



## ICP Test Report Certification Packet

Company name: Littelfuse, Inc.

Product Series: Surface Mount Diode Array

Product #: SP721ABTG, SP723ABTG, SP725ABTG/ATG

Issue Date: July 25, 2011

It is hereby certified by Littelfuse, Inc. that there is neither RoHS (EU Directive 2002/95/EC)-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 Surface Mount Diode Array 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**

<b>Total Parts</b>	<b>Raw Material Part Number</b>	<b>Raw Material Description</b>	<b>Page(s)</b>
1	A194	Lead Frame	3-13
2	84-1 LMISR4	Epoxy Adhesive	14-39
3	N/A	Gold Wire	40-55
4	EME G600	Molding Compound	56-63
5	N/A	Tin Plating	64-69
6	N/A	IC Wafer	70-73



# 測試報告 Test Report

Validity unknown

For Question  
Please Contact with SGS  
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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/C194 ALLOY
收件日期(Sample Receiving Date)	: 2011/01/05
測試期間(Testing Period)	: 2011/01/05 TO 2011/01/10

測試結果(Test Results)

: 請見下一頁 (Please refer to next pages).

根據客戶所提供的樣品，其鎘、鉛、汞、六價鉻、多溴聯苯及多溴聯苯醚的測試結果符合RoHS(2002/95/EC)及其修定指令之要求 (Based upon the performed tests by submitted samples, the test results of Cadmium, Lead, Mercury, Hexavalent Chromium Cr(VI), PBBs and PBDEs comply with the limits of RoHS Directive 2002/95/EC and its subsequent amendments).

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



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# 測試報告

# Test Report

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### 測試結果 (Test Results)

測試部位(PART NAME) NO.1 : 銅紅色 A194/C194 ALLOY (COPPER RED A194/C194 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)	法規 限值 (Limit)
				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.	100
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	n.d.	1000
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.	1000
六價鉻 / Hexavalent Chromium Cr(VI) by Spot test / boiling water extraction	**	參考 IEC 62321: 2008 方法, 用 Spot test / boiling water extraction 方法檢測. / With reference to IEC 62321: 2008 and performed by Spot test / boiling water extraction Method. (See Note 5)	0.02mg/kg with 50 cm <sup>2</sup> 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.	-

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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)	法規 限值 (Limit)
				NO.1	
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.	-
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.	-

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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)	法規 限值 (Limit)
				NO.1	
多溴聯苯總和 / Sum of PBBs	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.	1000
一溴聯苯 / Monobromobiphenyl			5	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.	-
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.	1000
一溴聯苯醚 / Monobromodiphenyl			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			5	n.d.	-
五溴聯苯醚 / Pentabromodiphenyl			5	n.d.	-
六溴聯苯醚 / Hexabromodiphenyl			5	n.d.	-
七溴聯苯醚 / Heptabromodiphenyl			5	n.d.	-
八溴聯苯醚 / Octabromodiphenyl			5	n.d.	-
九溴聯苯醚 / Nonabromodiphenyl			5	n.d.	-
十溴聯苯醚 / Decabromodiphenyl			5	n.d.	-

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## 測試報告

## Test Report

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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)
5. Spot-test:  
Negative = Absence of Cr(VI) coating / surface layer(鍍層中偵測不到六價鉻),  
Positive = Presence of Cr(VI) coating / surface layer(鍍層中偵測到六價鉻);  
The tested sample should be further verified by boiling-water-extraction method if the spot test result cannot be confirmed.  
(當該測項無法確認時, 測試樣品可藉由boiling-water-extraction測試方法進一步確認)
- Boiling-water-extraction:  
Negative = Absence of Cr(VI) coating / surface layer(鍍層中偵測不到六價鉻),  
Positive = Presence of Cr(VI) coating / surface layer(鍍層中偵測到六價鉻);  
the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm<sup>2</sup> sample surface area.  
該溶液濃度 $\geq$ 0.02 mg/kg with 50 cm<sup>2</sup> (sample surface area)
6. # = Positive indicates the presence of Cr(VI) on the tested areas and result be regarded as not comply with RoHS requirement. (Positive表示測試區域之六價鉻不符合RoHS要求)  
Negative indicates the absence of Cr(VI) on the tested areas and result be regarded as comply with RoHS requirement. (Negative表示測試區域之六價鉻符合RoHS要求)

### 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 $1\mu\text{g}/\text{m}^2$ 。  
(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  $1\mu\text{g}/\text{m}^2$  of the coated material.)

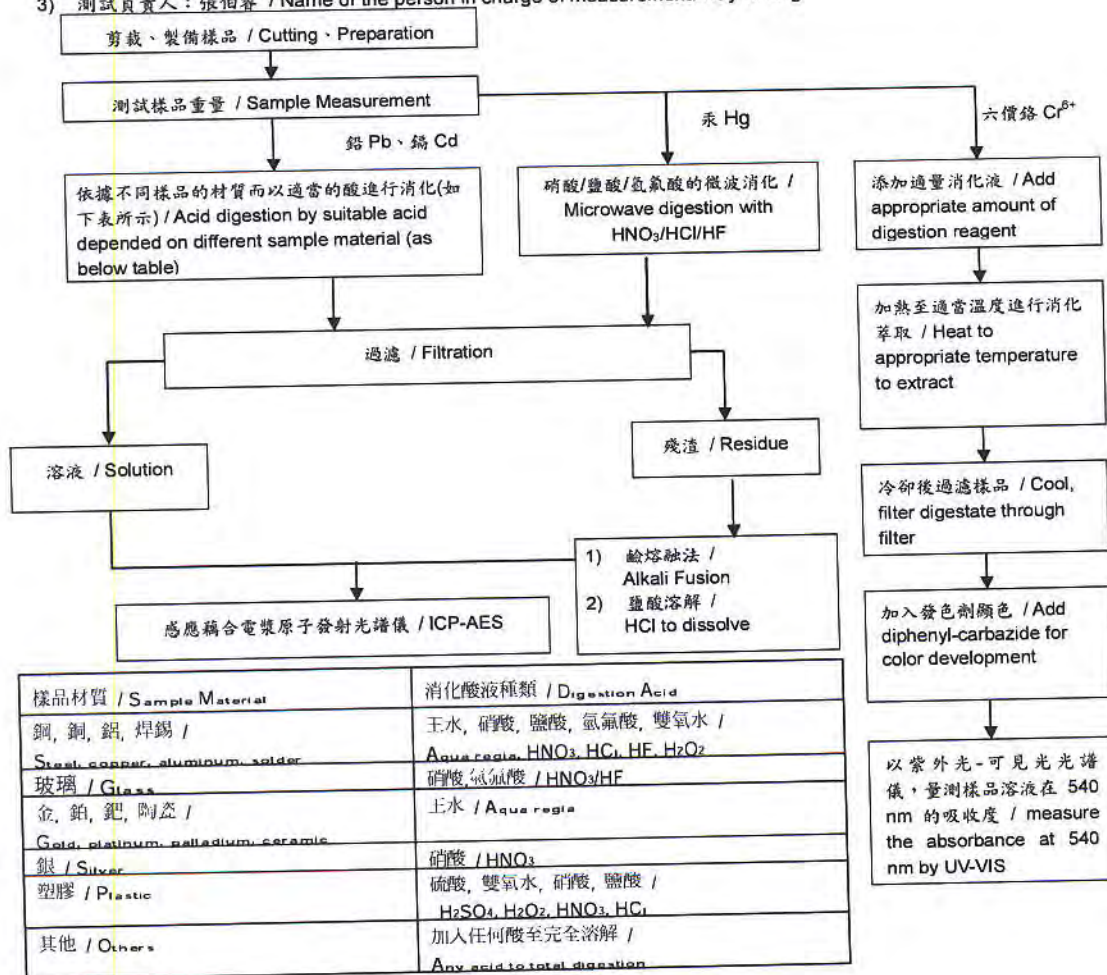
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- 1) 根據以下的流程圖之條件，樣品已完全溶解。(六價鉻測試方法除外) / These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr<sup>6+</sup> test method excluded)
- 2) 測試人員：張俊雄 / Name of the person who made measurement: Alex Chang
- 3) 測試負責人：張伯容 / Name of the person in charge of measurement: Ray Chang



