 Test Report

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ASM HK & ASM TECHNOLOGY SINGAPORE

4/F, WATSON CENTRE, 16 KUNG YIP ST., KWAI CHUNG, HONG KONG (ASM HK), 2 YISHUN AVENUE 7, SINGAPORE (ASM TECHNOLOGY SINGAPORE)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
氟氯氫碳化物(HCFC)-243 (CAS No.: 000460-69-5)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氯氫碳化物(HCFC)-244	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氯氫碳化物(HCFC)-251 (CAS No.: 000421-41-0)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氯氫碳化物(HCFC)-252 (CAS No.: 000819-00-1)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氯氫碳化物(HCFC)-253 (CAS No.: 000460-35-5)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氯氫碳化物(HCFC)-261 (CAS No.: 000420-97-3)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氯氫碳化物(HCFC)-262 (CAS No.: 000421-02-03)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氟氯氫碳化物(HCFC)-271 (CAS No.: 000430-55-7)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

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ASM HK & ASM TECHNOLOGY SINGAPORE

4/F, WATSON CENTRE, 16 KUNG YIP ST., KWAI CHUNG, HONG KONG (ASM HK), 2 YISHUN AVENUE 7, SINGAPORE (ASM TECHNOLOGY SINGAPORE)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
不完全鹵化氟溴化物 / HBFCs (Hydrobromofluorocarbons)				
不完全鹵化氟溴化物(HBFC)-21B2 (CHFBr2) (CAS No.: 001868-53-7)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-22B1 (CHF2Br) (CAS No.: 001511-62-2)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-31B1 (CH2FBr) (CAS No.: 000373-52-4)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-121B4 (C2HFBr4)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-122B3 (C2HF2Br3)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-123B2 (C2HF3Br2)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-124B1 (C2HF4Br)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-131B3 (C2H2FBr3)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

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ASM HK & ASM TECHNOLOGY SINGAPORE

4/F, WATSON CENTRE, 16 KUNG YIP ST., KWAI CHUNG, HONG KONG (ASM HK), 2 YISHUN AVENUE 7, SINGAPORE (ASM TECHNOLOGY SINGAPORE)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
不完全鹵化氟溴化物(HBFC)-132B2 (C2H2F2Br2)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-133B1 (C2H2F3Br)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-141B2 (C2H3FBr2)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-142B1 (C2H3F2Br)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-151B1 (C2H4FBr)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-221B6 (C3HFBr6)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-222B5 (C3HF2Br5)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-223B4 (C3HF3Br4)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

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測試報告

Test Report

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ASM HK & ASM TECHNOLOGY SINGAPORE

4/F, WATSON CENTRE, 16 KUNG YIP ST., KWAI CHUNG, HONG KONG (ASM HK), 2 YISHUN AVENUE 7, SINGAPORE (ASM TECHNOLOGY SINGAPORE)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
不完全鹵化氟溴化物(HBFC)-224B3 (C3HF4Br3)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-225B2 (C3HF5Br2)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-226B1 (C3HF6Br)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-231B5 (C3H2FBr5)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-232B4 (C3H2F2Br4)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-233B3 (C3H2F3Br3)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-234B2 (C3H2F4Br2)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-235B1 (C3H2F5Br)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

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ASM HK & ASM TECHNOLOGY SINGAPORE

4/F, WATSON CENTRE, 16 KUNG YIP ST., KWAI CHUNG, HONG KONG (ASM HK), 2 YISHUN AVENUE 7, SINGAPORE (ASM TECHNOLOGY SINGAPORE)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
不完全鹵化氟溴化物(HBFC)-241B4 (C3H3FBr4)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-242B3 (C3H3F2Br3)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-243B2 (C3H3F3Br2)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-244B1 (C3H3F4Br)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-251B3 (C3H4FBr3)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-252B2 (C3H4F2Br2)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-253B1 (C3H4F3Br)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氟溴化物(HBFC)-261B2 (C3H5FBr2)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

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ASM HK & ASM TECHNOLOGY SINGAPORE

4/F, WATSON CENTRE, 16 KUNG YIP ST., KWAI CHUNG, HONG KONG (ASM HK), 2 YISHUN AVENUE 7, SINGAPORE (ASM TECHNOLOGY SINGAPORE)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
不完全鹵化氯溴化物(HBFC)-262B1 (C3H5F2Br)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
不完全鹵化氯溴化物(HBFC)-271B1 (C3H6FBr)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氫氟碳化物 / HFCs (Hydrofluorocarbon)				
氫氟碳化物(HFC)-23 (CHF3)(CAS No.: 000075-46-7)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氫氟碳化物(HFC)-32 (CH2F2)(CAS No.: 000075-10-5)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氫氟碳化物(HFC)-41 (CH3F)(CAS No.: 000593-53-3)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氫氟碳化物(HFC)-43-10mee (C5H2F10)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氫氟碳化物(HFC)-125 (C2HF5)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氫氟碳化物(HFC)-134 (C2H2F4)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

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ASM HK & ASM TECHNOLOGY SINGAPORE

4/F, WATSON CENTRE, 16 KUNG YIP ST., KWAI CHUNG, HONG KONG (ASM HK), 2 YISHUN AVENUE 7, SINGAPORE (ASM TECHNOLOGY SINGAPORE)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
氫氟碳化物(HFC)-134a (CH ₂ FCF ₃)(CAS No.: 000811-97-2)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氫氟碳化物(HFC)-143 (CH ₃ F ₃)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氫氟碳化物(HFC)-143a (CH ₃ F ₃)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氫氟碳化物(HFC)-152a (C ₂ H ₄ F ₂)(CAS No.: 000075-37-6)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氫氟碳化物(HFC)-227ea (C ₃ HF ₇)(CAS No.: 000431-89-0)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氫氟碳化物(HFC)-236ea (C ₃ H ₂ F ₆)(CAS No.: 000431-63-0)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氫氟碳化物(HFC)-236fa (C ₃ H ₂ F ₆)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氫氟碳化物(HFC)-245ca (C ₃ H ₃ F ₅)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

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ASM HK & ASM TECHNOLOGY SINGAPORE

4/F, WATSON CENTRE, 16 KUNG YIP ST., KWAI CHUNG, HONG KONG (ASM HK), 2 YISHUN AVENUE 7, SINGAPORE (ASM TECHNOLOGY SINGAPORE)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
氫氟碳化物(HFC)-245fa (C3H3F5)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氫氟碳化物(HFC)-365mfc (C4H5F5)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
全氟碳化物 / PFCs (Perfluorocarbon)				
四氟甲烷 / F14 (CAS No.: 000075-73-0)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
六氟乙烷 / Fluorocarbon 116 (CAS No.: 000076-16-4)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
八氟丙烷 / Freon 218 (CAS No.: 000076-19-7)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
十氟丁烷 / Decafluorobutane (CAS No.: 000355-25-9)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
八氟環丁烷 / Freon C318 (CAS No.: 000115-25-3)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
全氟-1-丁烯 / Perfluor-1-butene (CAS No.: 000357-26-6)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

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ASM HK & ASM TECHNOLOGY SINGAPORE

4/F, WATSON CENTRE, 16 KUNG YIP ST., KWAI CHUNG, HONG KONG (ASM HK), 2 YISHUN AVENUE 7, SINGAPORE (ASM TECHNOLOGY SINGAPORE)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
全氟異丁烯 / perfluorisobutene (CAS No.: 000382-21-8)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
1,4-二氫八氟丁烷 / 1,4-dihydrooctafluorobutane (CAS No.: 000377-36-6)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
2-全氟甲基丁烷 / nonafluor-2-(trifluoromethyl)butane (CAS No.: 000594-91-2)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
全氟戊烷 / perfluoro-n-pentane (CAS No.: 000678-26-2)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
2-全氟甲基戊烷 / 2-perfluoromethylpentane (CAS No.: 000355-04-4)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
全氟己烷 / perfluorohexane (CAS No.: 000355-42-0)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氯化碳氫化物 / CHCs (Chlorinate hydrocarbon)				
1,1,1,2-四氯乙烷 / 1,1,1,2-Tetrachloroethane (CAS No.: 000630-20-6)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
1,1,1-三氯乙烷 / 1,1,1-Trichloroethane (CAS No.: 000071-55-6)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

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ASM HK & ASM TECHNOLOGY SINGAPORE

4/F, WATSON CENTRE, 16 KUNG YIP ST., KWAI CHUNG, HONG KONG (ASM HK), 2 YISHUN AVENUE 7, SINGAPORE (ASM TECHNOLOGY SINGAPORE)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
1,1,2,2-四氯乙烷 / 1,1,2,2-Tetrachloroethane (CAS No.: 000079-34-5)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
1,1,2-三氯乙烷 / 1,1,2-Trichloroethane (CAS No.: 000079-00-5)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
1,1-二氯乙烷 / 1,1-Dichloroethane (CAS No.: 000075-34-3)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
1,1-二氯乙烯 / 1,1-Dichloroethene (CAS No.: 000075-35-4)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
1,1-二氯丙烯 / 1,1-Dichloropropene (CAS No.: 000563-58-6)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
1,2,3-三氯丙烷 / 1,2,3-Trichloropropane (CAS No.: 000096-18-4)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
1,2-二氯乙烷 / 1,2-Dichloroethane (CAS No.: 000107-06-2)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
1,2-二氯丙烷 / 1,2-Dichloropropane (CAS No.: 000078-87-5)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
1,3-二氯丙烷 / 1,3-Dichloropropane (CAS No.: 000142-28-9)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
2,2-二氯丙烷 / 2,2-Dichloropropane (CAS No.: 000594-20-7)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
四氯甲烷(四氯化碳) / Carbon tetrachloride (CAS No.: 000056-23-5)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氯乙烷 / Chloroethane (CAS No.: 000075-00-3)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氯仿 / Chloroform (CAS No.: 000067-66-3)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
氯甲烷 / Chloromethane (CAS No.: 000074-87-3)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
順-1,2-二氯乙烯 / cis-1,2-Dichloroethene (CAS No.: 000156-59-2)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
順-1,3-二氯丙烯 / cis-1,3-Dichloropropene (CAS No.: 010061-01-5)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

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測試報告 Test Report

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ASM HK & ASM TECHNOLOGY SINGAPORE

4/F, WATSON CENTRE, 16 KUNG YIP ST., KWAI CHUNG, HONG KONG (ASM HK), 2 YISHUN AVENUE 7, SINGAPORE (ASM TECHNOLOGY SINGAPORE)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
六氯丁二烯 / Hexachlorobutadiene (CAS No.: 000087-68-3)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
二氯甲烷 / Dichloromethane (CAS No.: 000075-09-2)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
四氯乙烯 / Tetrachloroethene (CAS No.: 000127-18-4)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
反-1,2-二氯乙烯 / trans-1,2-Dichloroethene (CAS No.: 000156-60-5)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
反-1,3-二氯丙烯 / trans-1,3-Dichloropropene (CAS No.: 010061-02-6)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
三氯乙烯 / Trichloroethylene (CAS No.: 000079-01-6)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
溴甲烷 / Bromomethane (CAS No.: 000074-83-9)	mg/kg	參考US EPA 5021方法, 以氣相層析質譜儀(GC/MS)檢測。 / With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

備註(Note) :

1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. n.d. = Not Detected (未檢出)
3. MDL = Method Detection Limit (方法偵測極限值)
4. "-" = Not Regulated (無規格值)

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4/F, WATSON CENTRE, 16 KUNG YIP ST., KWAI CHUNG, HONG KONG (ASM HK), 2 YISHUN AVENUE 7, SINGAPORE (ASM TECHNOLOGY SINGAPORE)

5. **= Qualitative analysis (No Unit) 定性分析(無單位)
6. Negative = Undetectable 陰性(未偵測到); Positive = Detectable 陽性(已偵測到)
7. Negative = 陰性 (< 1.0 %), Positive = 陽性 (> 1.0 %)
8. 聚氯乙稀測試由SGS其他實驗室執行 (The PVC test was subcontracted to other SGS Laboratory.)
9. 石棉測試由SGS其他實驗室執行 (The Asbestos test was subcontracted to other SGS Laboratory.)
10. ***: 該物質是由"三丁基錫", 之測試結果計算得知. 其MDL是針對"三丁基錫"之評估.
(The substance was calculated by the test results of Tributyl Tin.
The MDL is evaluated for Tributyl Tin, Triphenyl Tin.)
11. # =
 - a. Positive means the presence of CrVI on the tested areas
(Positive表示測試區域偵測到六價鉻)
 - b. Negative means the absence of CrVI on the tested areas
(Negative表示測試區域未偵測到六價鉻)

The detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² tested areas . /
該溶液濃度 \geq 0.02 mg/kg with 50 cm² (tested areas)

PFOS參考資訊(Reference Information) : 指令 2006/122/EC (Directive 2006/122/EC)

- (1) 該物質不可置於市場上或使用於特殊物質或配置成分重量濃度等於或大於0.005%。
(May not be placed on the market or used as a substance or constituent of preparations in a concentration equal to or higher than 0.005 % by mass.)
- (2) 該物質不可置於市場上的半成品或商品或其物件; 假若零件上明顯地具有PFOS並參照結構上及微細構造上計算PFOS重量濃度等於或大於0.1%, 而紡織品或其他覆蓋物質, 如果PFOS在覆蓋物質中含量等於或大於1 μ g/m²。
(May not be placed on the market in semi-finished products or articles, or parts thereof, if the concentration of PFOS is equal to or higher than 0.1 % by mass calculated with reference to the mass of structurally or microstructurally distinct parts that contain PFOS or, for textiles or other coated materials, if the amount of PFOS is equal to or higher than 1 μ g/m² of the coated material.)

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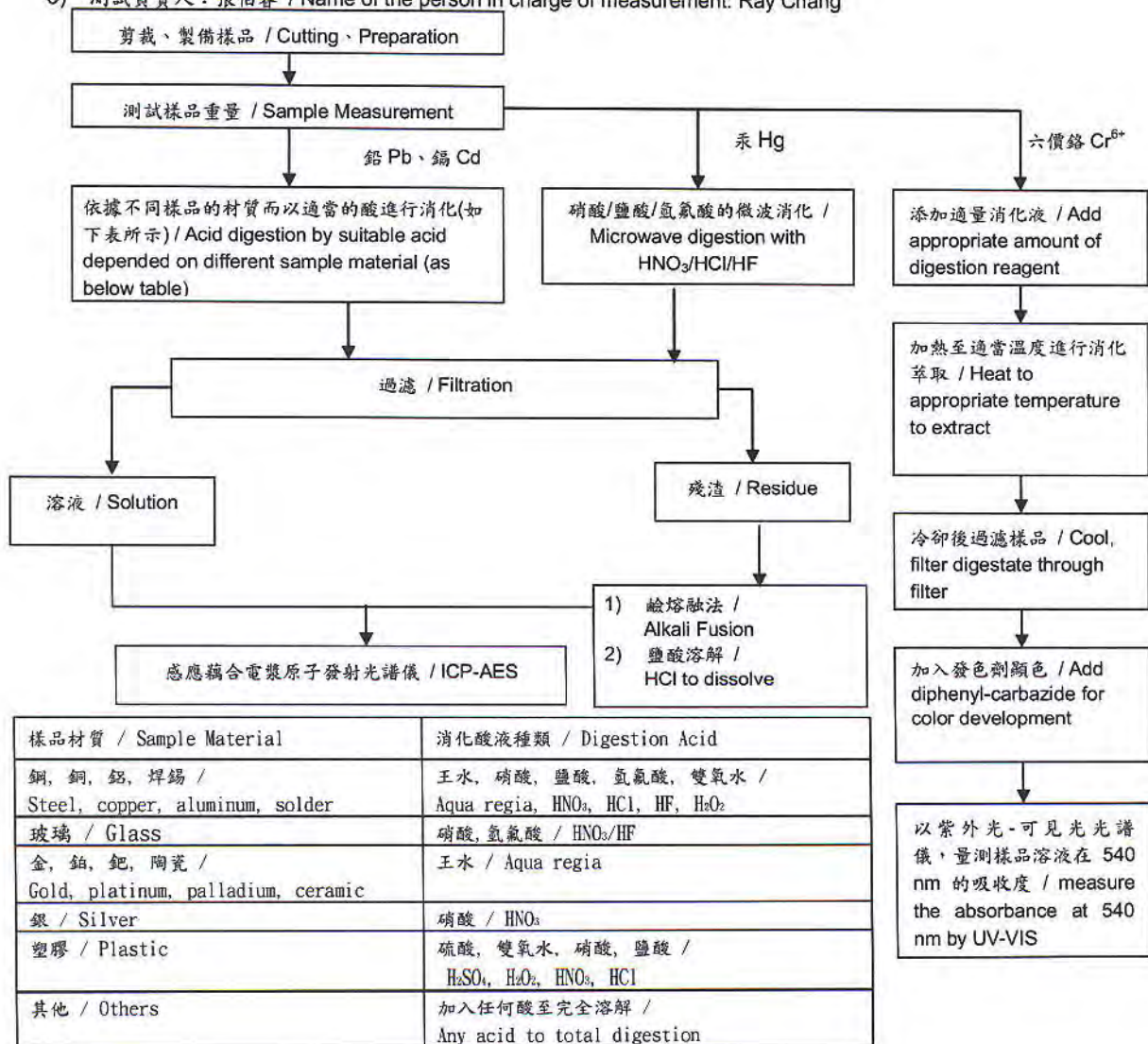
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ASM HK & ASM TECHNOLOGY SINGAPORE