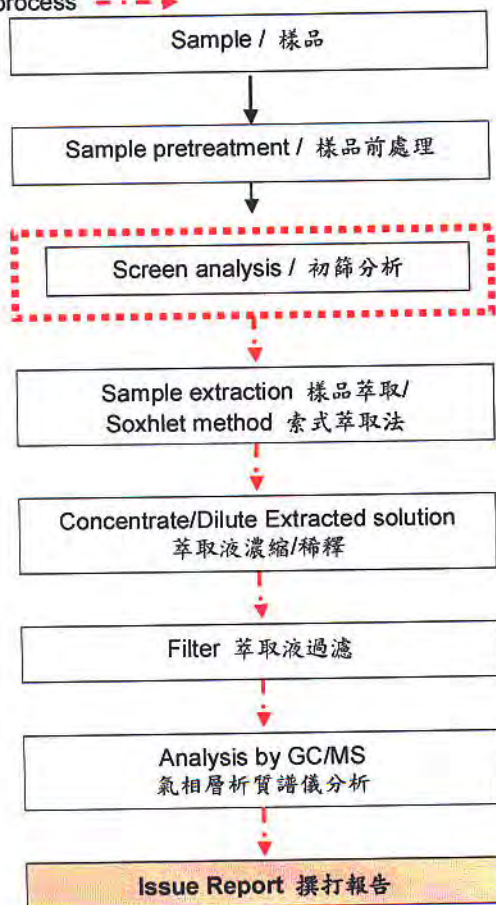


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### 多溴聯苯/多溴聯苯醚 分析流程圖 / PBB/PBDE analytical FLOW CHART

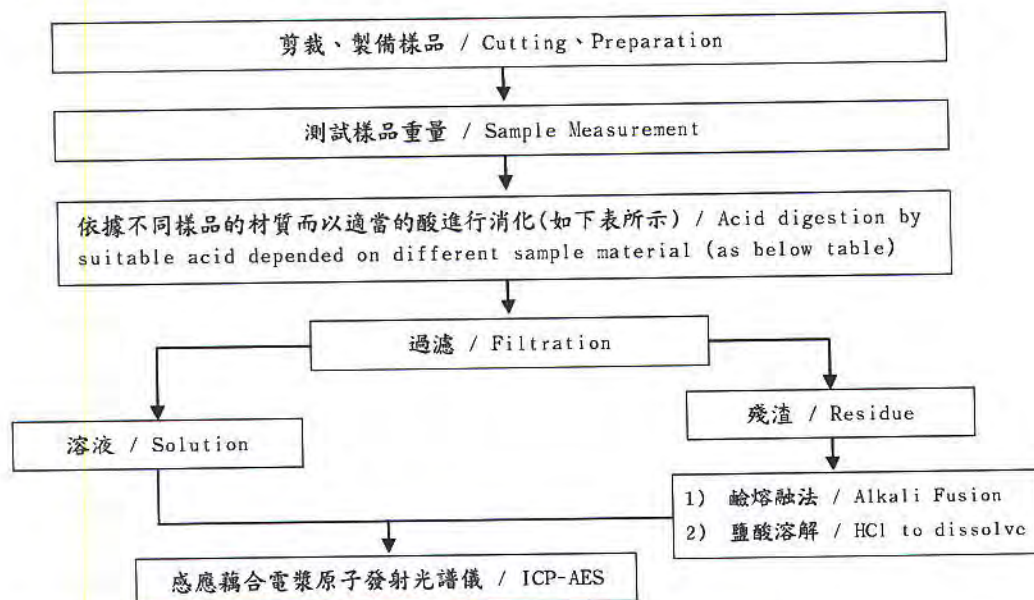
- 1) 測試人員 : 曹嘉琪 / Name of the person who made measurement: Anson Tsao  
2) 測試負責人 : 張伯睿 / Name of the person in charge of measurement: Ray Chang
- 初次測試程序 / First testing process —————→  
選擇性篩檢程序 / Optional screen process .....  
確認程序 / Confirmation process - - - - -→



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- 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：張伯睿 / Name of the person in charge of measurement: Ray Chang

(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 <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub>
玻璃 / Glass	硝酸,氫氟酸 / HNO <sub>3</sub> /HF
金,鉑,鈀,陶瓷 / Gold, platinum, palladium, ceramic	王水 / Aqua regia
銀 / Silver	硝酸 / HNO <sub>3</sub>
塑膠 / Plastic	硫酸,雙氧水,硝酸,鹽酸 / H <sub>2</sub> SO <sub>4</sub> , H <sub>2</sub> O <sub>2</sub> , HNO <sub>3</sub> , HCl
其他 / Others	加入任何酸至完全溶解 / Any acid to total digestion





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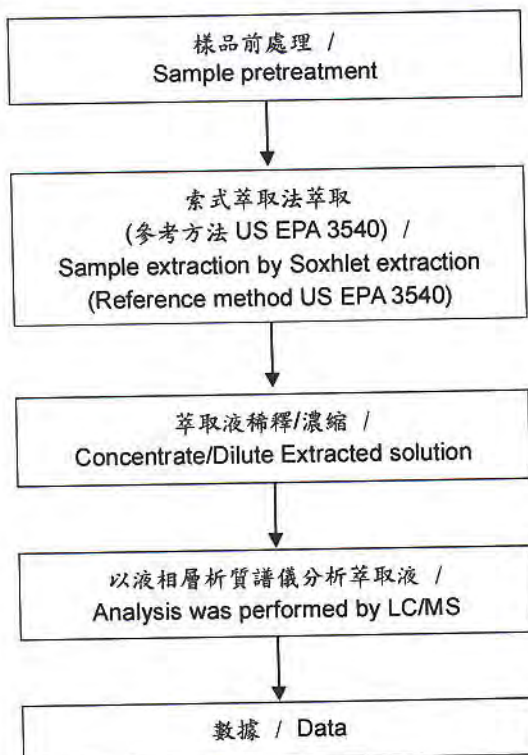
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### 全氟辛酸(鉍)/ 全氟辛烷磺酸分析流程圖 /

#### 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





# 測試報告 Test Report

號碼(No.) : KA/2011/10113 日期(Date) : 2011/01/10 頁數(Page) : 10 of 11

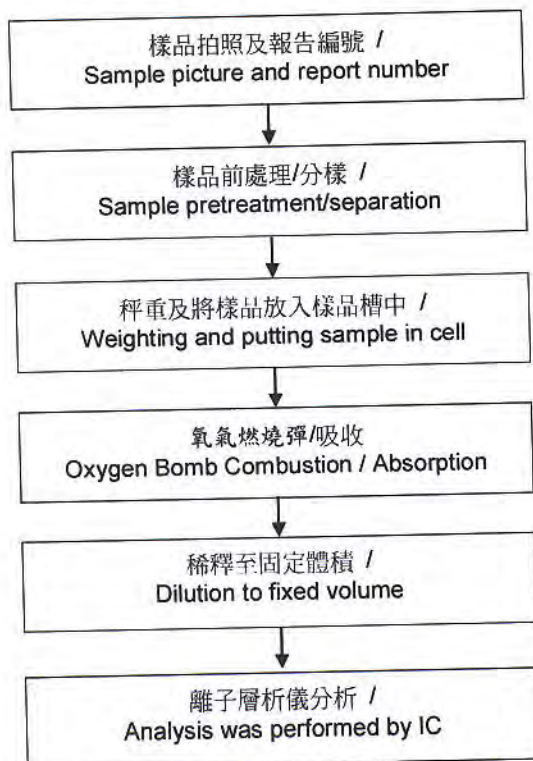


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## 鹵素分析流程圖 / Analytical flow chart of halogen content

- 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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# SGS

## 測試報告

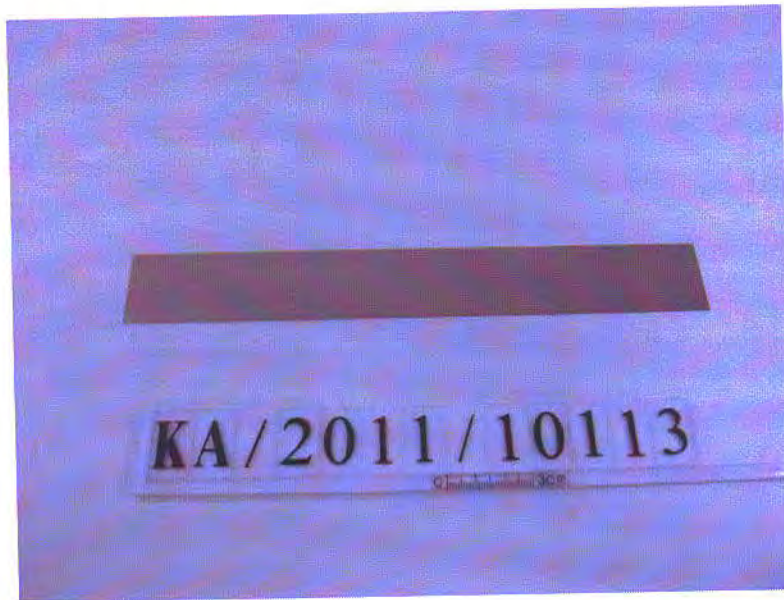
## Test Report

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\*\* 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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## Test Report