4/F, WATSON CENTRE, 16 KUNG YIP ST., KWAI CHUNG, HONG KONG (ASM HK), 2 YISHUN AVENUE 7, SINGAPORE (ASM TECHNOLOGY SINGAPORE)

- 1) 根據以下的流程圖之條件，樣品已完全溶解。(六價鉻測試方法除外) / These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ test method excluded)
- 2) 測試人員：張俊雄 / Name of the person who made measurement: Alex Chang
- 3) 測試負責人：張伯睿 / Name of the person in charge of measurement: Ray Chang



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多溴聯苯/多溴聯苯醚 分析流程圖 / PBB/PBDE analytical FLOW CHART

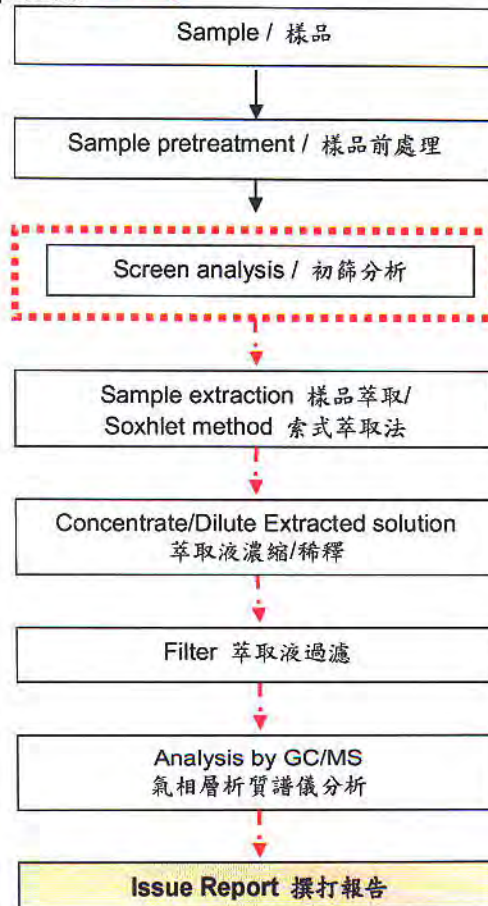
1) 測試人員 : 曹嘉琪 / Name of the person who made measurement: Anson Tsao

2) 測試負責人 : 張伯睿 / Name of the person in charge of measurement: Ray Chang

初次測試程序 / First testing process ———▶

選擇性篩檢程序 / Optional screen process▶

確認程序 / Confirmation process - - -▶



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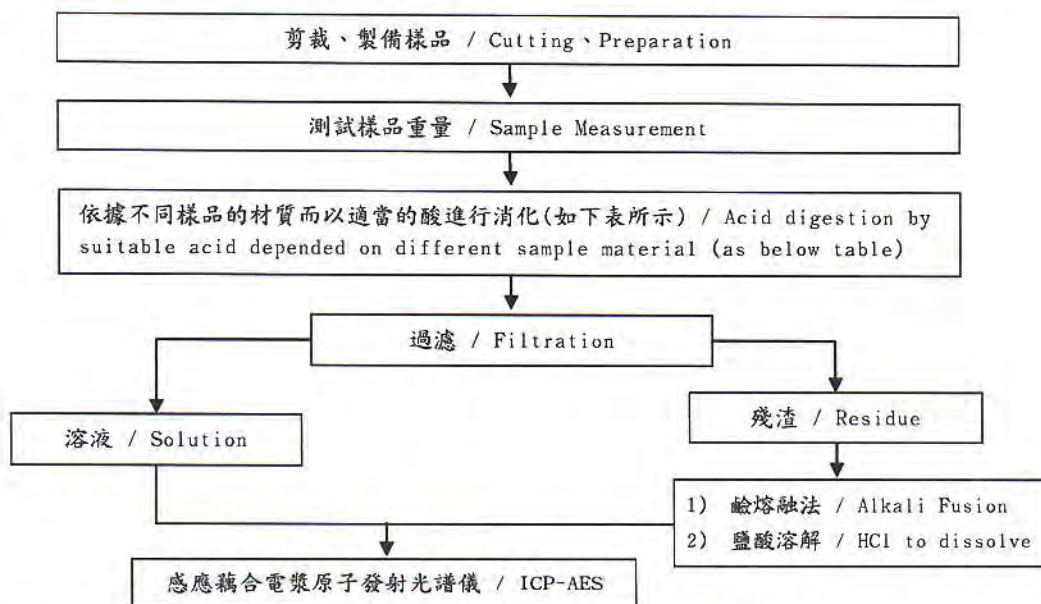
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- 1) 根據以下的流程圖之條件，樣品已完全溶解。 / These samples were dissolved totally by pre-conditioning method according to below flow chart.
- 2) 測試人員：張俊雄 / Name of the person who made measurement: Alex Chang
- 3) 測試負責人：張伯容 / Name of the person in charge of measurement: Ray Chang

元素以 ICP-AES 分析的消化流程圖

(Flow Chart of digestion for the elements analysis performed by ICP-AES)



鋼, 銅, 鋁, 焊錫 / Steel, copper, aluminum, solder	王水, 硝酸, 鹽酸, 氫氟酸, 雙氧水 / Aqua regia, HNO ₃ , HCl, HF, H ₂ O ₂
玻璃 / Glass	硝酸, 氫氟酸 / HNO ₃ /HF
金, 鉑, 鈱, 陶瓷 / Gold, platinum, palladium, ceramic	王水 / Aqua regia
銀 / Silver	硝酸 / HNO ₃
塑膠 / Plastic	硫酸, 雙氧水, 硝酸, 鹽酸 / H ₂ SO ₄ , H ₂ O ₂ , HNO ₃ , HCl
其他 / Others	加入任何酸至完全溶解 / Any acid to total digestion

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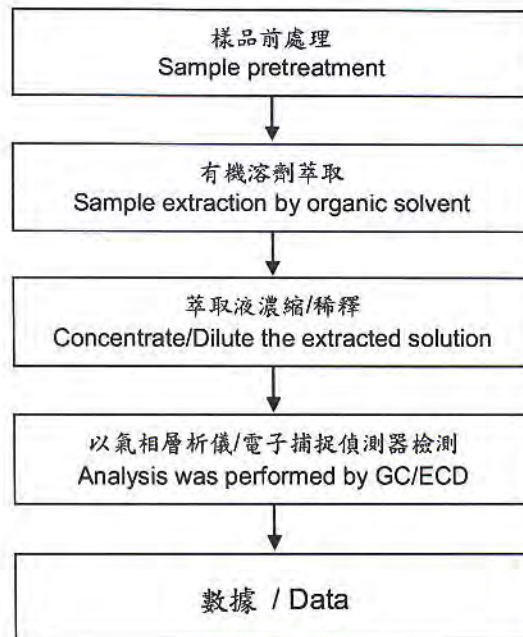
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含氯阻燃劑分析流程 /

Chlorinated Flame retardant analytical flow chart

- 1) 測試人員：曹嘉琪 / Name of the person who made measurement: Anson Tsao
 - 2) 測試負責人：張伯睿 / Name of the person in charge of measurement: Ray Chang
- 參考方法(Reference method): USEPA 3540
 - 測試項目(Test Items): PCBs, CP, MCCP / 多氯聯苯, 氯化石蠟, 中鏈氯化石蠟



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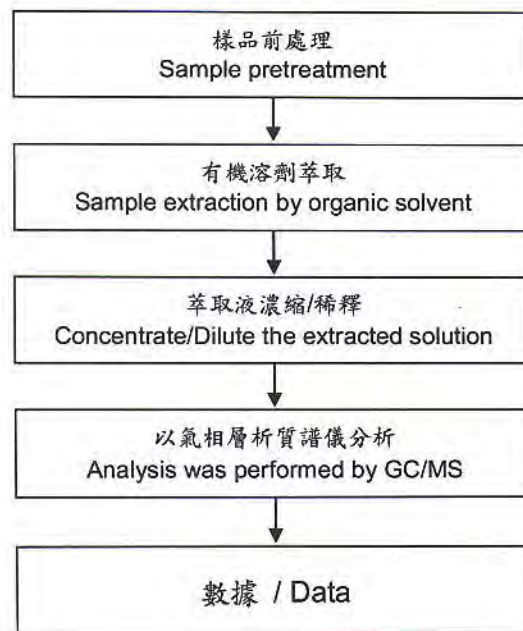
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Chlorinated Flame retardant analytical flow chart

- 1) 測試人員：曹嘉琪 / Name of the person who made measurement: Anson Tsao
- 2) 測試負責人：張伯睿 / Name of the person in charge of measurement: Ray Chang

- 參考方法(Reference method): US EPA 8270D, US EPA 3540
- 測試項目(Test Items): PCNs, PCTs, Mirex / 多氯萘, 多氯三聯苯, 滅蟻靈,



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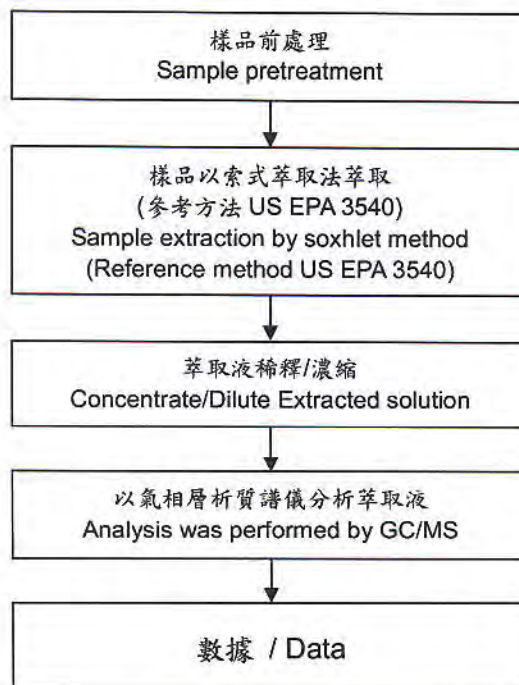
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苯並三唑類化合物分析流程圖 / Analytical flow chart of benzotriazole content

- 1) 測試人員：曹嘉琪 / Name of the person who made measurement: Anson Tsao
- 2) 測試負責人：張伯容 / Name of the person in charge of measurement: Ray Chang



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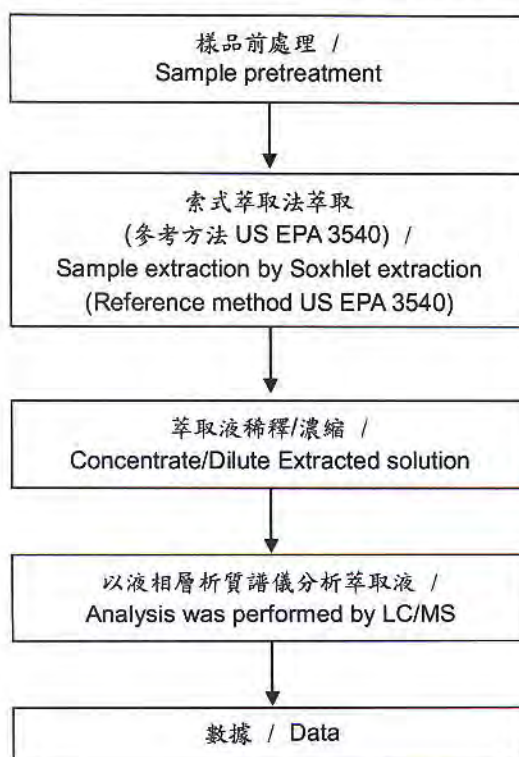
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全氟辛酸(銨)/ 全氟辛烷磺酸分析流程圖 /

Analytical flow chart of PFOA/PFOS content

1) 測試人員: 曹嘉琪 / Name of the person who made measurement: Anson Tsao

2) 測試負責人: 張伯睿 / Name of the person in charge of measurement: Ray Chang



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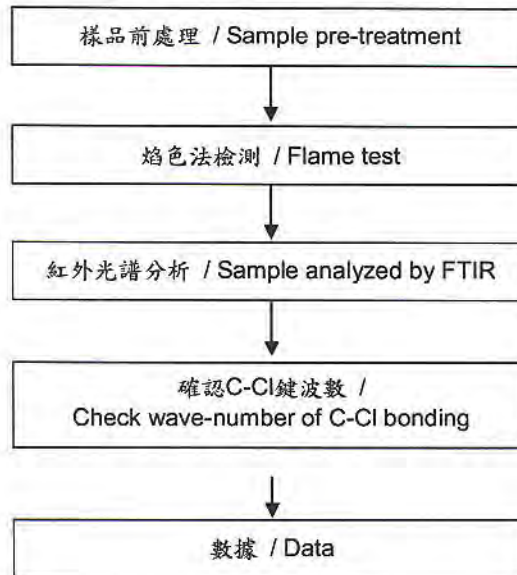
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SINGAPORE (ASM TECHNOLOGY SINGAPORE)

聚氯乙烯物質判定分析流程圖 /

Analysis flow chart for determination of PVC in material

- 1) 測試人員：邱韻如 / Name of the person who made measurement: Joyce Chiu
2) 測試負責人：林立翔 / Name of the person in charge of measurement: Roger Lin



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測試報告 Test Report

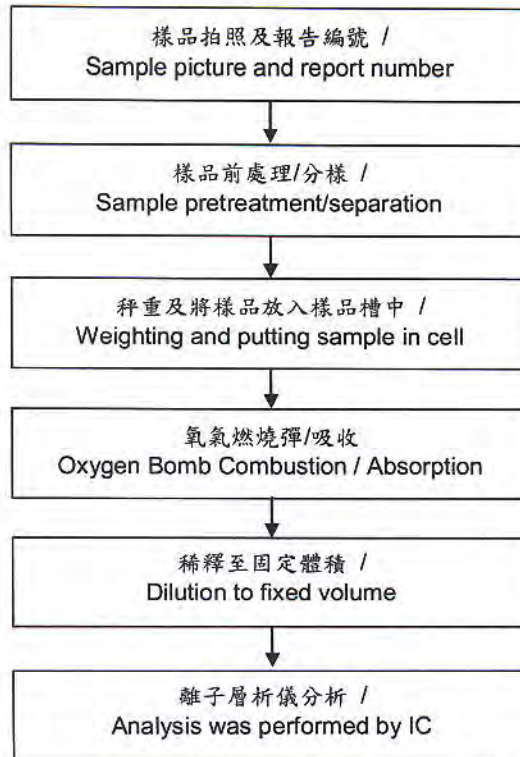
號碼(No.) : KA/2011/C1699 日期(Date) : 2012/01/05 頁數(Page) : 36 of 39

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鹵素分析流程圖 / Analytical flow chart of halogen content

- 1) 測試人員：洪秀真 / Name of the person who made measurement: Jean Hung
- 2) 測試負責人：張伯容 / Name of the person in charge of measurement: Ray Chang



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測試報告 Test Report

號碼(No.) : KA/2011/C1699 日期(Date) : 2012/01/05 頁數(Page) : 37 of 39

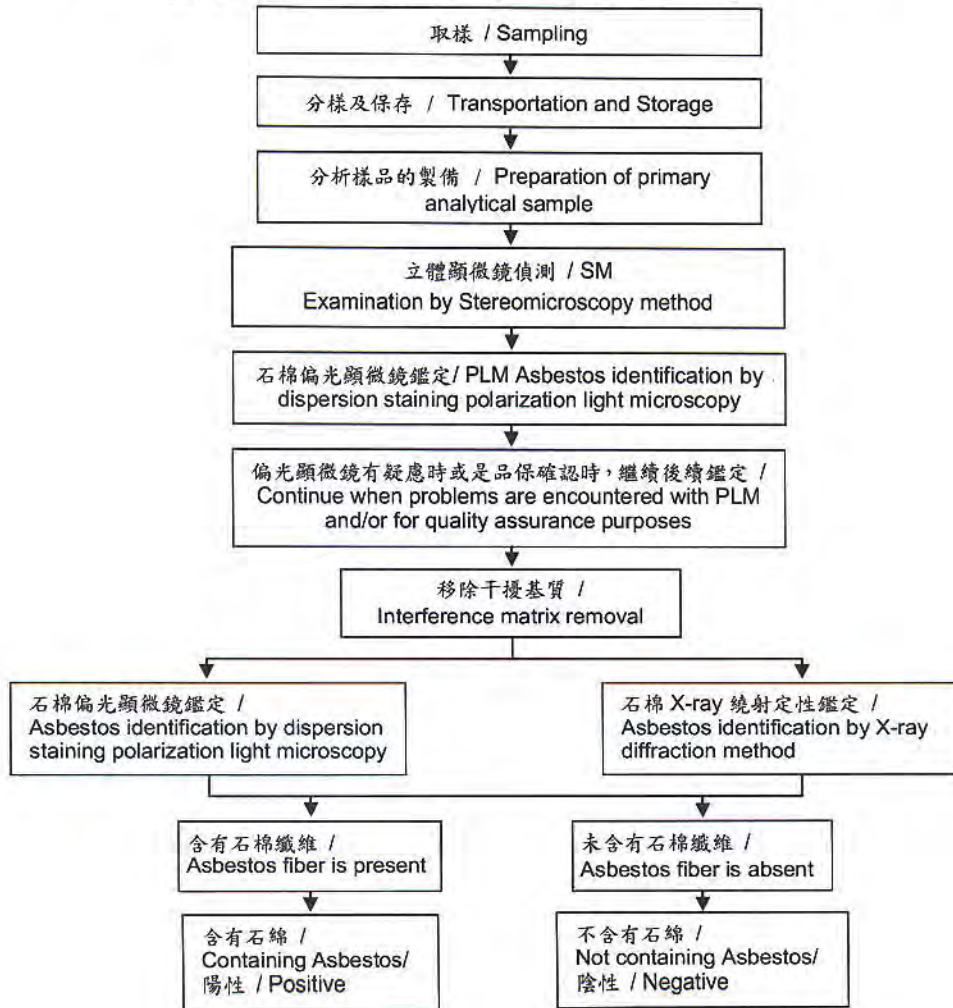
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石棉物質判定分析流程圖 / Analysis flow chart for determination of Asbestos

- 1) 測試人員：高健忠 / Name of the person who made measurement: Victor Kao
- 2) 測試負責人：魏明芬 / Name of the person in charge of measurement: Wendy Wei

【參考方法(Reference method): EPA 600/R-93/116】



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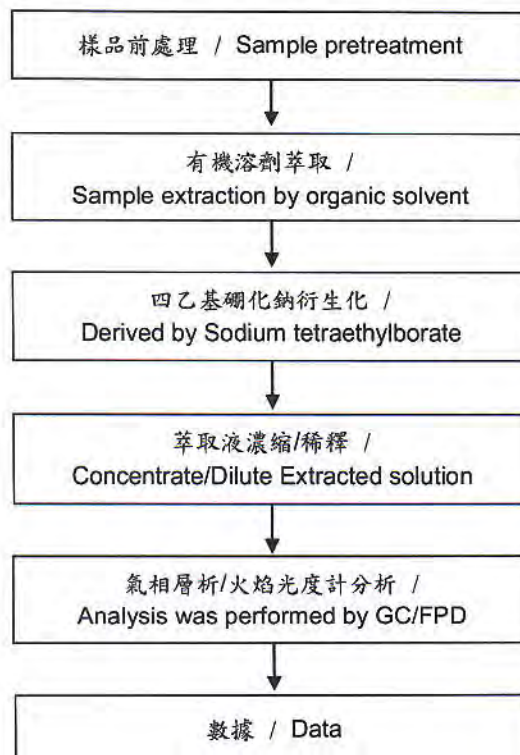
號碼(No.) : KA/2011/C1699 日期(Date) : 2012/01/05 頁數(Page) : 38 of 39

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有機錫分析流程圖 / Analytical flow chart of Organic-Tin content

- 1) 測試人員：曹嘉琪 / Name of the person who made measurement: Anson Tsao
- 2) 測試負責人：張伯睿 / Name of the person in charge of measurement: Ray Chang



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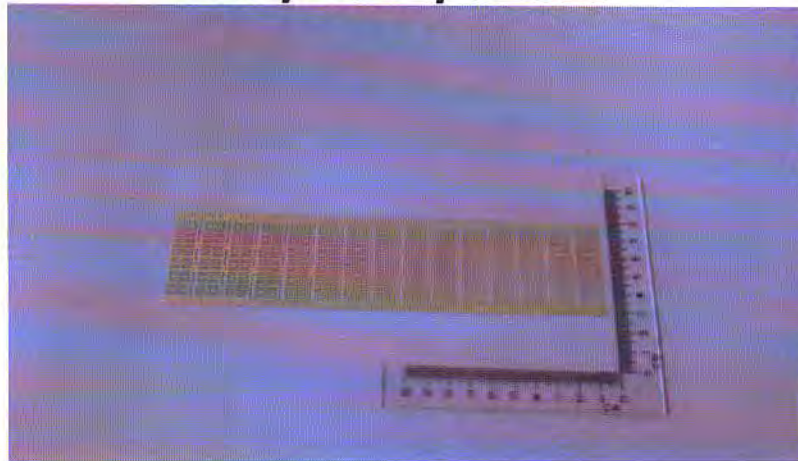
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* 照片中如有箭頭標示，則表示為實際檢測之樣品/部位。*
(The tested sample / part is marked by an arrow if it's shown on the photo.)

KA/2011/C1699



** 報告結尾(End of Report) **

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Test Report

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HENKEL CORPORATION
HENKEL ADHESIVES-ELECTRONICS MAIN OFFICE: 14000 JAMBOREE ROAD, IRVINE, CALIFORNIA,
92606 U.S.A



The following sample(s) was/were submitted and identified by/on behalf of the client as:

Sample Description : ADHESIVE
Style/Item No. : 84-1LMISR4
Sample Receiving Date : 2010/11/11
Testing Period : 2010/11/11 TO 2010/11/15

Test Result(s) : Please refer to next page(s).



Chenyu Kung / Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.
Chemical Laboratory – Taipei

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Test Report

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HENKEL CORPORATION

HENKEL ADHESIVES-ELECTRONICS MAIN OFFICE: 14000 JAMBOREE ROAD, IRVINE, CALIFORNIA, 92606 U.S.A



Test Result(s)

PART NAME No.1 : GRAY PASTE

Test Item (s):	Unit	Method	MDL	Result
				No.1
Cadmium (Cd)	mg/kg	With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
Lead (Pb)	mg/kg	With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
Mercury (Hg)	mg/kg	With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
Hexavalent Chromium Cr(VI) by alkaline extraction	mg/kg	With reference to IEC 62321: 2008 and performed by UV-VIS.	2	n.d.
Beryllium (Be)	mg/kg	With reference to US EPA Method 3050B for Beryllium Content. Analysis was performed by ICP-AES.	2	n.d.
Antimony (Sb)	mg/kg	With reference to US EPA Method 3052 for Antimony Content. Analysis was performed by ICP-AES.	2	n.d.
Polychlorinated Biphenyls (PCBs) (CAS No.: 001336-36-3)	mg/kg	With reference to US EPA 3540C method. Analysis was performed by GC/MS.	0.5	n.d.
Polychlorinated Naphthalene (PCNs)	mg/kg	With reference to US EPA 3540C method. Analysis was performed by GC/MS.	5	n.d.
Polychlorinated Terphenyls (PCTs)	mg/kg	With reference to US EPA 3540C method. Analysis was performed by GC/MS.	0.5	n.d.
Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins) (CAS No.: 085535-84-8)	%	With reference to US EPA 3540C method. Analysis was performed by GC/MS.	0.01	n.d.
PVC	**	Analysis was performed by FTIR and FLAME Test.	-	Negative
Sulfur Hexafluoride (SF6) (CAS No.: 002551-62-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

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HENKEL CORPORATION

HENKEL ADHESIVES-ELECTRONICS MAIN OFFICE: 14000 JAMBOREE ROAD, IRVINE, CALIFORNIA, 92606 U.S.A



Test Item (s):	Unit	Method	MDL	Result
				No.1
Perfluorooctane sulfonates (PFOS) PFOS – Acid PFOS – Metal Salt PFOS – Amide	mg/kg	With reference to US EPA 3540C: 1996 method for PFOS Content. Analysis was performed by LC/MS.	10	n.d.
PFOA (CAS No.: 000335-67-1)	mg/kg	With reference to US EPA 3540C: 1996 method for PFOA Content. Analysis was performed by LC/MS.	10	n.d.
2-(3,5-di-tert-butyl-2-hydroxyphenyl)-2H-benzotriazole (CAS No.: 003846-71-7)	mg/kg	With reference to US EPA 3540C method. Analysis was performed by GC/MS.	5	n.d.
Bromomethane (CAS No.: 000074-83-9)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Bromochloromethane (CAS No.: 000074-97-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Asbestos				
Actinolite (CAS No.: 077536-66-4)	%	With reference to NIOSH 9000 method. Analysis was performed by XRD.	1	Negative
Amosite (CAS No.: 012172-73-5)			1	Negative
Anthophyllite (CAS No.: 077536-67-5)			1	Negative
Chrysotile (CAS No.: 012001-29-5)			1	Negative
Crocidolite (CAS No.: 012001-28-4)			1	Negative
Tremolite (CAS No.: 077536-68-6)			1	Negative
Halogen				
Halogen-Fluorine (F) (CAS No.: 014762-94-8)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.
Halogen-Chlorine (Cl) (CAS No.: 022537-15-1)			50	173
Halogen-Bromine (Br) (CAS No.: 010097-32-2)			50	n.d.
Halogen-Iodine (I) (CAS No.: 014362-44-8)			50	n.d.
Organic-tin compounds				
Tributyl Tin (TBT) (CAS No.: 000688-73-3)	mg/kg	With reference to DIN 38407-13. Analysis was performed by GC/FPD.	0.03	n.d.
Triphenyl Tin (TphT) (CAS No.: 000668-34-8)	mg/kg	With reference to DIN 38407-13. Analysis was performed by GC/FPD.	0.03	n.d.

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HENKEL CORPORATION
 HENKEL ADHESIVES-ELECTRONICS MAIN OFFICE: 14000 JAMBOREE ROAD, IRVINE, CALIFORNIA,
 92606 U.S.A



Test Item (s):	Unit	Method	MDL	Result
				No.1
Tributyl Tin Oxide (TBTO)*** (CAS No.: 000056-35-9)	mg/kg	With reference to DIN 38407-13. Analysis was performed by GC/FPD.	-	n.d.
Sum of PBBs	mg/kg	With reference to IEC 62321: 2008 and performed by GC/MS.	-	n.d.
Monobromobiphenyl			5	n.d.
Dibromobiphenyl			5	n.d.
Tribromobiphenyl			5	n.d.
Tetrabromobiphenyl			5	n.d.
Pentabromobiphenyl			5	n.d.
Hexabromobiphenyl			5	n.d.
Heptabromobiphenyl			5	n.d.
Octabromobiphenyl			5	n.d.
Nonabromobiphenyl			5	n.d.
Decabromobiphenyl			5	n.d.
Sum of PBDEs			-	n.d.
Monobromodiphenyl ether			5	n.d.
Dibromodiphenyl ether			5	n.d.
Tribromodiphenyl ether			5	n.d.
Tetrabromodiphenyl ether			5	n.d.
Pentabromodiphenyl ether			5	n.d.
Hexabromodiphenyl ether			5	n.d.
Heptabromodiphenyl ether			5	n.d.
Octabromodiphenyl ether			5	n.d.
Nonabromodiphenyl ether	5	n.d.		
Decabromodiphenyl ether	5	n.d.		
AZO				
1): 4-AMINODIPHENYL (CAS No.: 000092-67-1)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
2): BENZIDINE (CAS No.: 00092-87-5)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
3): 4-CHLORO-O-TOLUIDINE (CAS No.: 000095-69-2)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
4): 2-NAPHTHYLAMINE (CAS No.: 000091-59-8)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
5): O-AMINOAZOTOLUENE (CAS No.: 000097-56-3)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.

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Test Item (s):	Unit	Method	MDL	Result
				No.1
6): 2-AMINO-4-NITROTOLUENE (CAS No.: 000099-55-8)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
7): P-CHLOROANILINE (CAS No.: 000106-47-8)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
8): 2,4-DIAMINOANISOLE (CAS No.: 000615-05-4)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
9): 4,4'-DIAMINODIPHENYLMETHANE (CAS No.: 000101-77-9)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
10): 3,3'-DICHLOROBENZIDINE (CAS No.: 000091-94-1)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
11): 3,3'-DIMETHOXYBENZIDINE (CAS No.: 000119-90-4)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
12): 3,3'-DIMETHYLBENZIDINE (CAS No.: 000119-93-7)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
13): 3,3'-DIMETHYL-4,4'-DIAMINODIPHENYLMETHANE (CAS No.: 000838-88-0)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
14): P-CRESIDINE (2-METHOXY-5-METHYLANILINE) (CAS No.: 000120-71-8)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
15): 4,4'-METHYLENE-BIS-(2-CHLOROANILINE) (CAS No.: 000101-14-4)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
16): 4,4'-OXYDIANILINE (CAS No.: 000101-80-4)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
17): 4,4'-THIODIANILINE (CAS No.: 000139-65-1)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
18): O-TOLUIDINE (CAS No.: 000095-53-4)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
19): 2,4-TOLUYLENEDIAMINE (CAS No.: 000095-80-7)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
20): 2,4,5-TRIMETHYLANILINE (CAS No.: 000137-17-7)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
21): O-ANISIDINE (CAS No.: 000090-04-0)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.

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HENKEL CORPORATION
 HENKEL ADHESIVES-ELECTRONICS MAIN OFFICE: 14000 JAMBOREE ROAD, IRVINE, CALIFORNIA,
 92606 U.S.A



Test Item (s):	Unit	Method	MDL	Result
				No.1
22): P-AMINOAZOBENZENE (CAS No.: 000060-09-3)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
23): 2,4-XYLIDINE (CAS No.: 000095-68-1)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
24): 2,6-XYLIDINE (CAS No.: 000087-62-7)	mg/kg	With reference to LFGB 82.02-2. Analysis was performed by GC/MS.	3	n.d.
CFC's (Chlorofluorocarbons)				
Group I				
Chlorofluorocarbon-11 (CAS No.: 000075-69-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-12 (CAS No.: 000075-71-8)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-113 (CAS No.: 000076-13-1)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-114 (CAS No.: 000076-14-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-115 (CAS No.: 000076-15-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Group III				
Chlorofluorocarbon-13 (CAS No.: 000075-72-9)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-111 (CAS No.: 000354-56-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-112 (CAS No.: 000076-12-0)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-211 (CAS No.: 000422-78-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-212 (CAS No.: 003182-26-1)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-213 (CAS No.: 002354-06-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-214 (CAS No.: 029255-31-0)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-215 (CAS No.: 004259-43-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

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HENKEL CORPORATION
 HENKEL ADHESIVES-ELECTRONICS MAIN OFFICE: 14000 JAMBOREE ROAD, IRVINE, CALIFORNIA,
 92606 U.S.A



Test Item (s):	Unit	Method	MDL	Result
				No.1
Chlorofluorocarbon-216 (CAS No.: 000661-97-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-217 (CAS No.: 000422-86-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFCs (Hydrochlorofluorocarbons)				
HCFC-21 (CAS No.: 000075-43-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-22 (CAS No.: 000075-45-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-31 (CAS No.: 000593-70-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-121 (CAS No.: 000354-14-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-122 (CAS No.: 000354-21-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-123 (CAS No.: 000306-83-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-124 (CAS No.: 002837-89-0)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-131 (CAS No.: 000359-28-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-132b (CAS No.: 001649-08-7)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-133a (CAS No.: 000075-88-7)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-141b (CAS No.: 001717-00-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-142b (CAS No.: 000075-68-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-221 (CAS No.: 000422-26-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-222 (CAS No.: 000422-49-1)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-223 (CAS No.: 000422-52-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

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HENKEL CORPORATION

HENKEL ADHESIVES-ELECTRONICS MAIN OFFICE: 14000 JAMBOREE ROAD, IRVINE, CALIFORNIA, 92606 U.S.A



Test Item (s):	Unit	Method	MDL	Result
				No.1
HCFC-224 (CAS No.: 000422-54-8)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-225ca (CAS No.: 000422-56-0)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-225cb (CAS No.: 000507-55-1)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-226 (CAS No.: 000431-87-8)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-231 (CAS No.: 000421-94-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-232 (CAS No.: 000460-89-9)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-233 (CAS No.: 007125-84-0)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-234 (CAS No.: 000425-94-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-235 (CAS No.: 000460-92-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-241 (CAS No.: 000666-27-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-242 (CAS No.: 000460-63-9)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-243 (CAS No.: 000460-69-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-244	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-251 (CAS No.: 000421-41-0)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-252 (CAS No.: 000819-00-1)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-253 (CAS No.: 000460-35-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-261 (CAS No.: 000420-97-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HCFC-262 (CAS No.: 000421-02-03)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