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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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## Test Report

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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.
<b>Sum of PBBs</b>			-	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.
<b>Sum of PBDEs</b>			-	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.
<b>AZO</b>				
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 Report

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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
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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## Test Report

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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.
<b>CFC's (Chlorofluorocarbons)</b>				
<b>Group I</b>				
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.
<b>Group III</b>				
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.
<b>HCFCs (Hydrochlorofluorocarbons)</b>				
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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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-271 (CAS No.: 000430-55-7)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
<b>Halons</b>				
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.
<b>HBFCs (Hydrobromofluorocarbons)</b>				
HBFC-21B2 (CHBrF2) (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 (CHF2Br) (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 (CH2FBr) (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 (C2HFBr4)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-122B3 (C2HF2Br3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-123B2 (C2HF3Br2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-124B1 (C2HF4Br)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-131B3 (C2H2FBr3)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-132B2 (C2H2F2Br2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-133B1 (C2H2F3Br)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-141B2 (C2H3FBr2)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-142B1 (C2H3F2Br)	mg/kg	With reference to US EPA 5021 method. Analysis was performed by GC/MS.	1	n.d.
HBFC-151B1 (C2H4FBr)	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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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-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.
<b>HFCs (Hydrofluorocarbon)</b>				
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.
<b>PFCs (Perfluorocarbon)</b>				
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.
<b>CHCs (Chlorinate hydrocarbon)</b>				
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/m<sup>2</sup> of the coated material.

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## Test Report

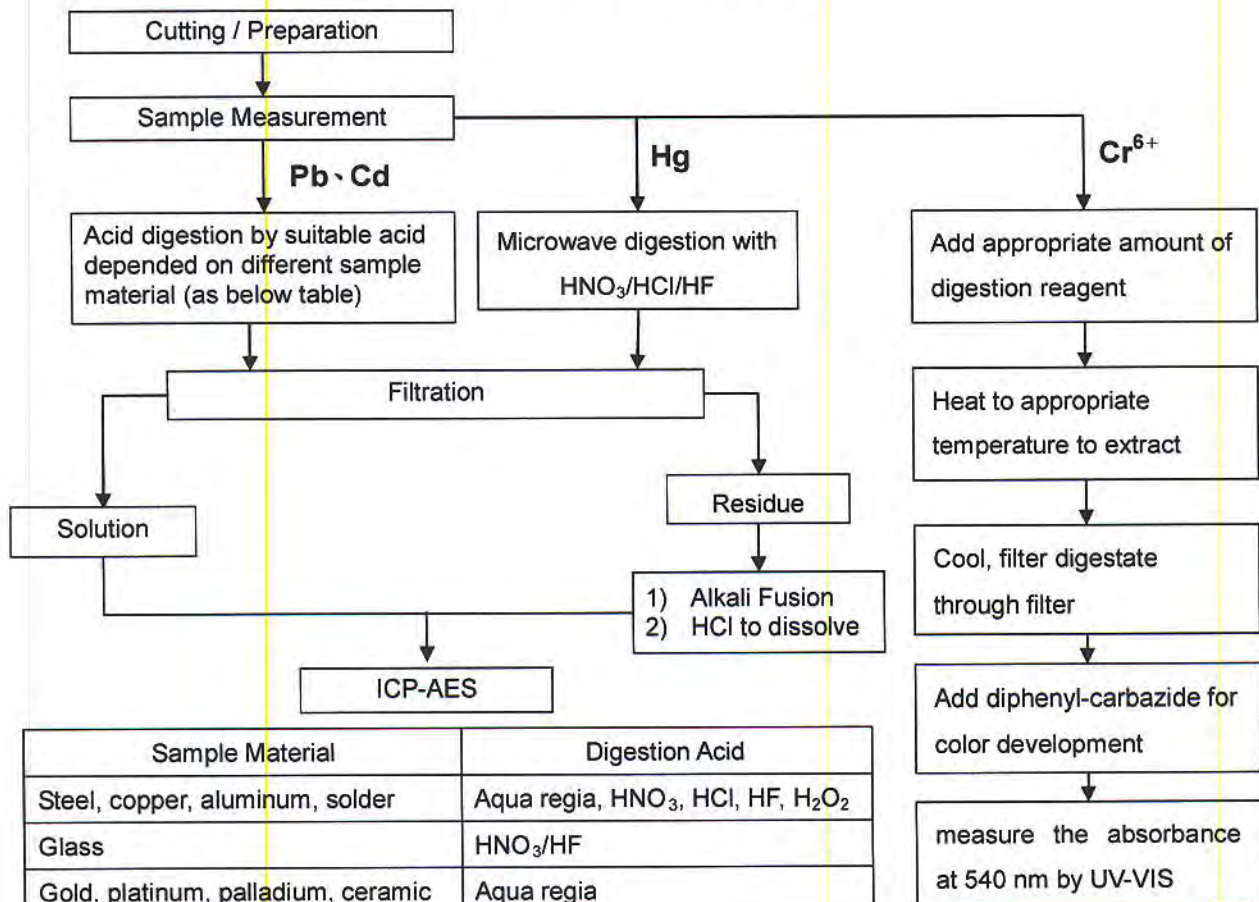
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HENKEL CORPORATION

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



- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr<sup>6+</sup> 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 <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub>
Glass	HNO <sub>3</sub> /HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO <sub>3</sub>
Plastic	H <sub>2</sub> SO <sub>4</sub> , H <sub>2</sub> O <sub>2</sub> , HNO <sub>3</sub> , HCl
Others	Any acid to total digestion

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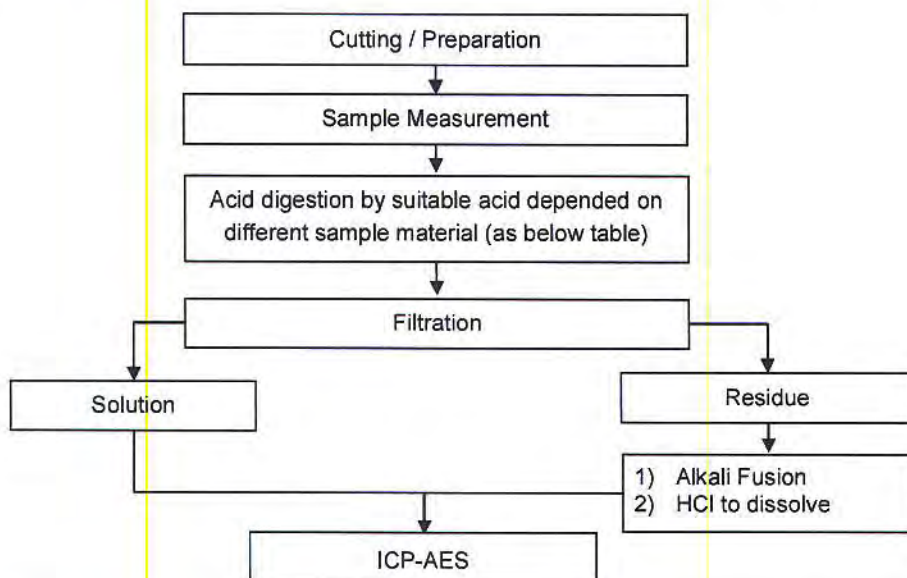
HENKEL CORPORATION

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 <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub>
Glass	HNO <sub>3</sub> /HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO <sub>3</sub>
Plastic	H <sub>2</sub> SO <sub>4</sub> , H <sub>2</sub> O <sub>2</sub> , HNO <sub>3</sub> , HCl
Others	Any acid to total digestion

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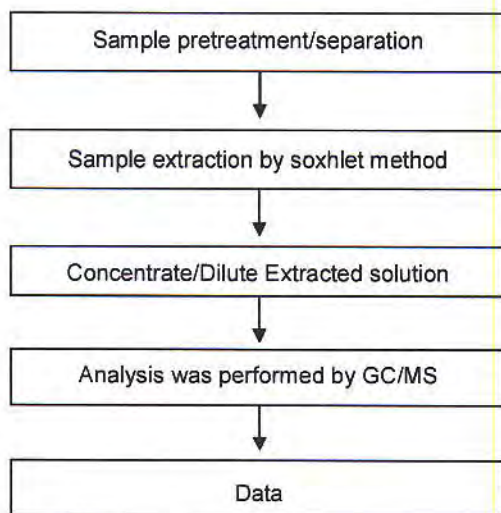
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### Analytical flow chart of Soxhlet extraction (GC/MS) procedure