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 92606 U.S.A



Test Item (s):	Unit	Method	MDL	Result
				No.1
HCFC-271 (CAS No.: 000430-55-7)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Halons				
Halon-1211 (CAS No.: 000353-59-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Halon-1301 (CAS No.: 000075-63-8)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Halon-2402 (CAS No.: 000124-73-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFCs (Hydrobromofluorocarbons)				
HBFC-21B2 (CHFBr ₂) (CAS No.: 001868-53-7)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-22B1 (CHF ₂ Br) (CAS No.: 001511-62-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-31B1 (CH ₂ FBr) (CAS No.: 000373-52-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-121B4 (C ₂ HFBr ₄)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-122B3 (C ₂ HF ₂ Br ₃)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-123B2 (C ₂ HF ₃ Br ₂)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-124B1 (C ₂ HF ₄ Br)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-131B3 (C ₂ H ₂ FBr ₃)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-132B2 (C ₂ H ₂ F ₂ Br ₂)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-133B1 (C ₂ H ₂ F ₃ Br)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-141B2 (C ₂ H ₃ FBr ₂)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-142B1 (C ₂ H ₃ F ₂ Br)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-151B1 (C ₂ H ₄ FBr)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

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HENKEL CORPORATION
 HENKEL ADHESIVES-ELECTRONICS MAIN OFFICE: 14000 JAMBOREE ROAD, IRVINE, CALIFORNIA,
 92606 U.S.A



Test Item (s):	Unit	Method	MDL	Result
				No.1
HBFC-221B6 (C3HFBr6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-222B5 (C3HF2Br5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-223B4 (C3HF3Br4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-224B3 (C3HF4Br3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-225B2 (C3HF5Br2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-226B1 (C3HF6Br)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-231B5 (C3H2FBr5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-232B4 (C3H2F2Br4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-233B3 (C3H2F3Br3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-234B2 (C3H2F4Br2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-235B1 (C3H2F5Br)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-241B4 (C3H3FBr4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-242B3 (C3H3F2Br3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-243B2 (C3H3F3Br2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-244B1 (C3H3F4Br)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-251B3 (C3H4FBr3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-252B2 (C3H4F2Br2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-253B1 (C3H4F3Br)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

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 92606 U.S.A



Test Item (s):	Unit	Method	MDL	Result No.1
HBFC-261B2 (C3H5FBr2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-262B1 (C3H5F2Br)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-271B1 (C3H6FBr)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HFCs (Hydrofluorocarbon)				
HFC-23 (CHF3)(CAS No.: 000075-46-7)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HFC-32 (CH2F2)(CAS No.: 000075-10-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HFC-41 (CH3F)(CAS No.: 000593-53-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HFC-43-10mee (C5H2F10)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HFC-125 (C2HF5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HFC-134 (C2H2F4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HFC-134a (CH2FCF3)(CAS No.: 000811-97-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HFC-143 (CH3F3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HFC-143a (CH3F3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HFC-152a (C2H4F2)(CAS No.: 000075-37-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HFC-227ea (C3HF7)(CAS No.: 000431-89-0)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HFC-236fa (C3H2F6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HFC-236ea (C3H2F6)(CAS No.: 000431-63-0)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HFC-245ca (C3H3F5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HFC-245fa (C3H3F5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

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HENKEL CORPORATION

HENKEL ADHESIVES-ELECTRONICS MAIN OFFICE: 14000 JAMBOREE ROAD, IRVINE, CALIFORNIA, 92606 U.S.A



Test Item (s):	Unit	Method	MDL	Result
				No.1
HFC-365mfc (C4H5F5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
PFCs (Perfluorocarbon)				
F14 (CAS No.: 000075-73-0)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Fluorocarbon 116 (CAS No.: 000076-16-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Freon 218 (CAS No.: 000076-19-7)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Decafluorobutane (CAS No.: 000355-25-9)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Freon C318 (CAS No.: 000115-25-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Perfluor-1-butene (CAS No.: 000357-26-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
perfluorisobutene (CAS No.: 000382-21-8)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
1,4-dihydrooctafluorobutane (CAS No.: 000377-36-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Nonafluor-2- (trifluoromethyl) butane (CAS No.: 000594-91-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Perfluoro-n-pentane (CAS No.: 000678-26-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
2-perfluoromethylpentane (CAS No.: 000355-04-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Perfluorohexane (CAS No.: 000355-42-0)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
CHCs (Chlorinate hydrocarbon)				
1,1,1,2-Tetrachloroethane (CAS No.: 000630-20-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
1,1,1-Trichloroethane (CAS No.: 000071-55-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
1,1,2,2-Tetrachloroethane (CAS No.: 000079-34-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
1,1,2-Trichloroethane (CAS No.: 000079-00-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

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HENKEL CORPORATION

HENKEL ADHESIVES-ELECTRONICS MAIN OFFICE: 14000 JAMBOREE ROAD, IRVINE, CALIFORNIA, 92606 U.S.A



Test Item (s):	Unit	Method	MDL	Result No.1
1,1-Dichloroethane (CAS No.: 000075-34-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
1,1-Dichloroethene (CAS No.: 000075-35-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
1,1-Dichloropropene (CAS No.: 000563-58-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
1,2,3-Trichloropropane (CAS No.: 000096-18-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
1,2-Dichloroethane (CAS No.: 000107-06-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
1,2-Dichloropropane (CAS No.: 000078-87-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
1,3-Dichloropropane (CAS No.: 000142-28-9)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
2,2-Dichloropropane (CAS No.: 000594-20-7)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Carbon tetrachloride (CAS No.: 000056-23-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Chloroethane (CAS No.: 000075-00-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Chloroform (CAS No.: 000067-66-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Chloromethane (CAS No.: 000074-87-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
cis-1,2-Dichloroethene (CAS No.: 000156-59-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
cis-1,3-Dichloropropene (CAS No.: 010061-01-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Hexachlorobutadiene (CAS No.: 000087-68-3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Methylene Chloride (CAS No.: 000075-09-2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Tetrachloroethene (CAS No.: 000127-18-4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
trans-1,2-Dichloroethene (CAS No.: 000156-60-5)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

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HENKEL CORPORATION
 HENKEL ADHESIVES-ELECTRONICS MAIN OFFICE: 14000 JAMBOREE ROAD, IRVINE, CALIFORNIA,
 92606 U.S.A



Test Item (s):	Unit	Method	MDL	Result
				No.1
trans-1,3-Dichloropropene (CAS No.: 010061-02-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
Trichloroethylene (CAS No.: 000079-01-6)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.

Note :

1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. n.d. = Not Detected
3. MDL = Method Detection Limit
4. " - " = Not Regulated
5. ** = Qualitative analysis (No Unit)
6. Negative = Undetectable / Positive = Detectable
7. Asbestos : Negative = "< 1.0 %", Positive = "> 1.0 %"
8. ***: The substance was calculated by the test results of Tributyl Tin. The MDL was evaluated for Tributyl Tin.

PFOS Reference Information : Directive 2006/122/EC

(1) May not be placed on the market or used as a substance or constituent of preparations in a concentration equal to or higher than 0.005 % by mass.

(2) May not be placed on the market in semi-finished products or articles, or parts thereof, if the concentration of PFOS is equal to or higher than 0.1 % by mass calculated with reference to the mass of structurally or microstructurally distinct parts that contain PFOS or, for textiles or other coated materials, if the amount of PFOS is equal to or higher than 1µg/m² of the coated material.

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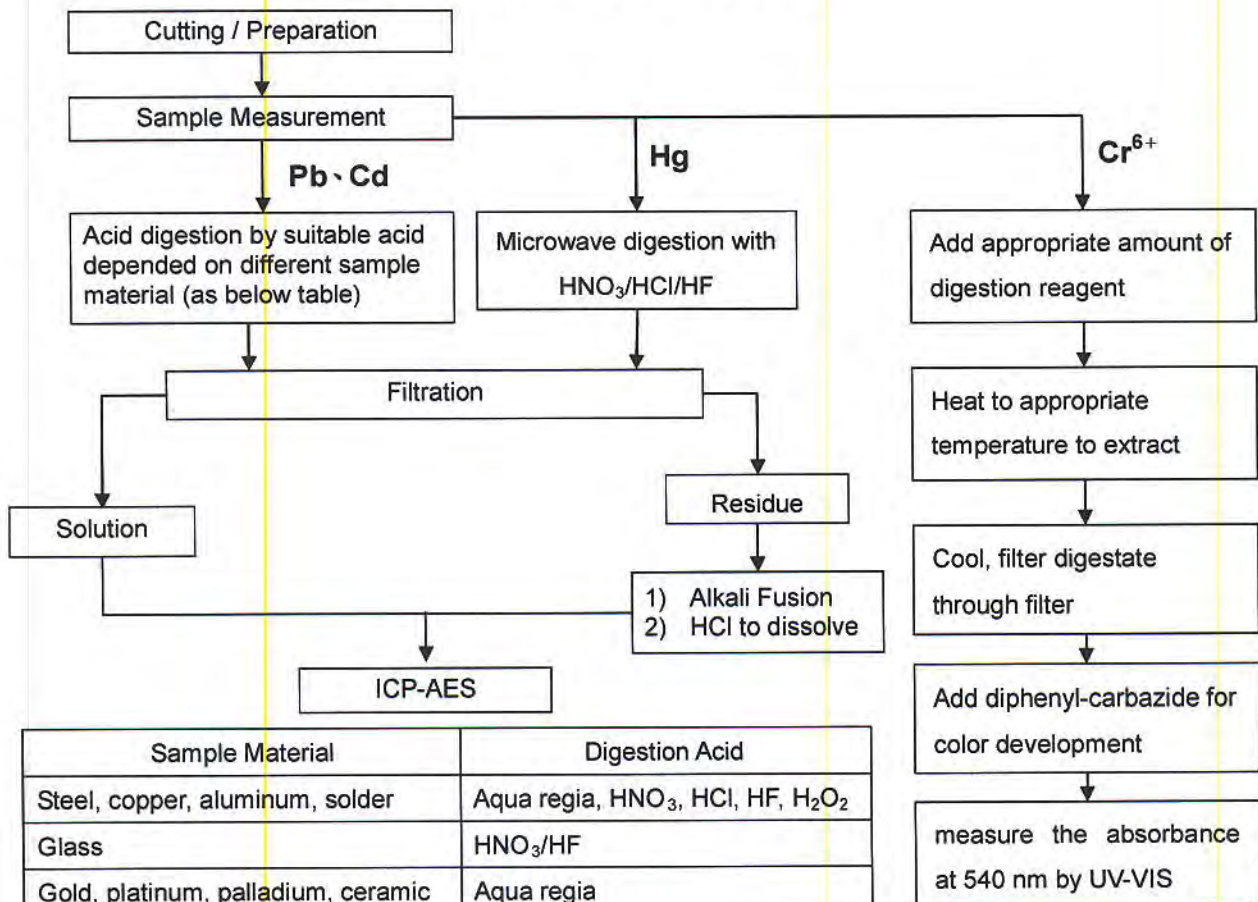
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HENKEL ADHESIVES-ELECTRONICS MAIN OFFICE: 14000 JAMBOREE ROAD, IRVINE, CALIFORNIA, 92606 U.S.A



- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ test method excluded)
- 2) Name of the person who made measurement: Climbgreat Yang
- 3) Name of the person in charge of measurement: Troy Chang



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

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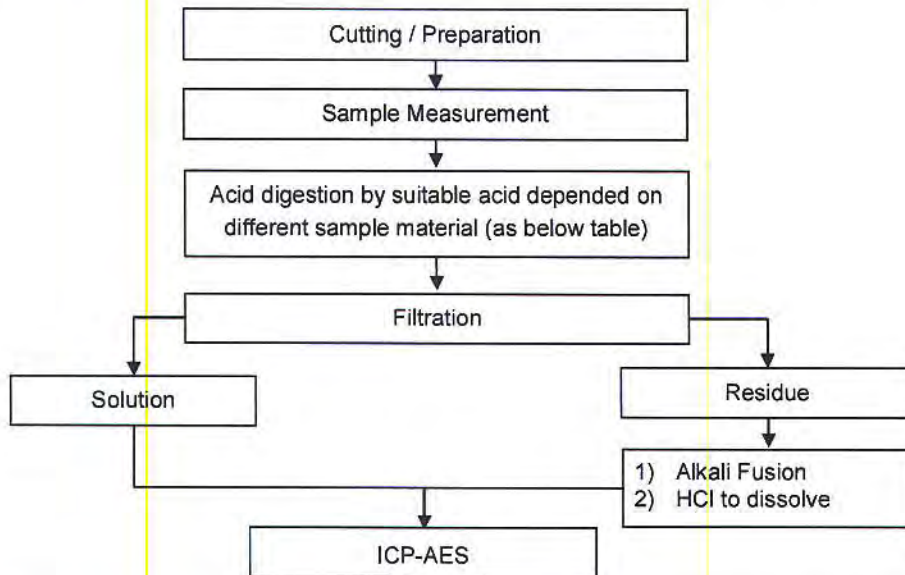
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 HENKEL ADHESIVES-ELECTRONICS MAIN OFFICE: 14000 JAMBOREE ROAD, IRVINE, CALIFORNIA,
 92606 U.S.A



- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart.
- 2) Name of the person who made measurement: Climbgreat Yang
- 3) Name of the person in charge of measurement: Troy Chang

Flow Chart of digestion for the elements analysis performed by ICP-AES



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

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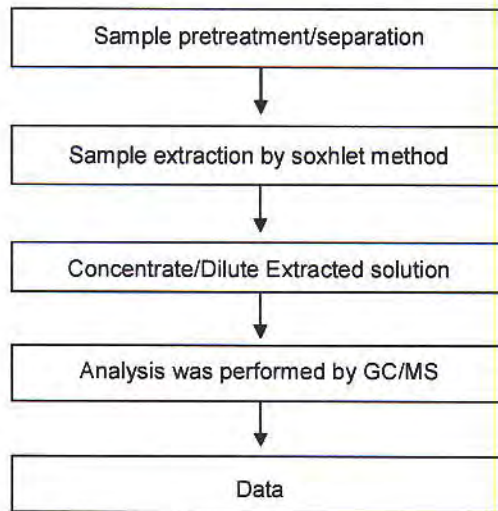
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Analytical flow chart of Soxhlet extraction (GC/MS) procedure

- 1) Name of the person who made measurement: Lydia Fu
 - 2) Name of the person in charge of measurement: Shinjyh Chen
- Test Items: Phthalate 、Benzotriazole 、HBCDD 、NP 、DBBT 、
Organic phosphorus compounds



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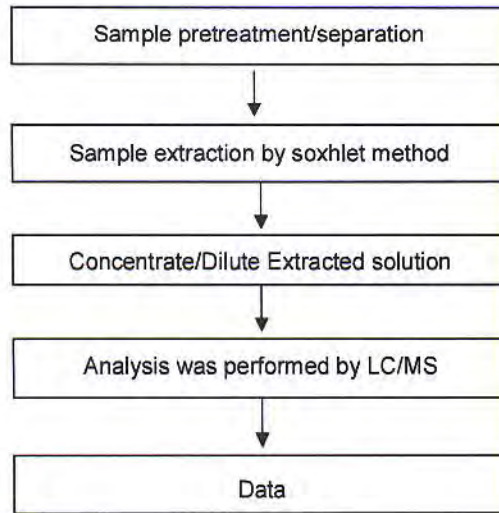
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Analytical flow chart of Soxhlet extraction (LC/MS) procedure

- 1) Name of the person who made measurement: Lydia Fu
- 2) Name of the person in charge of measurement: Shinjyh Chen

■ Test Items: PFOS/PFOA、Benzotriazole



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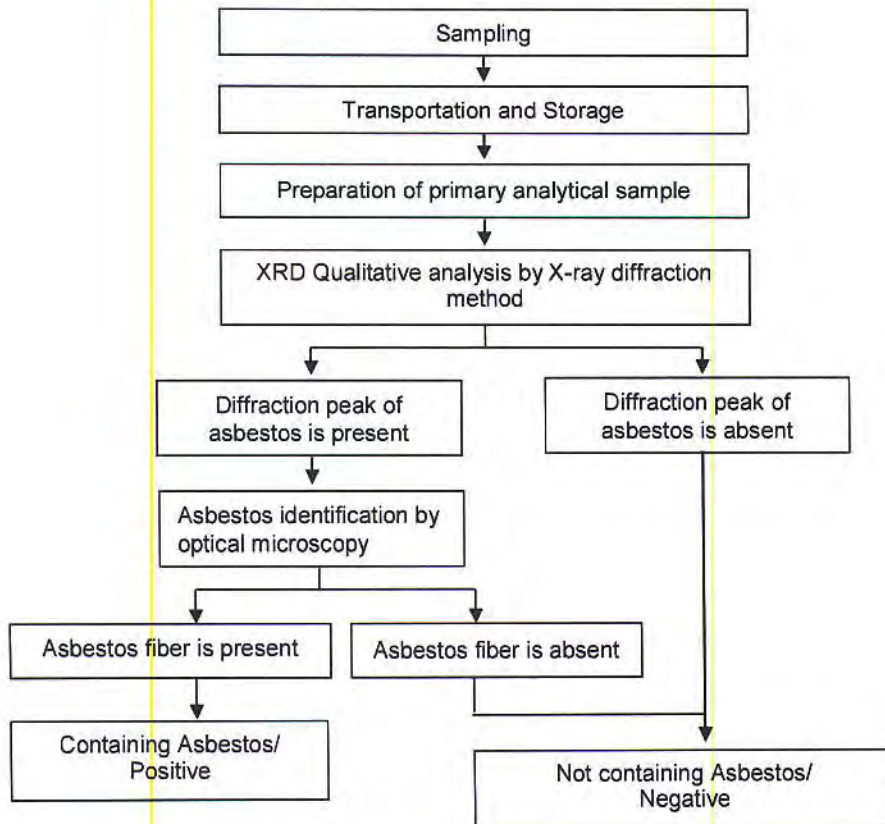
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Analysis flow chart for determination of Asbestos