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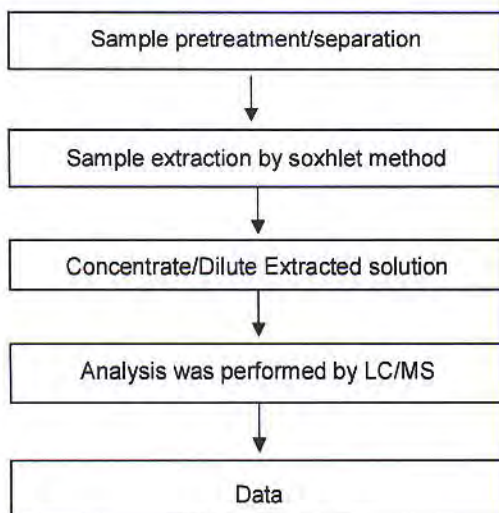
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### Analytical flow chart of Soxhlet extraction (LC/MS) procedure

- 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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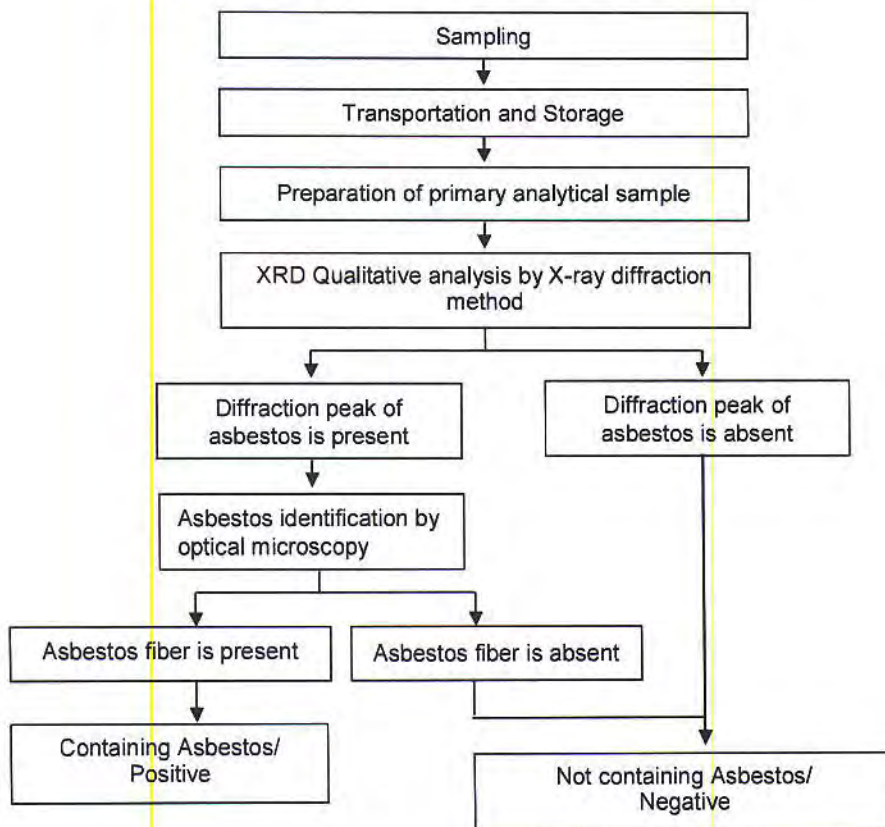
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### Analysis flow chart for determination of Asbestos

- 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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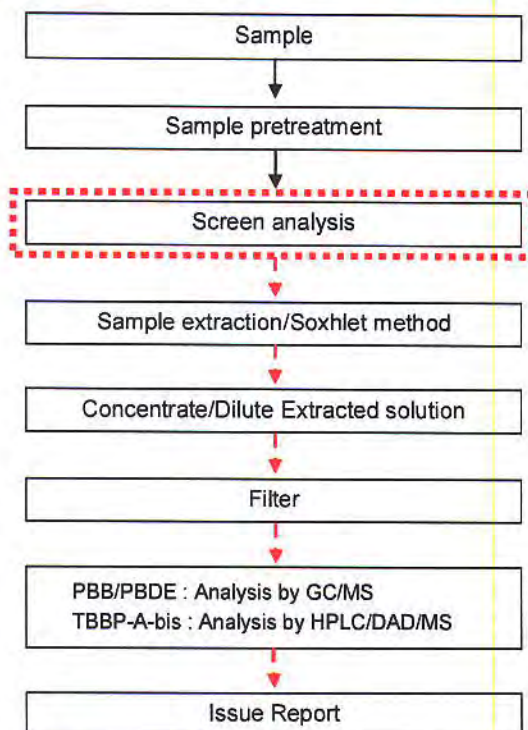
### Analytical flow chart

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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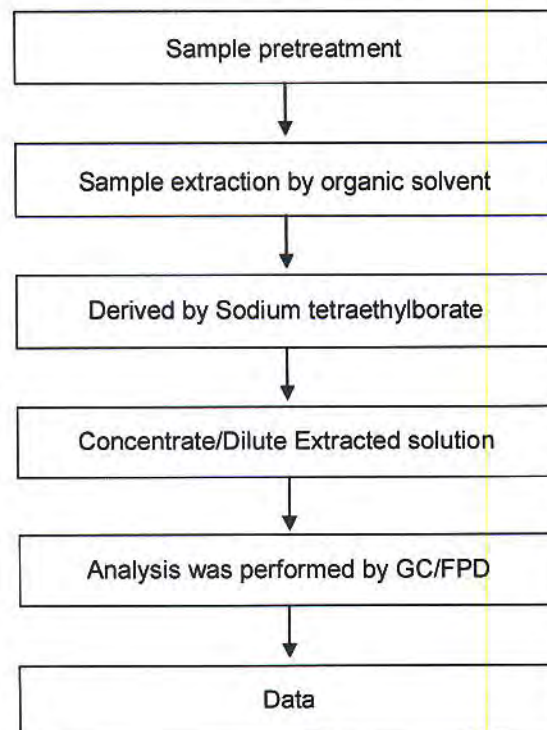
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### Analytical flow chart of Organic-Tin content

- 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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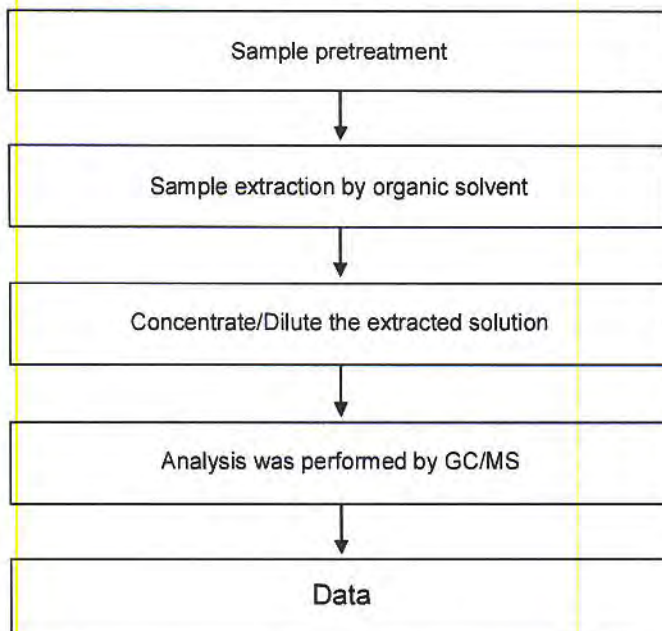
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### Chlorinated Flame retardant analytical flow chart

- 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, MCCP



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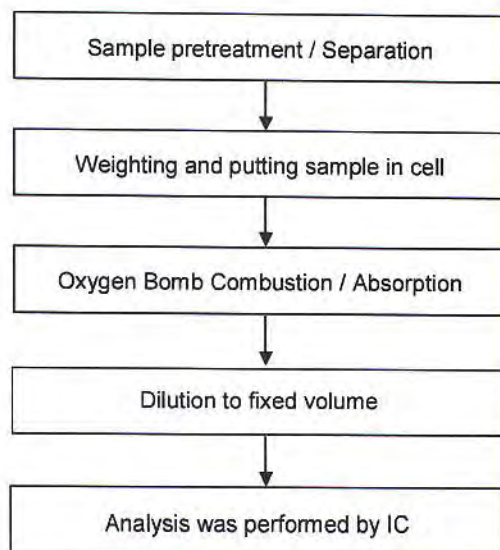
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### Analytical flow chart of halogen content