- 1) Name of the person who made measurement: Victor Kao
- 2) Name of the person in charge of measurement: Wendy Wei



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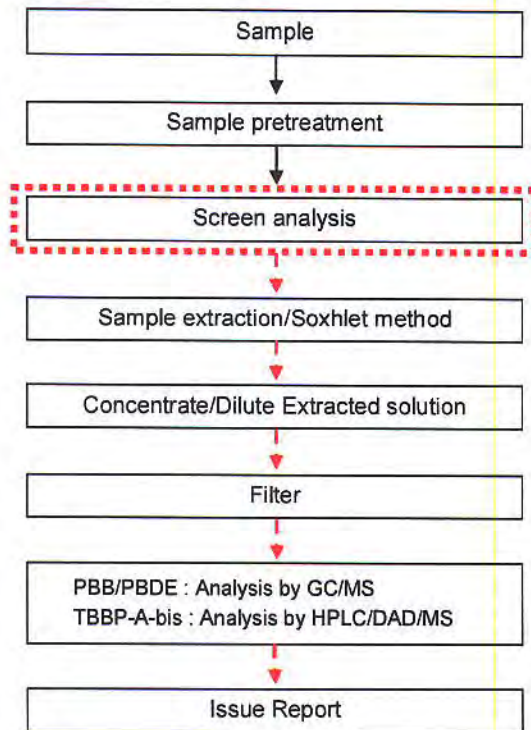


Analytical flow chart

- 1) Name of the person who made measurement: Roman Wong
- 2) Name of the person in charge of measurement: Troy Chang

■ Test Items: PBB/PBDE, TBBP-A-bis

First testing process —> Optional screen process Confirmation process ->



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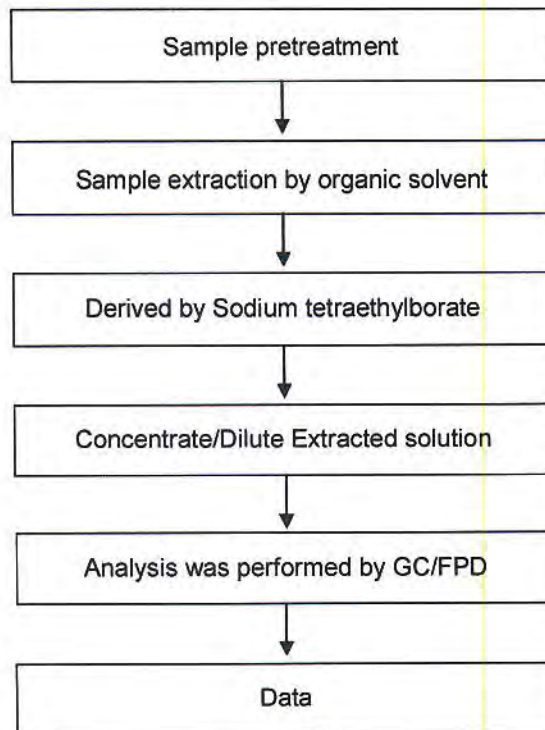
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Analytical flow chart of Organic-Tin content

- 1) Name of the person who made measurement: Ginny Chen
- 2) Name of the person in charge of measurement: Troy Chang



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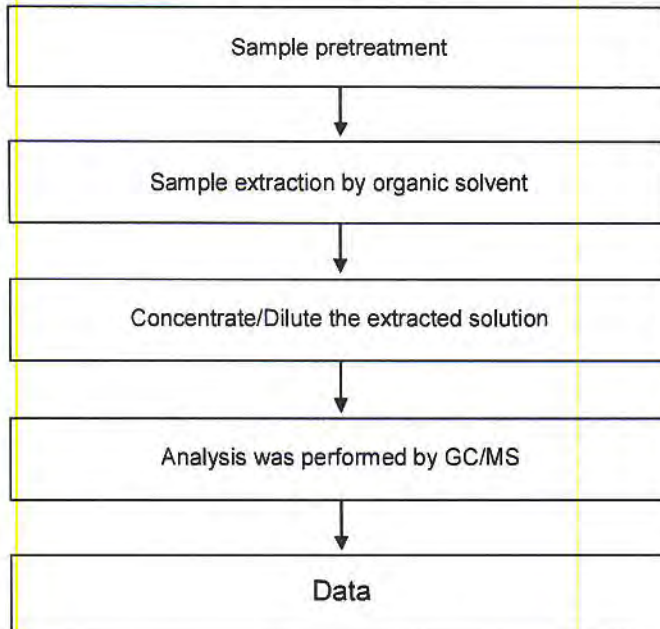
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Chlorinated Flame retardant analytical flow chart

- 1) Name of the person who made measurement: Barry Tseng
 - 2) Name of the person in charge of measurement: Troy Chang
- Reference method: US EPA 8270D, US EPA 3540
 - Test Items: PCBs, PCNs, PCTs, Mirex, CP, M CCP



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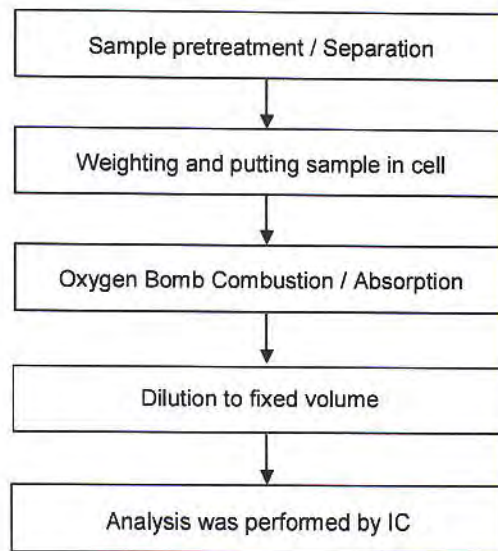
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Analytical flow chart of halogen content

- 1) Name of the person who made measurement: Rita Chen
- 2) Name of the person in charge of measurement: Troy Chang



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Test Report

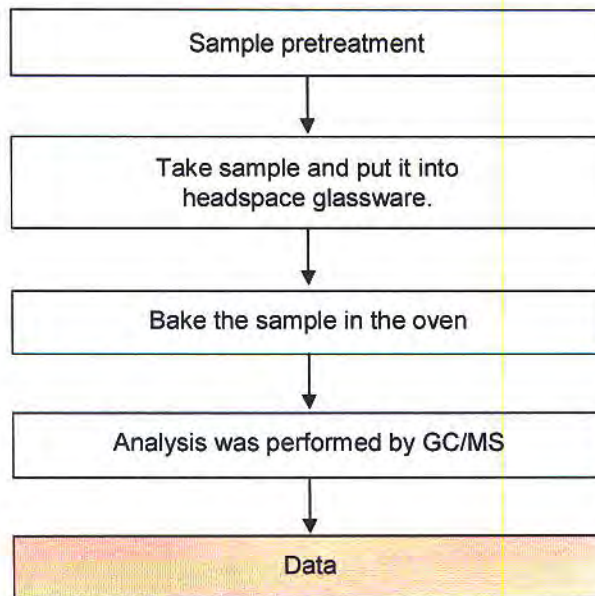
No. : CE/2010/B2266 Date : 2010/11/15 Page : 24 of 26

HENKEL CORPORATION
 HENKEL ADHESIVES-ELECTRONICS MAIN OFFICE: 14000 JAMBOREE ROAD, IRVINE, CALIFORNIA,
 92606 U.S.A



Analytical flow chart of volatile organic compounds (VOCs)

- 1) Reference method : US EPA 5021
- 2) Name of the person who made measurement : Dalki Yen
- 3) Name of the person in charge of measurement : Shinjih Chen



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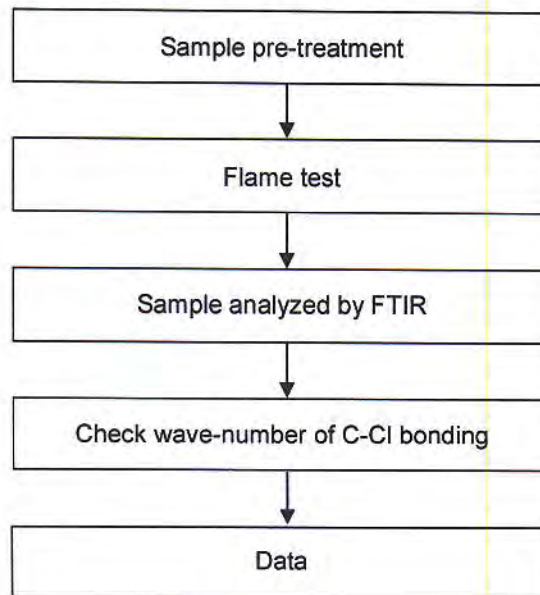
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Analysis flow chart for determination of PVC in material

- 1) Name of the person who made measurement: Eva Chao
- 2) Name of the person in charge of measurement: Shinjyh Chen



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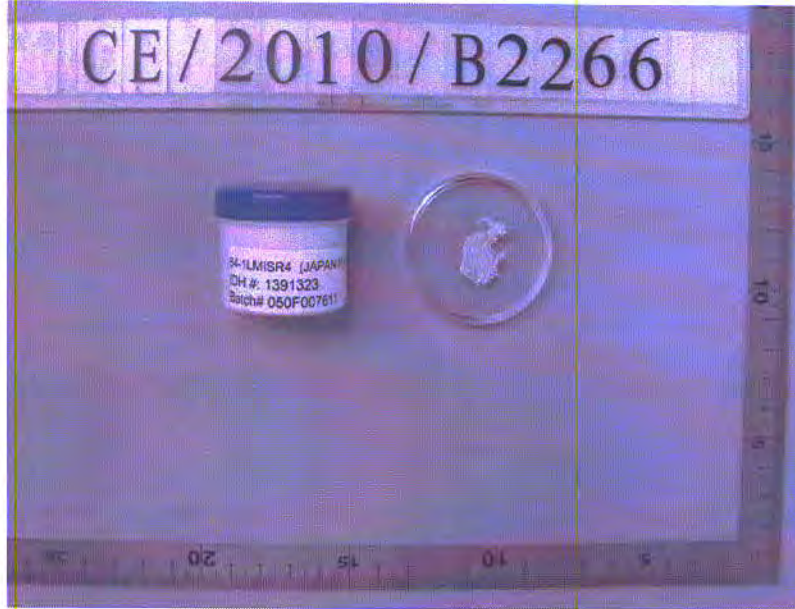
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Test Report

No. : CE/2010/B2266 Date : 2010/11/15 Page : 26 of 26

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92606 U.S.A



** End of Report **

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Test Report No. F690101/LF-CTSAYAA12-17998R2A Issued Date: May 15, 2012 Page 1 of 15

To: **HERAEUS ORIENTAL HITEC CO.,LTD.**
587-122
Hakik-dong
Nam-gu
Incheon
Korea

The following sample(s) was/were submitted and identified by/on behalf of the client as:-

Product Name : Au wire
SGS File No. : AYAA12-17998R2A
Item No./Part No. : 4N
Client reference data : HD2(Be),HD3,HD5(Ce),HD6(Ca),HA5,HA6,HA9,HA11,AW7,AW13,AW14,AW25,AW29
AW66X
Received Date : May 07, 2012
Test Performing Date : May 08, 2012 to May 15, 2012
Test Performed : SGS Korea tested the sample(s) selected by applicant with following results
Test Result(s) : For further details, please refer to following page (s)
Comments : The test report supercedes previous report number, F690101/LF-CTSAYAA12-17998R1
issued by SGS Korea Co., Ltd.
The client has confirmed that the described item No./part No. & client reference data
are the same with the sample submitted.

Timothy Jeon
Jinhee Kim
Cindy Park
Jerry Jung /Testing Person

SGS Korea Co., Ltd.

Jeff Jang / Technical Mgr

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Test Report No. F690101/LF-CTSAYAA12-17998R2A Issued Date: May 15, 2012 Page 2 of 15

Sample No. : AYAA12-17998.001
 Sample Description : Au wire
 Item / Part No. : 4N

Heavy Metals				
Test Items	Unit	Test Method	MDL	Results
Cadmium(Cd)	mg/kg	With reference to IEC 62321:2008,ICP	0.5	N.D
Lead (Pb)	mg/kg	With reference to IEC 62321:2008,ICP	5	N.D
Mercury (Hg)	mg/kg	With reference to IEC 62321:2008,ICP	2	N.D
Hexavalent Chromium(CrVI) By boiling water extraction*	**	With reference to IEC 62321;2008	-	Negative
Phosphorous (P)	mg/kg	With reference to EPA 3052(1996), US EPA6010B(1996), ICP	10	N.D
Manganese(Mn)	mg/kg	With reference to EPA 3052(1996), US EPA6010B(1996), ICP	0.5	N.D
Nickel(Ni)	mg/kg	With reference to EPA 3052(1996), US EPA6010B(1996), ICP	1	N.D
Antimony (Sb)	mg/kg	With reference to EPA 3052(1996), US EPA6010B(1996), ICP	10	N.D

Flame Retardants-PBBs/PBDEs				
Test Items	Unit	Test Method	MDL	Results
Monobromobiphenyl	mg/kg	With reference to IEC 62321:2008,GC-MS	5	N.D
Dibromobiphenyl	mg/kg	With reference to IEC 62321:2008,GC-MS	5	N.D
Tribromobiphenyl	mg/kg	With reference to IEC 62321:2008,GC-MS	5	N.D
Tetrabromobiphenyl	mg/kg	With reference to IEC 62321:2008,GC-MS	5	N.D
Hexabromobiphenyl	mg/kg	With reference to IEC 62321:2008,GC-MS	5	N.D
Pentabromobiphenyl	mg/kg	With reference to IEC 62321:2008,GC-MS	5	N.D
Heptabromobiphenyl	mg/kg	With reference to IEC 62321:2008,GC-MS	5	N.D
Octabromobiphenyl	mg/kg	With reference to IEC 62321:2008,GC-MS	5	N.D
Nonabromobiphenyl	mg/kg	With reference to IEC 62321:2008,GC-MS	5	N.D
Decabromobiphenyl	mg/kg	With reference to IEC 62321:2008,GC-MS	5	N.D
Monobromodiphenyl ether	mg/kg	With reference to IEC 62321:2008,GC-MS	5	N.D
Dibromodiphenyl ether	mg/kg	With reference to IEC 62321:2008,GC-MS	5	N.D
Tribromodiphenyl ether	mg/kg	With reference to IEC 62321:2008,GC-MS	5	N.D
Tetrabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008,GC-MS	5	N.D
Pentabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008,GC-MS	5	N.D
Hexabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008,GC-MS	5	N.D
Heptabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008,GC-MS	5	N.D
Octabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008,GC-MS	5	N.D
Nonabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008,GC-MS	5	N.D
Decabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008,GC-MS	5	N.D

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Test Report No. F690101/LF-CTSAYAA12-17998R2A Issued Date: May 15, 2012 Page 3 of 15

Sample No. : AYAA12-17998.001
Sample Description : Au wire
Item / Part No. : 4N

Phthalates				
Test Items	Unit	Test Method	MDL	Results
Di-n-octyl phthalate (DNOP)	mg/kg	US EPA 8061A, GC/MS	50	N.D
Di-isononyl phthalate (DINP)	mg/kg	US EPA 8061A, GC/MS	50	N.D
Di-isodecyl phthalate (DIDP)	mg/kg	US EPA 8061A, GC/MS	50	N.D
Di-methyl phthalate (DMP)	mg/kg	US EPA 8061A, GC/MS	50	N.D
Di-ethyl phthalate (DEP)	mg/kg	US EPA 8061A, GC/MS	50	N.D
Di-cyclohexyl phthalate (DCHP)	mg/kg	US EPA 8061A, GC/MS	50	N.D
Di-n-hexyl phthalate (DNHP)	mg/kg	US EPA 8061A, GC/MS	50	N.D
Di-pentyl phthalate (DPP)	mg/kg	US EPA 8061A, GC/MS	50	N.D
Di-propyl phthalate (DPrP)	mg/kg	US EPA 8061A, GC/MS	50	N.D
Di-isooctyl phthalate (DIOP)	mg/kg	US EPA 8061A, GC/MS	50	N.D
Di-n-nonyl phthalate (DNP)	mg/kg	US EPA 8061A, GC/MS	50	N.D
Di-(2-ethylhexyl) adipate (DEHA)	mg/kg	US EPA 8061A, GC/MS	50	N.D

Halogen Contents				
Test Items	Unit	Test Method	MDL	Results
Bromine (Br)	mg/kg	BS EN 14582:2007, IC	30	N.D
Chlorine (Cl)	mg/kg	BS EN 14582:2007, IC	30	N.D
Fluorine (F)	mg/kg	BS EN 14582:2007, IC	30	N.D
Iodine (I)	mg/kg	BS EN 14582:2007, IC	50	N.D