- 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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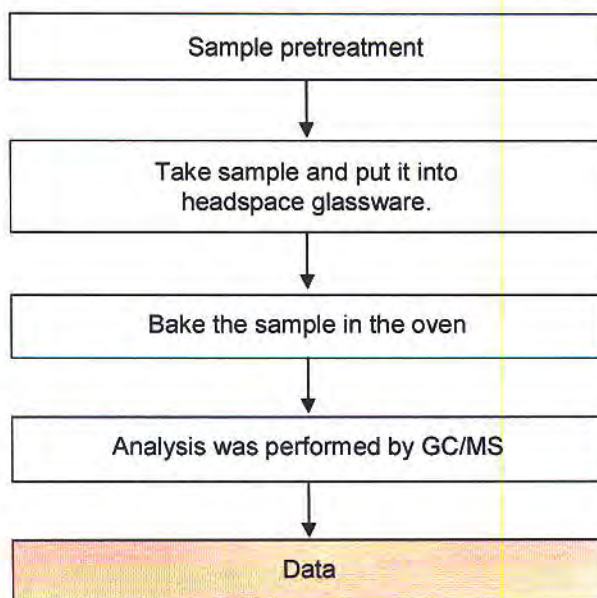
HENKEL CORPORATION

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 : Shinjyh Chen



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## Test Report

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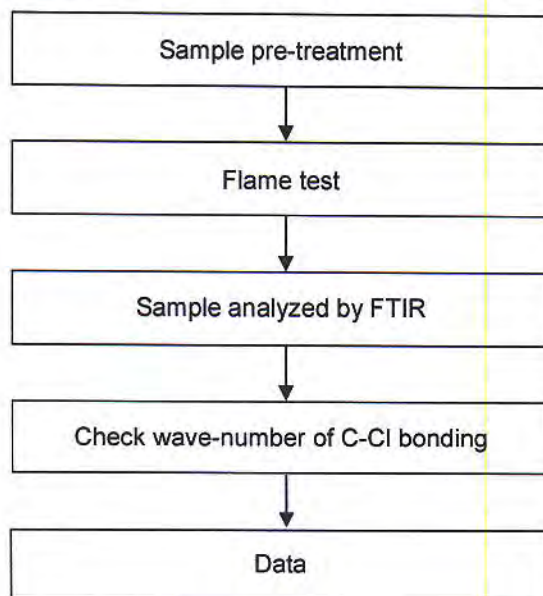
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HENKEL ADHESIVES-ELECTRONICS MAIN OFFICE: 14000 JAMBOREE ROAD, IRVINE, CALIFORNIA, 92606 U.S.A



### 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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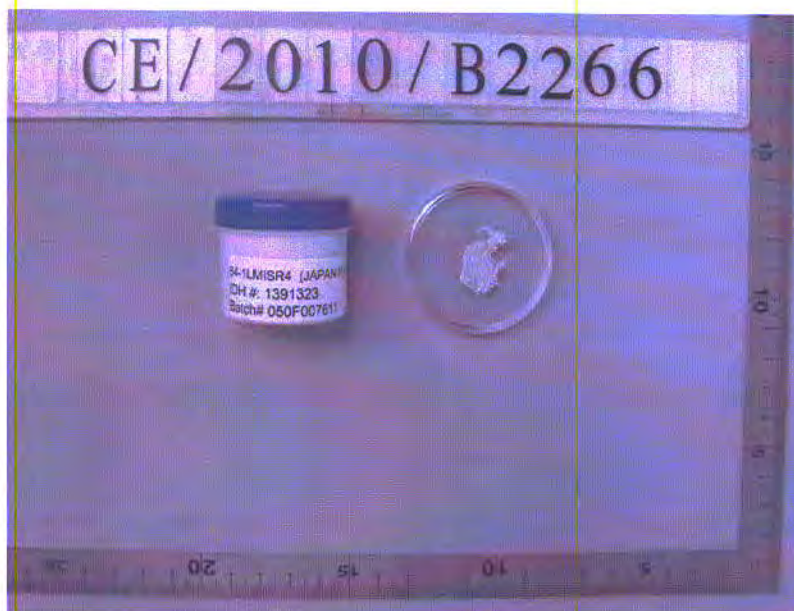
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\*\* End of Report \*\*

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# Test Report No. F690501/LF-CTSAYAA11-15562 Issued Date: May 30, 2011 Page 2 of 16

Sample No. : AYAA11-15562  
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
Beryllium (Be)	mg/kg	US EPA 3050B (1996),US EPA 6010B(1996),ICP	0.5	N.D
Phosphorous (P)	mg/kg	US EPA 3050B (1996),US EPA 6010B(1996),ICP	10	N.D
Antimony (Sb)	mg/kg	US EPA 3050B (1996),US EPA 6010B(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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Sample No. : AYAA11-15562  
Sample Description : Au wire  
Item / Part No. : 4N

## Formaldehyde Contents

Test Items	Unit	Test Method	MDL	Results
Formaldehyde	mg/kg	ISO 14184-1, UV-vis	20	N.D

## 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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F052 Version4

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Sample No. : AYAA11-15562  
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	-	Negative
Crocidolite	**	With reference to EPA/600/R-93/116 and USP, PLM and FT-IR	-	Negative
Amosite	**	With reference to EPA/600/R-93/116 and USP, PLM and FT-IR	-	Negative
Tremolite	**	With reference to EPA/600/R-93/116 and USP, PLM and FT-IR	-	Negative
Chrysotile	**	With reference to EPA/600/R-93/116 and USP, PLM and FT-IR	-	Negative
Actinolite	**	With reference to EPA/600/R-93/116 and USP, PLM and FT-IR	-	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. F690501/LF-CTSAYAA11-15562

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Sample No. : AYAA11-15562

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. F690501/LF-CTSAYAA11-15562

Issued Date: May 30, 2011

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Sample No. : AYAA11-15562  
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. F690501/LF-CTSAYAA11-15562 Issued Date: May 30, 2011

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Sample No. : AYAA11-15562  
 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. F690501/LF-CTSAYAA11-15562 Issued Date: May 30, 2011

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Sample No. : AYAA11-15562  
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. F690501/LF-CTSAYAA11-15562 Issued Date: May 30, 2011

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Sample No. : AYAA11-15562  
 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

## Other(s)

Test Items	Unit	Test Method	MDL	Results
PFOA(Perfluorooctanionic 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

### Note :

- (1) n.d.= not detected
- (2) mg/kg = ppm
- (3) MDL = Method Detection Limit
- (4) \_ = No regulation
- (5) \*\* = Qualitative analysis (No Unit)
- (6) \* = Boiling-water-extraction:  
 Negative = Absence of CrVI coating  
 Positive = Presence of CrVI coating; the detected concentration in boiling-water- extraction  
 Solution is equal or greater than 0.02 mg/kg with 50 cm2 sample surface area.

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**Test Report** No. F690501/LF-CTSAYAA11-15562 Issued Date: May 30, 2011 Page 10 of 16

Sample No. : AYAA11-15562  
Sample Description : Au wire  
Item / Part No. : 4N

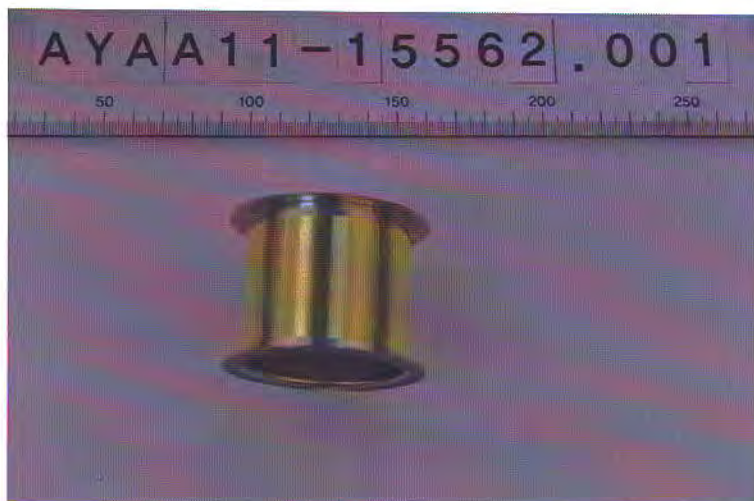
Test Item(s)	Unit	Method	Result
Radioactive Substances (#)	µSv/ hour	Geiger counter	Negative*