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Test Report No. F690101/LF-CTSAYAA12-17998R2A Issued Date: May 15, 2012 Page 4 of 15

Sample No. : AYAA12-17998.001
Sample Description : Au wire
Item / Part No. : 4N

Asbestos				
Test Items	Unit	Test Method	MDL	Results
Anthrophyllite	%	With reference to EPA/600/R-93/116 and USP, PLM and FT-IR	1	Negative
Crocidolite	%	With reference to EPA/600/R-93/116 and USP, PLM and FT-IR	1	Negative
Amosite	%	With reference to EPA/600/R-93/116 and USP, PLM and FT-IR	1	Negative
Tremolite	%	With reference to EPA/600/R-93/116 and USP, PLM and FT-IR	1	Negative
Chrysotile	%	With reference to EPA/600/R-93/116 and USP, PLM and FT-IR	1	Negative
Actinolite	%	With reference to EPA/600/R-93/116 and USP, PLM and FT-IR	1	Negative

Chlorinated Organic Substances				
Test Items	Unit	Test Method	MDL	Results
Polychlorinated Biphenyls (PCBs)	mg/kg	USEPA 8082 , GC/MS	3	N.D
Polychlorinated terphenyls (PCTs)	mg/kg	USEPA 8082 , GC/MS	3	N.D
Polychlorinated Naphthalene (PCN)	mg/kg	EPA 8081 A , GC/MS	5	N.D

Polymer Identification				
Test Items	Unit	Test Method	MDL	Results
PVC free	**	FT-IR	-	Negative

Organotin Compounds				
Test Items	Unit	Test Method	MDL	Results
Tributyltin (TBT)	mg/kg	DIN 38407-13 , GC/MS	0.1	N.D
Bis (tributyltin)oxide (TBTO)	mg/kg	DIN 38407-13 , GC/MS	0.1	N.D
Triphenyltin (TPHT)	mg/kg	DIN 38407-13 , GC/MS	0.1	N.D

Ozone Depleting Substances				
Test Items	Unit	Test Method	MDL	Results
Trichlorofluoromethane (CFC-11)	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Dichlorodifluoromethane (CFC-12)	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
1,1,2-Trichloro-1,2,2-trifluoroethane (CFC-113)	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Dichlorotetrafluoroethane (CFC-114)	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Chloropentafluoroethane (CFC-115)	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Chlorotrifluoromethane (CFC-13)	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Pentachlorofluoroethane (CFC-111)	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Tetrachlorodifluoroethane (CFC-112)	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Heptachlorofluoropropane (CFC-211)	mg/kg	US EPA 8260B , GC/MS	0.1	N.D

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Test Report No. F690101/LF-CTSAYAA12-17998R2A Issued Date: May 15, 2012 Page 5 of 15

Sample No. : AYAA12-17998.001
Sample Description : Au wire
Item / Part No. : 4N

Ozone Depleting Substances				
Test Items	Unit	Test Method	MDL	Results
Hexachlorodifluoropropane (CFC-212)	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Pentachlorotrifluoropropane (CFC-213)	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Tetrachlorotetrafluoropropane (CFC-214)	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Trichloropentafluoropropane (CFC-215)	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Trichlorohexafluoropropane (CFC-216)	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Chloroheptafluoropropane (CFC-217)	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
1,1,1,2-Tetrachloroethane	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
1,1,1-Trichloroethane	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
1,1,2,2-Tetrachloroethane	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
1,1,2-Trichloroethane	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
1,1-Dichloroethene	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
1,1-Dichloroethane	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
1,1-Dichloropropene	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
1,2,3-Trichloropropane	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
1,2-Dichloroethane	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
1,2-Dichloropropane	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
1,3-Dichloropropane	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
2,2-Dichloropropane	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Carbon tetrachloride	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Chloroethane	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Chloroform	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Chloromethane	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
cis-1,2-Dichloroethene	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
cis-1,3-Dichloropropene	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hexachlorobutadiene	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Methylene Chloride	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Tetrachloroethene	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
trans-1,2-Dichloroethene	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
trans-1,2-Dichloropropene	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Trichloroethylene	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Bromochlorodifluoromethane (Halon-1211)	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Bromotrifluoromethane (Halon-1301)	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Dibromotetrafluoroethane (Halon-2402)	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Methyl bromide (Halon 1001)	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Bromochloromethane (Halon 1011)	mg/kg	US EPA 8260B , GC/MS	0.1	N.D

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Test Report No. F690101/LF-CTSAYAA12-17998R2A Issued Date: May 15, 2012 Page 6 of 15

Sample No. : AYAA12-17998.001
Sample Description : Au wire
Item / Part No. : 4N

Ozone Depleting Substances				
Test Items	Unit	Test Method	MDL	Results
Dibromodifluoromethane (Halon-1202)	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-21b2	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-22b1	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-31b1	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-121b4	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-122b3	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-123b2	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-124b1	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-131b3	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-132b2	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-123b1	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-141b2	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-142b1	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-151b1	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-221b6	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-222b5	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-223b4	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-224b3	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-225b2	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-226b1	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-231b5	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-232b4	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-233b3	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-234b2	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-235b5	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-241b4	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-241b3	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-243b2	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-244b1	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-251b2	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-252b2	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-253b1	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-261b2	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-262b1	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
HBFC-271b1	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-21	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-22	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-31	mg/kg	US EPA 8260B , GC/MS	0.1	N.D

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Test Report No. F690101/LF-CTSAYAA12-17998R2A Issued Date: May 15, 2012 Page 7 of 15

Sample No. : AYAA12-17998.001
 Sample Description : Au wire
 Item / Part No. : 4N

Ozone Depleting Substances				
Test Items	Unit	Test Method	MDL	Results
Hydrochlorofluorocarbon-121	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-122	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-123	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-124	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-131	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-132b	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-133a	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-141b	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-221	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-222	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-223	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-224	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-225ca	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-225cb	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-226	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-231	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-232	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-233	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-234	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-235	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-241	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-242	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-243	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-244	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-251	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-252	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-253	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-261	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-262	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrochlorofluorocarbon-271	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrofluorocarbon-23	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrofluorocarbon-41	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrofluorocarbon-43-10mee	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrofluorocarbon-125	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrofluorocarbon-134	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrofluorocarbon-134a	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrofluorocarbon-143	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrofluorocarbon-143a	mg/kg	US EPA 8260B , GC/MS	0.1	N.D

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Test Report No. F690101/LF-CTSAYAA12-17998R2A Issued Date: May 15, 2012 Page 8 of 15

Sample No. : AYAA12-17998.001
 Sample Description : Au wire
 Item / Part No. : 4N

Ozone Depleting Substances				
Test Items	Unit	Test Method	MDL	Results
Hydrofluorocarbon-152a	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrofluorocarbon-227ea	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrofluorocarbon-236fa	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrofluorocarbon-236ea	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrofluorocarbon-245ca	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrofluorocarbon-245fa	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Hydrofluorocarbon-365mfc	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Freon 14	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Fluorocarbon 116	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Freon 218	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Decafluorobutane	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Freon 318	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Perfluoro-1-butane	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Perfluoroisobutene	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
1,4-Dihydrooctafluorobutane	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Nonafluoro-2-(trifluoromethyl)butane	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Perfluoro-n-pentane	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
2-Perfluoromethylpentane	mg/kg	US EPA 8260B , GC/MS	0.1	N.D
Perfluorohexane	mg/kg	US EPA 8260B , GC/MS	0.1	N.D

Azo Dyes				
Test Items	Unit	Test Method	MDL	Results
4-Aminodiphenyl	mg/kg	LFGB 64 BVL B 82.02.2 , GC/MS &HPLC	5	N.D
Benzidine	mg/kg	LFGB 64 BVL B 82.02.2 , GC/MS &HPLC	5	N.D
4-Chloro-o-Toluidine	mg/kg	LFGB 64 BVL B 82.02.2 , GC/MS &HPLC	5	N.D
2-Naphtylamine	mg/kg	LFGB 64 BVL B 82.02.2 , GC/MS &HPLC	5	N.D
o-Aminoazotoluene	mg/kg	LFGB 64 BVL B 82.02.2 , GC/MS &HPLC	5	N.D
2-Amino-4-Nitrotoluene	mg/kg	LFGB 64 BVL B 82.02.2 , GC/MS &HPLC	5	N.D
p-Chloroaniline	mg/kg	LFGB 64 BVL B 82.02.2 , GC/MS &HPLC	5	N.D
2,4-Diaminoanisole	mg/kg	LFGB 64 BVL B 82.02.2 , GC/MS &HPLC	5	N.D
4,4'-Diaminodiphenylmethane	mg/kg	LFGB 64 BVL B 82.02.2 , GC/MS &HPLC	5	N.D
3,3'-Dichlorobenzidine	mg/kg	LFGB 64 BVL B 82.02.2 , GC/MS &HPLC	5	N.D
3,3-Dimethoxybenzidine	mg/kg	LFGB 64 BVL B 82.02.2 , GC/MS &HPLC	5	N.D
3,3-Dimethylbenzidine	mg/kg	LFGB 64 BVL B 82.02.2 , GC/MS &HPLC	5	N.D
3,3-Dimethyl-4,4'-diaminodiphenyl Methane	mg/kg	LFGB 64 BVL B 82.02.2 , GC/MS &HPLC	5	N.D
p-Cresidine	mg/kg	LFGB 64 BVL B 82.02.2 , GC/MS &HPLC	5	N.D
4,4'-Methylen-bis-(2-chloroaniline)	mg/kg	LFGB 64 BVL B 82.02.2 , GC/MS &HPLC	5	N.D

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Test Report No. F690101/LF-CTSAYAA12-17998R2A Issued Date: May 15, 2012 Page 9 of 15

Sample No. : AYAA12-17998.001
 Sample Description : Au wire
 Item / Part No. : 4N

Azo Dyes				
Test Items	Unit	Test Method	MDL	Results
4,4'-Oxydianiline	mg/kg	LFGB 64 BVL B 82.02.2 , GC/MS &HPLC	5	N.D
4-Aminodiphenyl	mg/kg	LFGB 64 BVL B 82.02.2 , GC/MS &HPLC	5	N.D
o-Toluidine	mg/kg	LFGB 64 BVL B 82.02.2 , GC/MS &HPLC	5	N.D
2,4-Toluenediamine	mg/kg	LFGB 64 BVL B 82.02.2 , GC/MS &HPLC	5	N.D
2,4,5-Trimethylaniline	mg/kg	LFGB 64 BVL B 82.02.2 , GC/MS &HPLC	5	N.D
o-Anisidine	mg/kg	LFGB 64 BVL B 82.02.2 , GC/MS &HPLC	5	N.D
4-Aminoazobenzene	mg/kg	LFGB 64 BVL B 82.02.2 , GC/MS &HPLC	5	N.D
2,4-Xylidine	mg/kg	LFGB 64 BVL B 82.02.2 , GC/MS &HPLC	5	N.D
2,6-Xylidine	mg/kg	LFGB 64 BVL B 82.02.2 , GC/MS &HPLC	5	N.D

Formaldehyde Contents				
Test Items	Unit	Test Method	MDL	Results
Formaldehyde	mg/kg	EPA8315A, HPLC	5	N.D

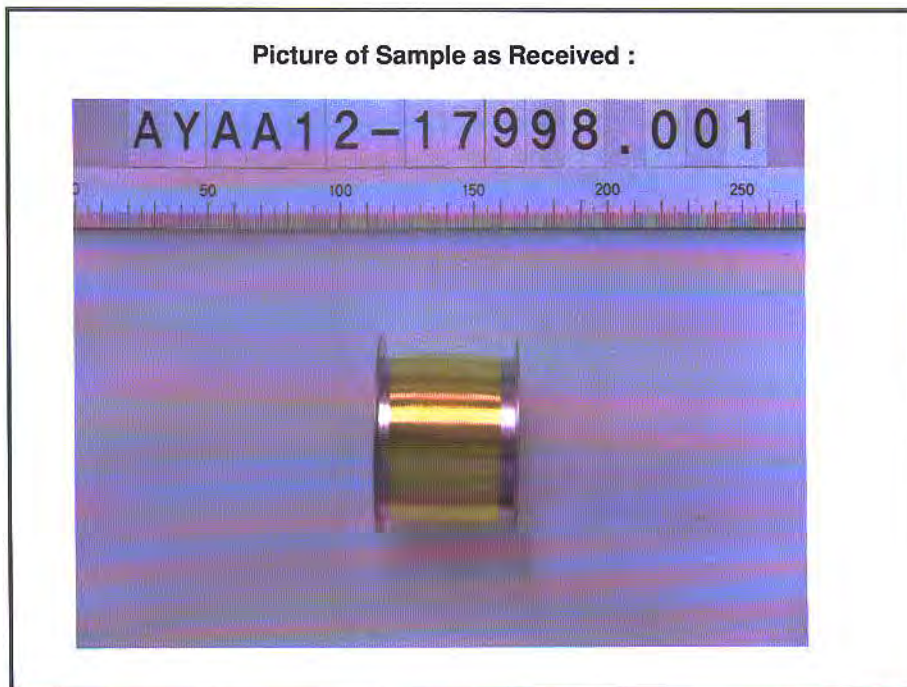
Other(s)				
Test Items	Unit	Test Method	MDL	Results
PFOA(Perfluorooctanoic acid)	mg/kg	US EPA 3540C/3550C, LC/MS	1	N.D
PFOS(Perfluorooctane Sulfonates-Acid/Metal Salt/Amide)	mg/kg	US EPA 3540C/3550C, LC/MS	1	N.D
Benzotriazole (UV-320)	mg/kg	US EPA 3540C, GC/MS	5	N.D
Sulfur	mg/kg	BS EN 14582:2007, IC	30	N.D

- NOTE :
- (1) N.D.= Not detected.(<MDL)
 - (2) mg/kg = ppm
 - (3) MDL.= Method Detection Limit
 - (4) _ = No regulation
 - (5) ** = Qualitative analysis (No Unit)
 - (6) Negative = Undetectable / Positive = Detectable

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Sample No. : AYAA12-17998.001
Sample Description : Au wire
Item / Part No. : 4N

Radioactives Substances			
Test Items	Unit	Test Method	Results
Radioactive Radiation (γ-ray)	μSv/ hour	Geiger counter	Negative*
Back ground	μSv/ hour	Geiger counter	0.15±0.05

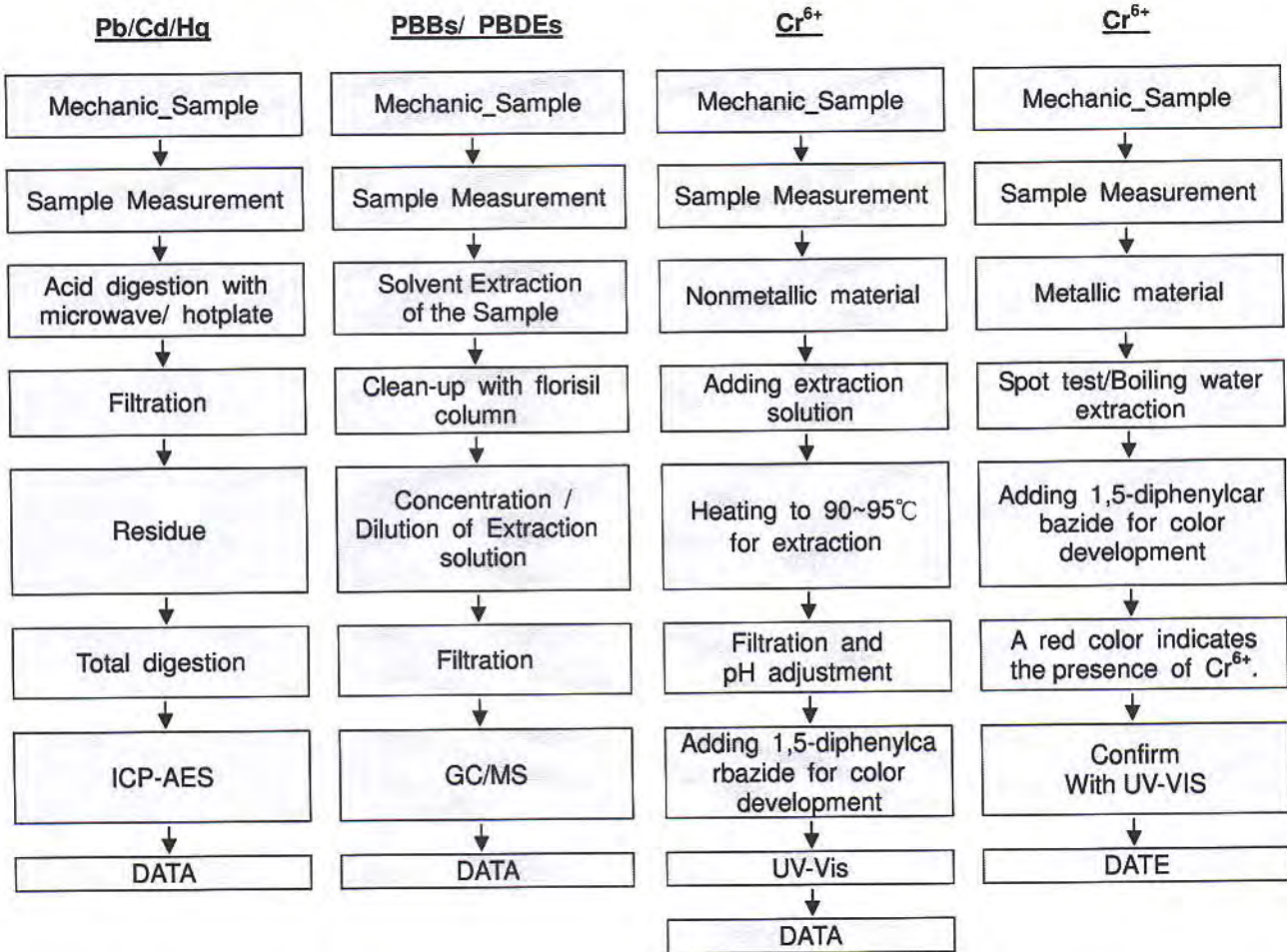


NOTE :

(1) **Negative*/Positive*** : The test result of Geiger counter is from comparison between test outcome and environment background . In general ,there is little radiation dose existing in environment. The test result less than environment background was shown as Negative * , the result greater than environment background was shown as Positive* .

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Testing Flow Chart for RoHS: Pb/Cd/Hg/Cr⁶⁺/PBBs & PBDEs Testing

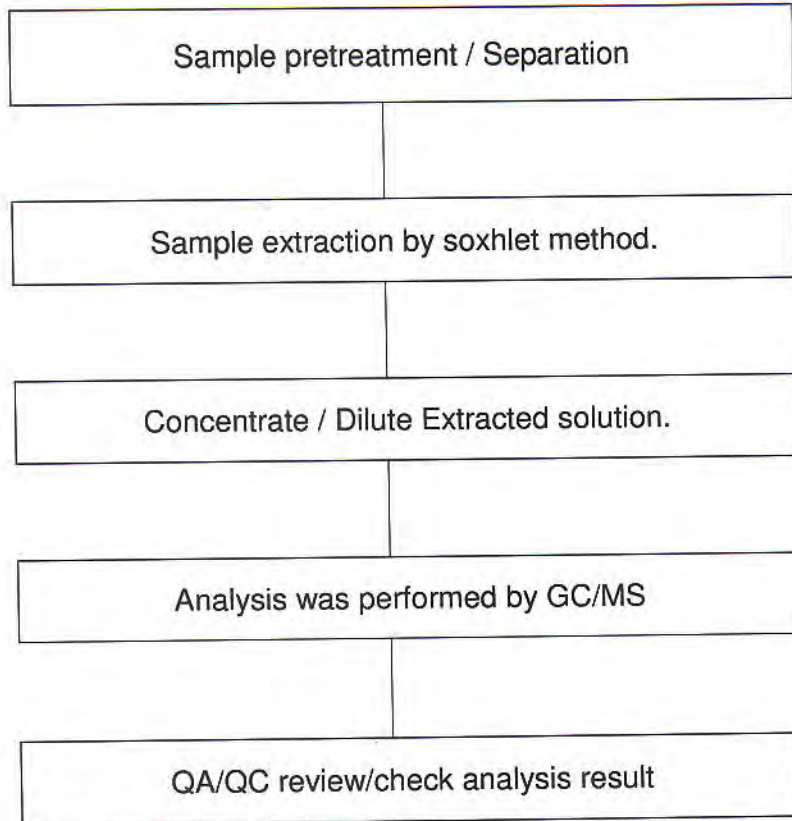


The samples were dissolved totally by pre-conditioning method according to above flow chart for Cd,Pb,Hg.

Section Chief

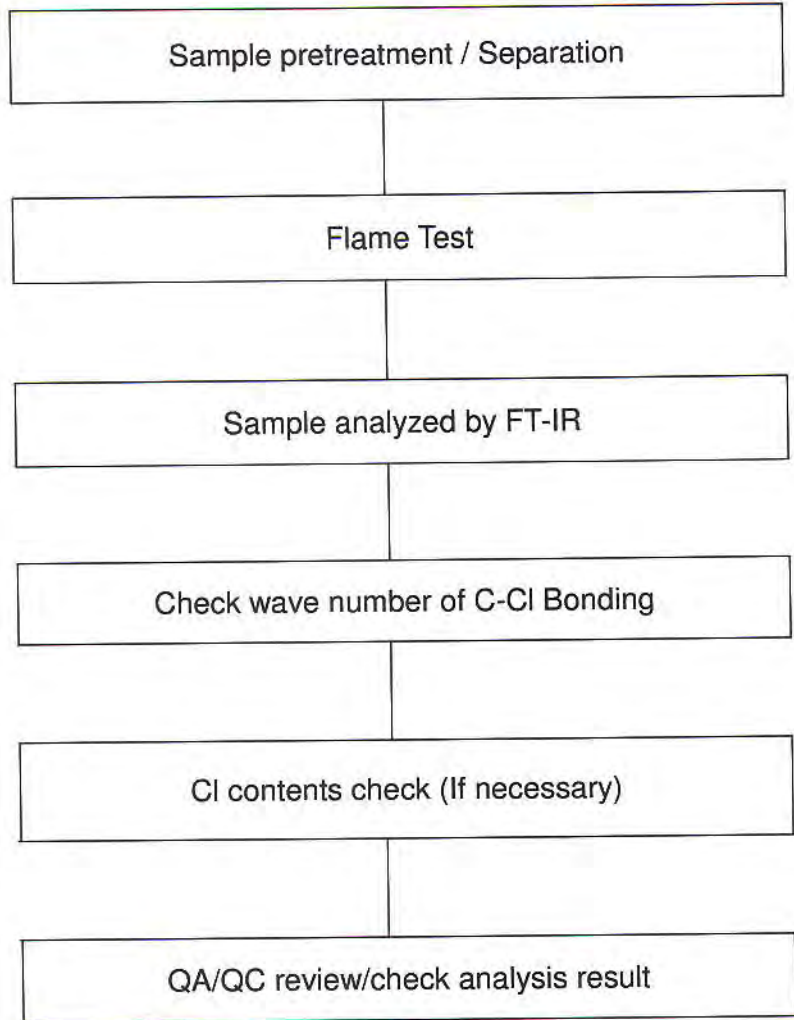
Gilsae Yi

Flow Chart for Phthalate Test

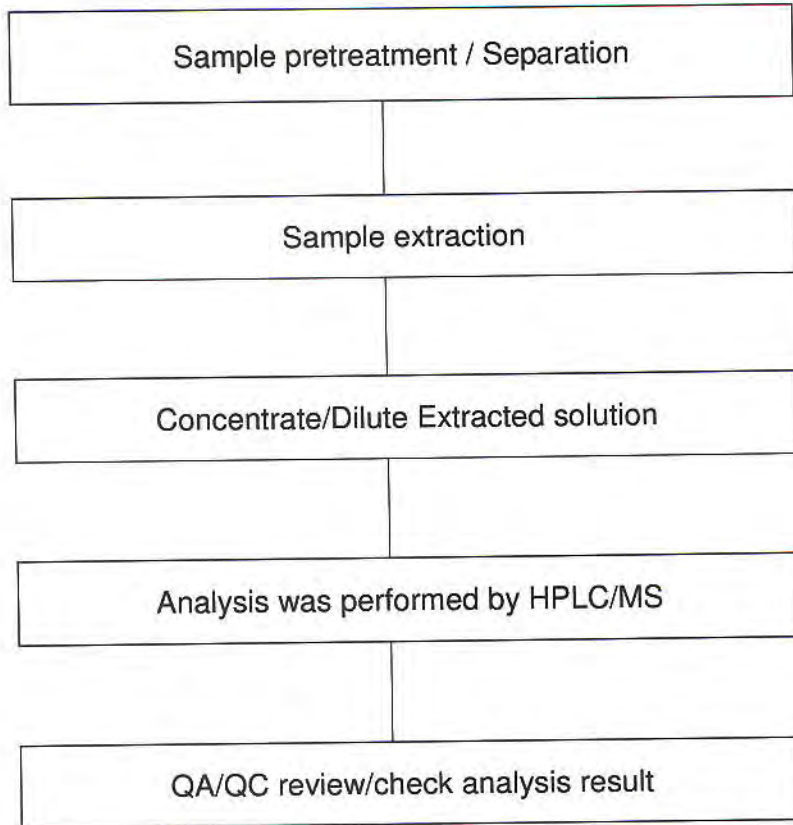


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Flow Chart for PVC Test



Flow Chart for PFOS/PFOA Test



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Test Report

No. SHAEC1105615904

Date: 28 Apr 2011

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SUMITOMO BAKELITE (SUZHOU) CO., LTD.

140JINJIHU ROAD, START-UP AREA, CHINA-SINGAPORE SUZHOU INDUSTRIAL PARK

The following sample(s) was/were submitted and identified on behalf of the clients as : EME-6300 TYPE H7L

SGS Job No. : SP11-011914 - SH
Date of Sample Received : 22 Apr 2011
Testing Period : 22 Apr 2011 - 28 Apr 2011
Test Requested : Selected test(s) as requested by client.
Test Method : Please refer to next page(s).
Test Results : Please refer to next page(s).

Signed for and on behalf of
SGS-CSTC Ltd.

Fan Jingjie, JJ
Approved Signatory

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Test Report

No. SHAEC1105615904

Date: 28 Apr 2011

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	SHA11-056159.002	Dark grey solid grain

Remarks :

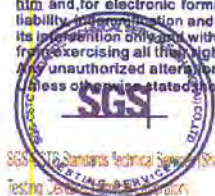
- (1) 1 mg/kg = 1 ppm = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) "-" = Not Regulated

RoHS Directive 2002/95/EC

- Test Method :
- (1) With reference to IEC 62321:2008 (Section 8) for Cadmium content. Analysis was performed by ICP-OES and AAS.
 - (2) With reference to IEC 62321:2008 (Section 8) for Lead content. Analysis was performed by ICP-OES and AAS.
 - (3) With reference to IEC 62321:2008 (Section 7) for Mercury content. Analysis was performed by ICP-OES.
 - (4) With reference to IEC 62321:2008 (ANNEX C) for Hexavalent Chromium by Spot test / Colorimetric Method.
Analysis was performed by UV/Vis Spectrophotometer.
 - (5) With reference to IEC 62321:2008 (ANNEX A) for PBBs / PBDEs content. Analysis was performed by GC/MS.

Test Item(s)	Limit	Unit	MDL	002
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	17
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	1,000	mg/kg	2	ND
Sum of PBBs	1,000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND

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Test Report

No. SHAEC1105615904

Date: 28 Apr 2011

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<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND

Notes :

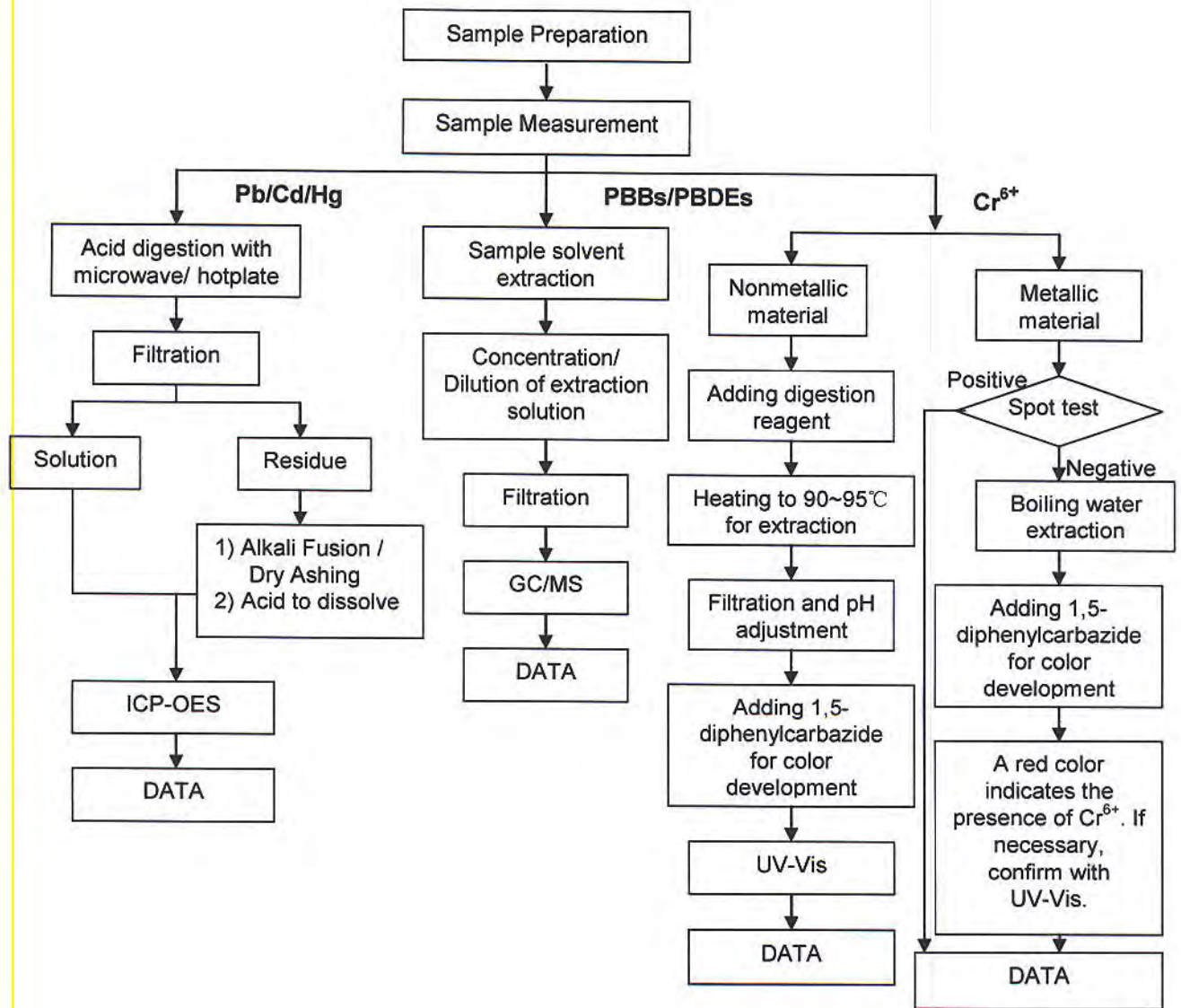
- (1) The maximum permissible limit is quoted from the document 2005/618/EC amending RoHS directive 2002/95/EC

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ATTACHMENTS

RoHS Testing Flow Chart

- 1) Name of the person who made testing: Jan Shi/Even Xu/Allen Xiao/Gary Xu
- 2) Name of the person in charge of testing: Jeff Zhang/George Xu/ Elim Lin
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ and PBBs/PBDEs test method excluded)



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Sample photo:



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*** End of Report ***

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Test Report

No. SHAEC1105615905

Date: 28 Apr 2011

Page 1 of 4

SUMITOMO BAKELITE (SUZHOU) CO., LTD.

140JINJIHU ROAD, START-UP AREA, CHINA-SINGAPORE SUZHOU INDUSTRIAL PARK

The following sample(s) was/were submitted and identified on behalf of the clients as : EME-6300 TYPE H7L

SGS Job No. : SP11-011914 - SH
Date of Sample Received : 22 Apr 2011
Testing Period : 22 Apr 2011 - 28 Apr 2011
Test Requested : Selected test(s) as requested by client.
Test Method : Please refer to next page(s).
Test Results : Please refer to next page(s).

Signed for and on behalf of
SGS-CSTC Ltd.

Fan Jingjie, JJ
Approved Signatory

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SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
Testing Center

3rd Building, No. 889 Yishan Road Xuhui District, Shanghai China 200233
中国·上海·徐汇区宜山路889号3号楼 邮编: 200233

t E&E (86-21) 61402553 f E&E (86-21) 64953679 www.cn.sgs.com
HL: (86-21) 61402594 HL: (86-21) 54500353 e sgs.china@sgs.com

Member of the SGS Group (SGS SA)



Test Report

No. SHAEC1105615905

Date: 28 Apr 2011

Page 2 of 4

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	SHA11-056159.002	Dark grey solid grain

Remarks :

- (1) 1 mg/kg = 1 ppm = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) "-" = Not Regulated

PFOS (Perfluorooctane Sulfonates) and PFOA (Perfluorooctanoic Acid)

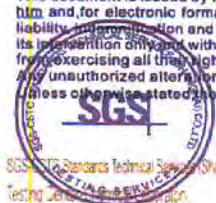
Test Method : With reference to US EPA 3550C: 2007, analysis was performed by HPLC-MS.