NOTE: (1) N.D.= Not detected  
(2) mg/kg= ppm : 0.1wt% = 1000ppm  
(3) MDL = Method Detection Limit  
(4) -=No regulation  
(5) \*\*=Qualitative analysis (No Unite)  
(6) 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.  
(Radiation dose from environment background usually less than or equal to  $0.10 \pm 0.05$  µSv/ hour)  
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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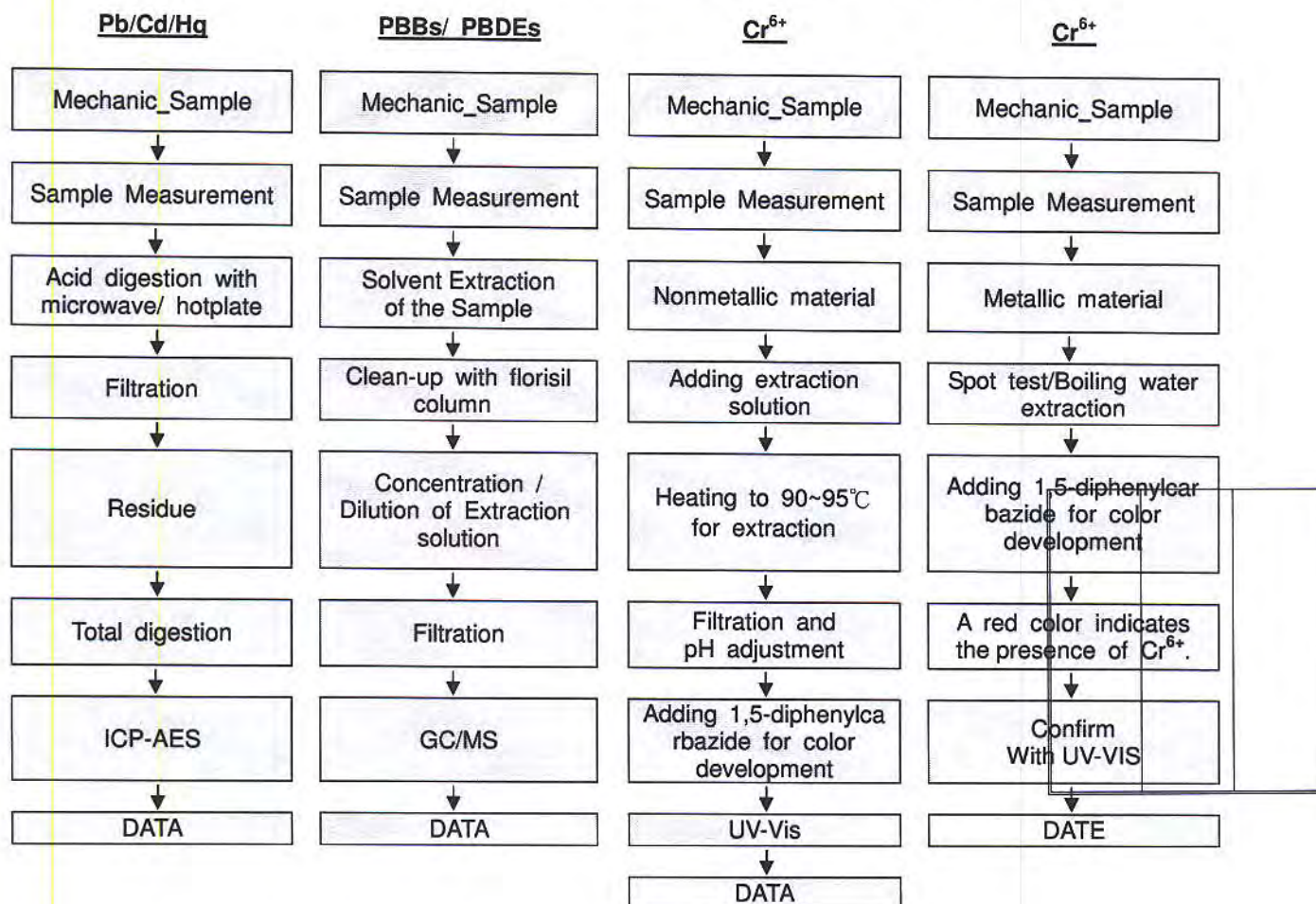
Picture of Sample as Received :





**Test Report** No. F690501/LF-CTSAYAA11-15562 Issued Date: May 30, 2011 Page 12 of 16

### Testing Flow Chart for RoHS: Pb/Cd/Hg/Cr<sup>6+</sup>/PBBs & PBDEs Testing



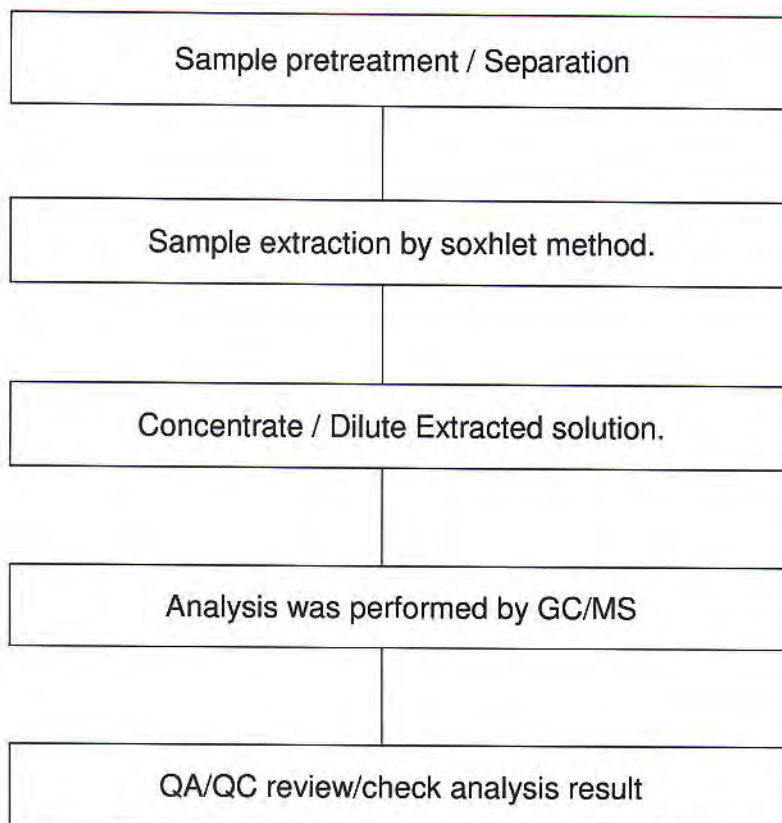
The samples were dissolved totally by pre-conditioning method according to above flow chart for Cd,Pb,Hg.

Section Chief

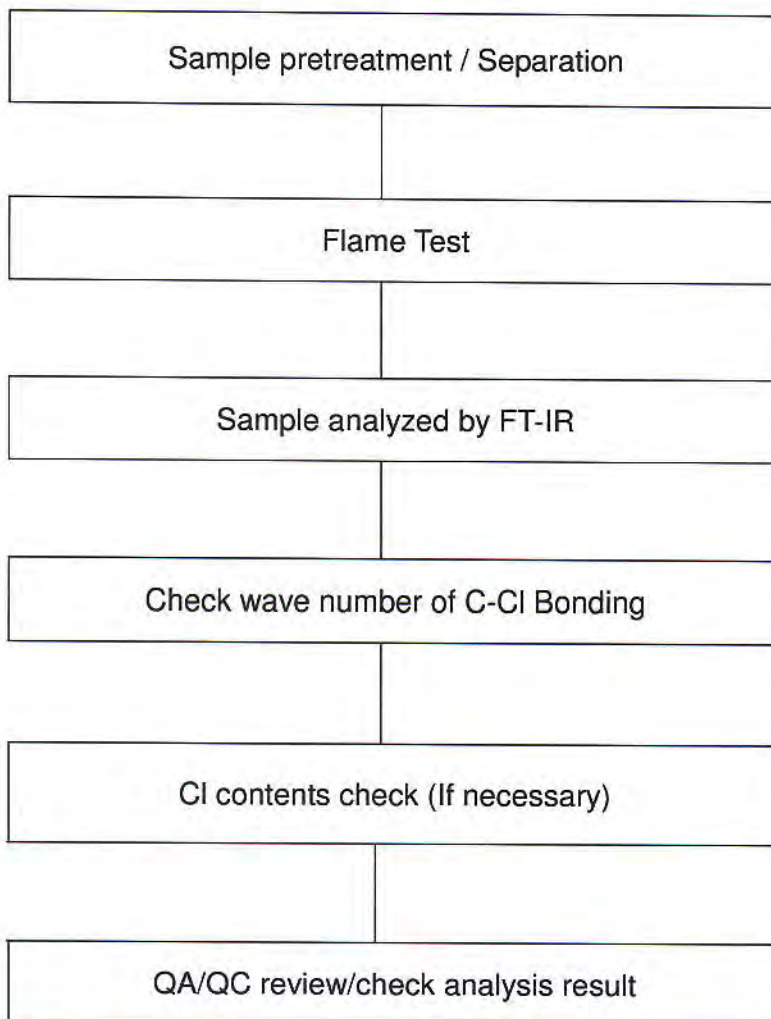
Gilsae Yi



## Flow Chart for Phthalate Test

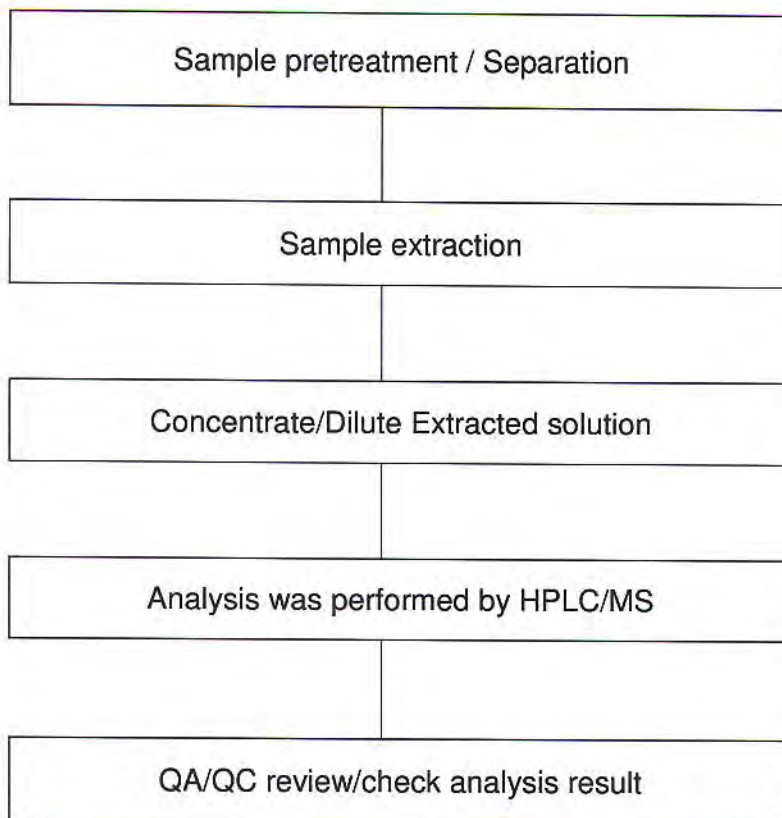


## Flow Chart for PVC Test

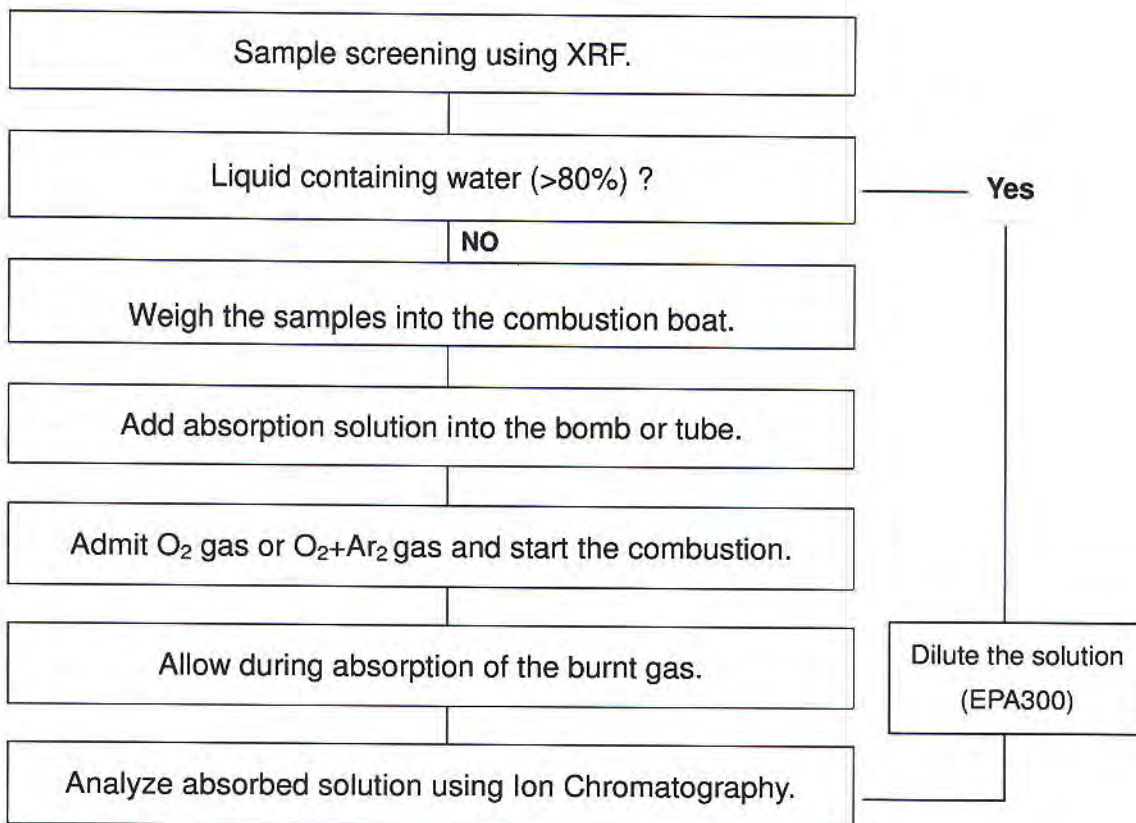




## Flow Chart for PFOS/PFOA Test



## Flow Chart for Halogen Test



\*\*\* End \*\*\*





## Test Report

No. 10229583(8)

Date: April 04, 2011

Page 1 of 8

Sumitomo Bakelite Singapore Pte Ltd  
1 Senoko South Road, Singapore

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

Sample Description : EME-G600  
Type : Type  
Lot No. : 1032046  
Manufacturing Date : 05-03-11  
Contact Name : Chen Yi Jun  
Contact Tel : +65-67503782  
Contact Email : yijun@sbs.sumibe.co.jp

Sample Receiving Date : 28-Mar-2011  
Testing Period : 28-Mar-2011 to 04-Apr-2011

Test Requested : In accordance with the RoHS Directive 2002/95/EC, and its amendment directives.

---

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

Conclusion : Based on the performed tests on submitted sample(s), the results **comply with** the RoHS Directive 2002/95/EC and its subsequent amendments.

Signed for and on behalf of  
SGS Testing & Control Services Singapore Pte Ltd

Y C Tham (Ms)  
Laboratory Manager

Test Location: 26 Ayer Rajah Crescent, #07-08, Singapore 139944

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## Test Report

No. 10229583(8)

Date: April 04, 2011

Page 2 of 8

### Test Result(s):

Sample Description : EME-G600  
Type : Type  
Lot No. : 1032046  
Manufacturing Date : 05-03-11

Test Item(s):	Unit	Method	Results	MDL	RoHS Limit
Cadmium(Cd)	mg/kg	With reference to IEC62321, Ed1:2008. Analysis was performed by ICP/AES	n.d.	2	100
Lead (Pb)	mg/kg	With reference to IEC62321, Ed1:2008. Analysis was performed by ICP/AES	n.d.	2	1000
Mercury (Hg)	mg/kg	With reference to IEC62321, Ed1:2008. Analysis was performed by ICP/AES	n.d.	2	1000
Hexavalent Chromium (CrVI)	mg/kg	With reference to IEC62321, Ed1:2008. Analysis was performed by UV/Vis Spectrometry	n.d.	2	1000
<b>Sum of PBBs</b>	mg/kg	With reference to IEC62321, Ed1:2008. Analysis was performed by GC/MS	<b>n.d.</b>	-	1000
Monobromobiphenyl	mg/kg		n.d.	5	-
Dibromobiphenyl	mg/kg		n.d.	5	-
Tribromobiphenyl	mg/kg		n.d.	5	-
Tetrabromobiphenyl	mg/kg		n.d.	5	-
Hexabromobiphenyl	mg/kg		n.d.	5	-
Pentabromobiphenyl	mg/kg		n.d.	5	-
Heptabromobiphenyl	mg/kg		n.d.	5	-
Octabromobiphenyl	mg/kg		n.d.	5	-
Nonabromobiphenyl	mg/kg		n.d.	5	-
Decabromobiphenyl	mg/kg		n.d.	5	-
<b>Sum of PBDE</b>	mg/kg		<b>n.d.</b>	-	1000
Monobromodiphenyl ether	mg/kg		n.d.	5	-
Dibromodiphenyl ether	mg/kg		n.d.	5	-
Tribromodiphenyl ether	mg/kg		n.d.	5	-
Tetrabromodiphenyl ether	mg/kg		n.d.	5	-
Pentabromodiphenyl ether	mg/kg		n.d.	5	-
Hexabromodiphenyl ether	mg/kg		n.d.	5	-
Heptabromodiphenyl ether	mg/kg		n.d.	5	-
Octabromodiphenyl ether	mg/kg		n.d.	5	-
Nonabromodiphenyl ether	mg/kg		n.d.	5	-
Decabromodiphenyl ether##	mg/kg		n.d.	5	-