Test Item(s)	Unit	MDL	002
Perfluorooctane Sulfonates (PFOS) and related Acid, Metal Salt and Amide	mg/kg	10	ND
Perfluorooctyl Acid (PFOA)	mg/kg	10	ND

Notes :

- (1) PFOS Reference Information: Entry 53 of Regulation (EC) No 552/2009 amending Annex XVII of REACH Regulation (EC) No 1907/2006 (previously restricted under Directive 2006/122/EC)
 - (i) May not be placed on the market or used as a substance or constituent of preparations in a concentration equal to or higher than 0.005 % by mass.
 - (ii) May not be placed on the market in semi-finished products or articles, or parts thereof, if the concentration of PFOS is equal to or higher than 0.1 % by mass calculated with reference to the mass of structurally or microstructurally distinct parts that contain PFOS or, for textiles or other coated materials, if the amount of PFOS is equal to or higher than 1µg /m² of the coated material. Please refer to Regulation (EC) No 552/2009 to get more detail information

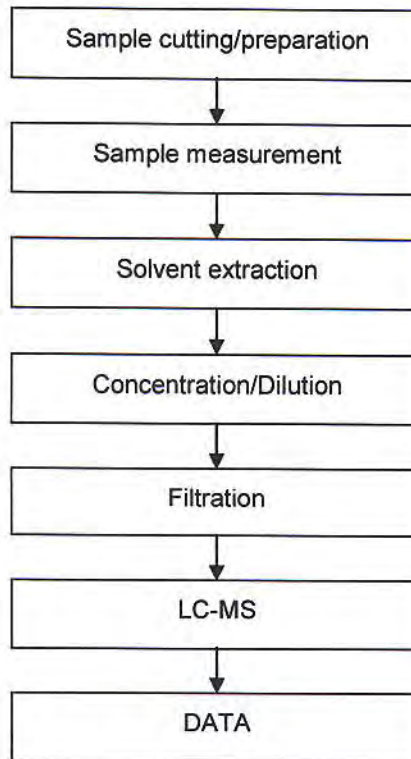
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ATTACHMENTS

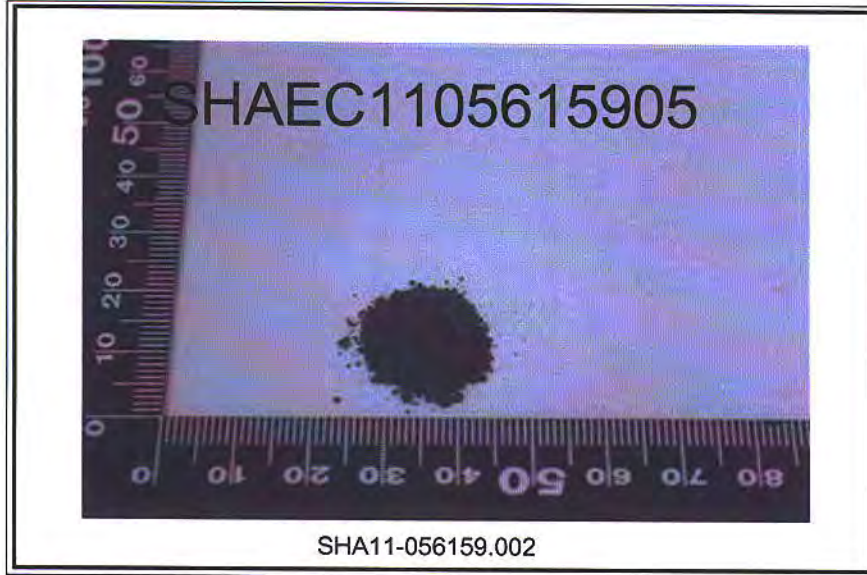
PFOS/PFOA Testing Flow Chart

- 1) Name of the person who made testing: Judy Li
- 2) Name of the person in charge of testing: Nancy Du



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Sample photo:



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Test Report

No. LPCI/27864/11
CTS Ref. CTS/11/5009/Redring

Date : 03/01/2012

Page: 1 of 7

REDRING SOLDER (M) SDN. BHD.
LOT 17486, JALAN DUA, TAMAN SELAYANG BARU
68100 BATU CAVES, SELANGOR DARUL EHSAN, MALAYSIA

The following merchandise was (were) submitted and identified by the client as:

Sample Description : Pure Tin Solder
Sample Receiving Date : 27/12/2011
Testing Period : 27/12/2011 to 03/01/2012

Test Requested : Selected test(s) as requested by client
Test Method : Please refer to next page(s).
Test Results : Please refer to next page(s).
Analysts : Teh Pui Sean, Tay Siam Pine & Eileen Tan Yi Pin

SGS LABORATORY SERVICES (M) SDN. BHD.

CHONG KIEN LEN
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LAB MANAGER

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Test Report

No. LPCI/27864/11
 CTS Ref. CTS/11/5009/Redring

Date : 03/01/2012

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Test results:

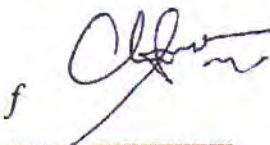
Test Part Description :

Sample Description : Pure Tin Solder

RoHS Directive 2011/65/EU Annex II

Test Item(s):	Unit	Test Method	Results	MDL
Cadmium(Cd)	mg/kg	With reference to IEC 62321:2008, and performed by ICP-OES	N.D.	2
Lead (Pb)	mg/kg	With reference to IEC 62321:2008, and performed by ICP-OES	6	2
Mercury (Hg)	mg/kg	With reference to IEC 62321:2008, and performed by ICP-OES	N.D.	2
Hexavalent Chromium (CrVI) by Spot test / boiling water extraction (optional) #	---	With reference to IEC 62321:2008, and performed by UV-VIS Spectrophotometry (boiling water extraction only)	Negative	0.02mg/kg per 50cm ² sample in 50mL solution
Sum of PBBs	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	-
Monobromobiphenyl	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Dibromobiphenyl	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Tribromobiphenyl	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Tetrabromobiphenyl	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Hexabromobiphenyl	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Pentabromobiphenyl	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Heptabromobiphenyl	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Octabromobiphenyl	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Nonabromobiphenyl	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Decabromobiphenyl	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5

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Test Report

No. LPCI/27864/11
 CTS Ref. CTS/11/5009/Redring

Date : 03/01/2012

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Sum of PBDEs	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	-
Monobromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Dibromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Tribromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Tetrabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Pentabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Hexabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Heptabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Octabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Nonabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Decabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5

Note : (a) mg/kg = ppm ; (0.1wt% = 1000ppm)

(b) N.D. = Not Detected

(c) MDL = Method Detection Limit

(d) # = **Spot-Test:**

a. Negative means the absence of Cr(VI) on the tested areas

b. Positive means the presence of Cr(VI) on the tested areas

(The tested sample should be further verified by boiling-water-extraction method if the spot test result is negative or cannot be confirmed)

Boiling water extraction:

a. Negative means the absence of Cr(VI) on the tested areas

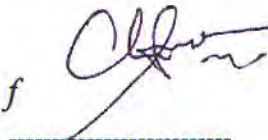
b. Positive means the presence of Cr(VI) on the tested areas;

The detected concentration in 50 mL boiling water extraction solution is equal or greater than 0.02 mg/kg with 50 cm² sample surface area.

For corrosion protection coatings on metals: Information on storage conditions and production date of the tested sample is unavailable and thus results of Cr(VI) represent status of the sample at the time of testing.

(e) - = Not regulated

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Test Report

No. LPCI/27864/11
 CTS Ref. CTS/11/5009/Redring

Date : 03/01/2012

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Test results by chemical method:

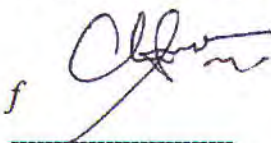
Test Item (s):	Unit	Method	Result	MDL
Antimony (Sb)	ppm	With reference to EPA Method 3051A, and performed by ICP-OES	N.D.	2
Halogen	---	---	---	---
Halogen-Fluorine (F)	mg/kg	With reference to BS EN 14582. Analysis was performed by IC method for Fluorine content.	N.D.	50
Halogen-Chlorine (Cl)	mg/kg	With reference to BS EN 14582. Analysis was performed by IC method for Chlorine content.	N.D.	50
Halogen-Bromine (Br)	mg/kg	With reference to BS EN 14582. Analysis was performed by IC method for Bromine content.	N.D.	50
Halogen-Iodine (I)	mg/kg	With reference to BS EN 14582. Analysis was performed by IC method for Iodine content.	N.D.	50

Test Part Description:

Sample Description : Pure Tin Solder

Note : (a) mg/kg = ppm
 (b) N.D. = Not Detected
 (c) MDL = Method Detection Limit
 (d) --- = Not Conducted

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Test Report

No. LPCI/27864/11
CTS Ref. CTS/11/5009/Redring

Date : 03/01/2012

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Test Part Description :

Sample Description : Pure Tin Solder



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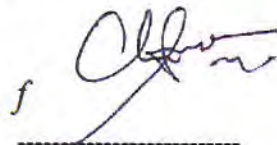
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1. MICROWAVE ASSISTED ACID DIGESTION OF ORGANICALLY BASED METRICES (US EPA 3051A)

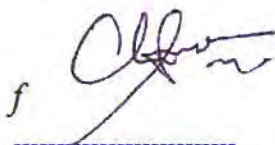
Cut sample in small pieces
↓
Weight sample (0.2-0.5g) into digestion vessel
↓
Acid digestion (HNO₃) – Microwave
↓
"Totally Dissolved"
↓
Filtration
↓
Analyses by ICP

2. DETERMINATION OF HALOGEN CONTENT

Sample pretreatment
↓
Weighting and putting sample in cell
↓
Combustion / Absorption
↓
Dilution to fixed volume
↓
Analyses by IC

**** End of Report ****

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Test Report

No. : CE/2012/12342

Date : 2012/01/18

Page: 1 of 4

EPISIL TECHNOLOGIES INC.

NO. 3, INNOVATION ROAD 1, SCIENCE BASED INDUSTRIAL PARK, HSINCHU, TAIWAN, R. O. C.



The following sample(s) was/were submitted and identified by/on behalf of the client as:

Sample Description : IC WAFER
Style/Item No. : ALUMINUM PROCESS
Sample Receiving Date : 2012/01/11
Testing Period : 2012/01/11 TO 2012/01/18

Test Requested : As specified by client, with reference to RoHS Directive 2011/65/EU Annex II to determine Cadmium, Lead, Mercury, Cr(VI) contents in the submitted sample.

Test Result(s) : Please refer to next page(s).


Nicole Chien, Supervisor
Signed for and on behalf of
SGS TAIWAN LTD.
Chemical Laboratory - Taipei

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Test Report

No. : CE/2012/12342

Date : 2012/01/18

Page: 2 of 4

EPISIL TECHNOLOGIES INC.

NO. 3, INNOVATION ROAD 1, SCIENCE BASED INDUSTRIAL PARK, HSINCHU, TAIWAN, R. O. C.



Test Result(s)

PART NAME No.1 : MULTICOLOR WAFER

Test Item(s)	Unit	Method	MDL	Result
				No.1
Cadmium (Cd)	mg/kg	With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
Lead (Pb)	mg/kg	With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
Mercury (Hg)	mg/kg	With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
Hexavalent Chromium Cr(VI)	mg/kg	With reference to IEC 62321: 2008 and performed by UV-VIS.	2	n.d.

Note :

1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. n.d. = Not Detected
3. MDL = Method Detection Limit

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Test Report

No. : CE/2012/12342

Date : 2012/01/18

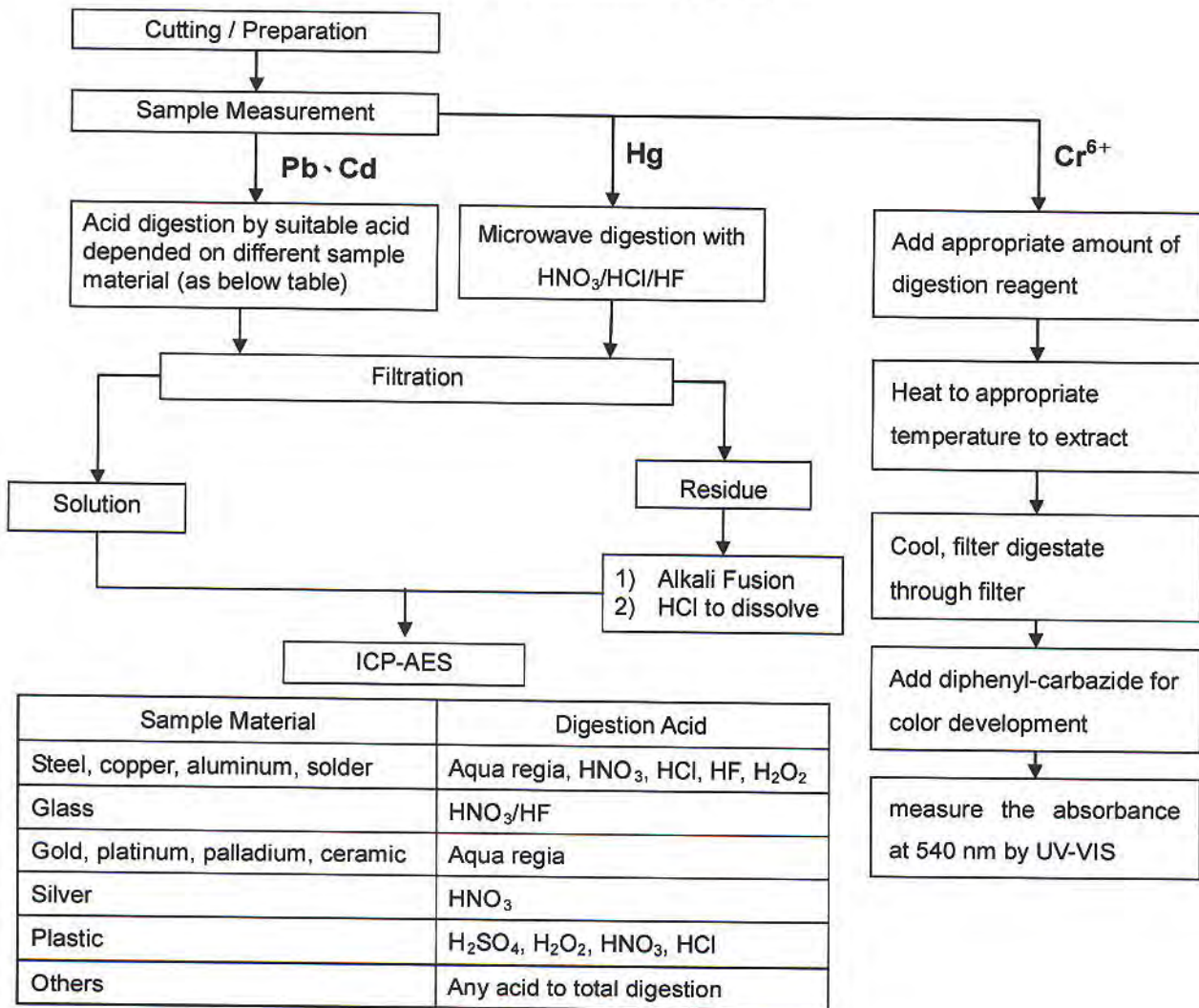
Page: 3 of 4

EPISIL TECHNOLOGIES INC.

NO. 3, INNOVATION ROAD 1, SCIENCE BASED INDUSTRIAL PARK, HSINCHU, TAIWAN, R. O. C.



- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ test method excluded)
- 2) Name of the person who made measurement: Climbgreat Yang
- 3) Name of the person in charge of measurement: Troy Chang



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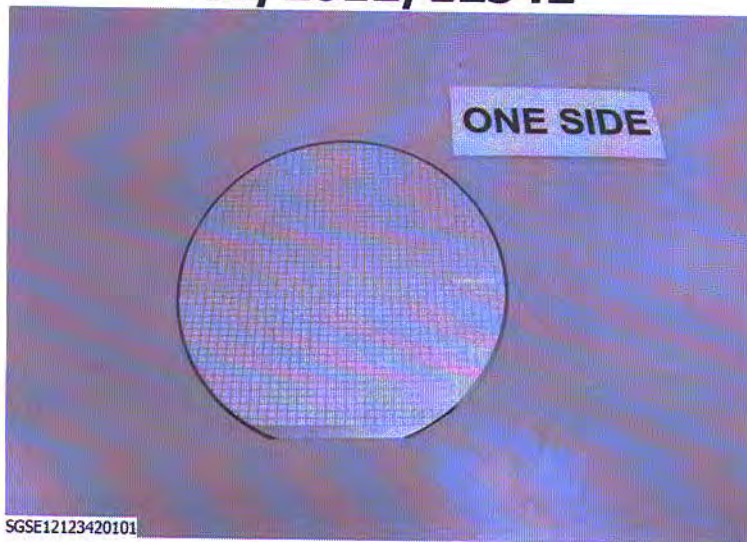
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* The tested sample / part is marked by an arrow if it's shown on the photo. *

CE/2012/12342



CE/2012/12342



** End of Report **

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