Test Location: 26 Ayer Rajah Crescent, #07-08, Singapore 139944

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**Test Report**

No. 10229583(8)

Date: April 04, 2011

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Sample Description : EME-G600  
Type : Type  
Lot No. : 1032046  
Manufacturing Date : 05-03-11

Test Item(s)	Unit	Method	Result	MDL
Antimony (Sb)	mg/kg	With reference to US EPA3051A. Analysis was performed by ICP/AES	n.d.	2
<b>Halogen</b>				
Halogen - Bromine (Br)	mg/kg	With reference to BS EN 14582. Analysis was performed by IC.	n.d.	50
Halogen - Chlorine (Cl)	mg/kg	With reference to BS EN 14582. Analysis was performed by IC.	n.d.	50
Halogen - Fluorine (F)	mg/kg	With reference to BS EN 14582. Analysis was performed by IC.	n.d.	50
Halogen - Iodine (I)	mg/kg	With reference to BS EN 14582. Analysis was performed by IC.	n.d.	50

Note: (1) mg/kg = ppm ; 0.1wt% = 1000ppm  
(2) n.d.= Not Detected  
(3) MDL = Method Detection Limit  
(4) ## = The exemption of DecaBDE in polymeric application according 2005/717/EC was overruled by the European Court of Justice by its decision of 01.04.2008. Subsequently DecaBDE will be included in the sum of PBDE after 01.07.2008.  
(5) "-" = Not regulated  
(6) \* : Exceeds limit

Remarks: Sample received was totally dissolved by preconditioning method.  
Lab Analyst: Jay, Jenny and Jojo

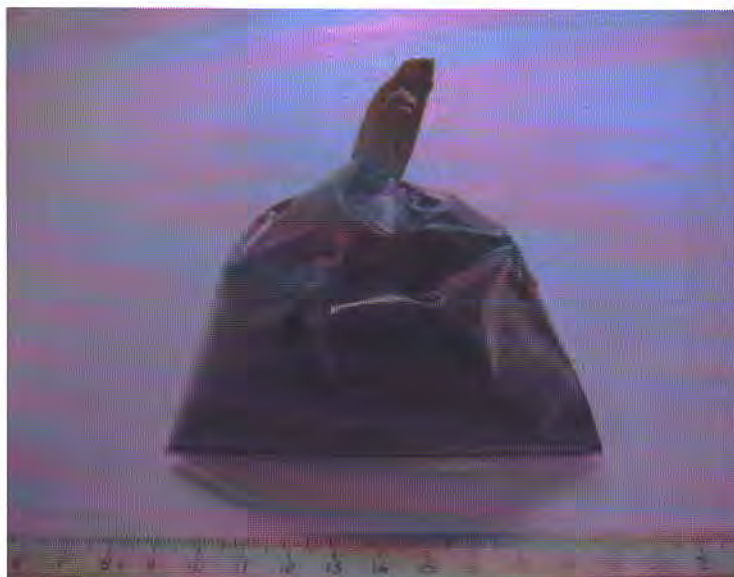
Test Location: 26 Ayer Rajah Crescent, #07-08, Singapore 139944

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**Sample photo:**

Sample Description : EME-G600  
Type : Type  
Lot No. : 1032046  
Manufacturing Date : 05-03-11  
Sample Submission Qty : 50gm



SGS authenticate the photo on original report only

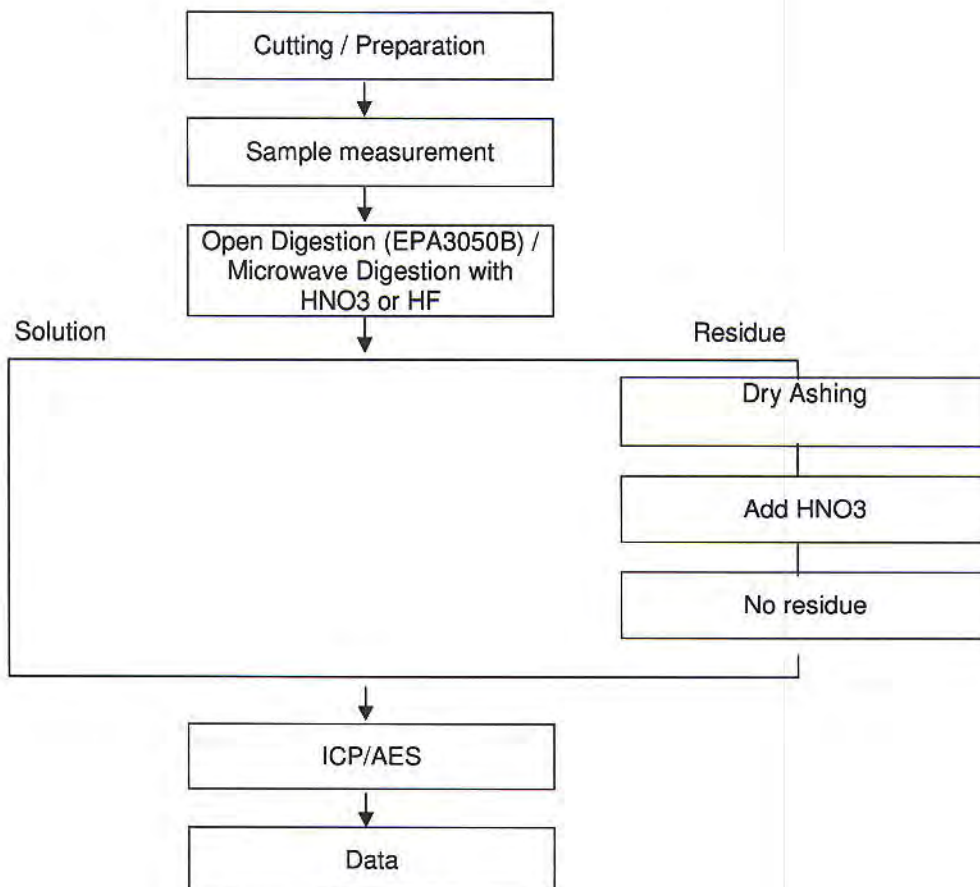
Test Location: 26 Ayer Rajah Crescent, #07-08, Singapore 139944

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### Process Flow of US EPA 3050B/3051A/3052

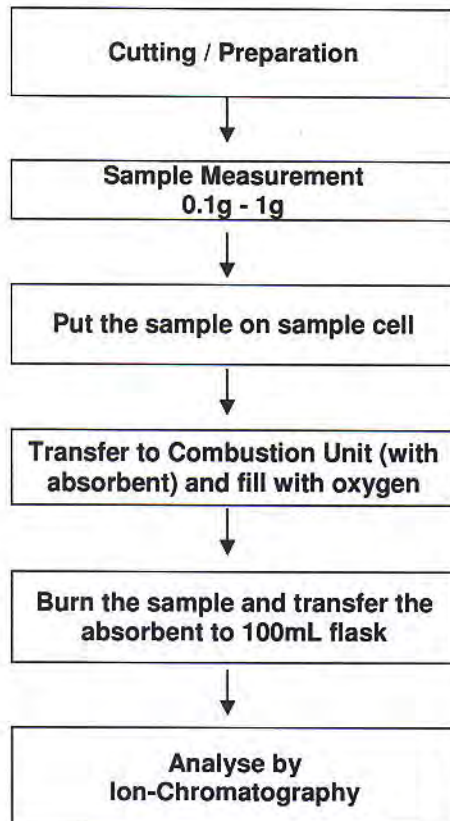


Test Location: 26 Ayer Rajah Crescent, #07-08, Singapore 139944

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**Process Flow of BS EN 14582 (Halogen Analysis)**



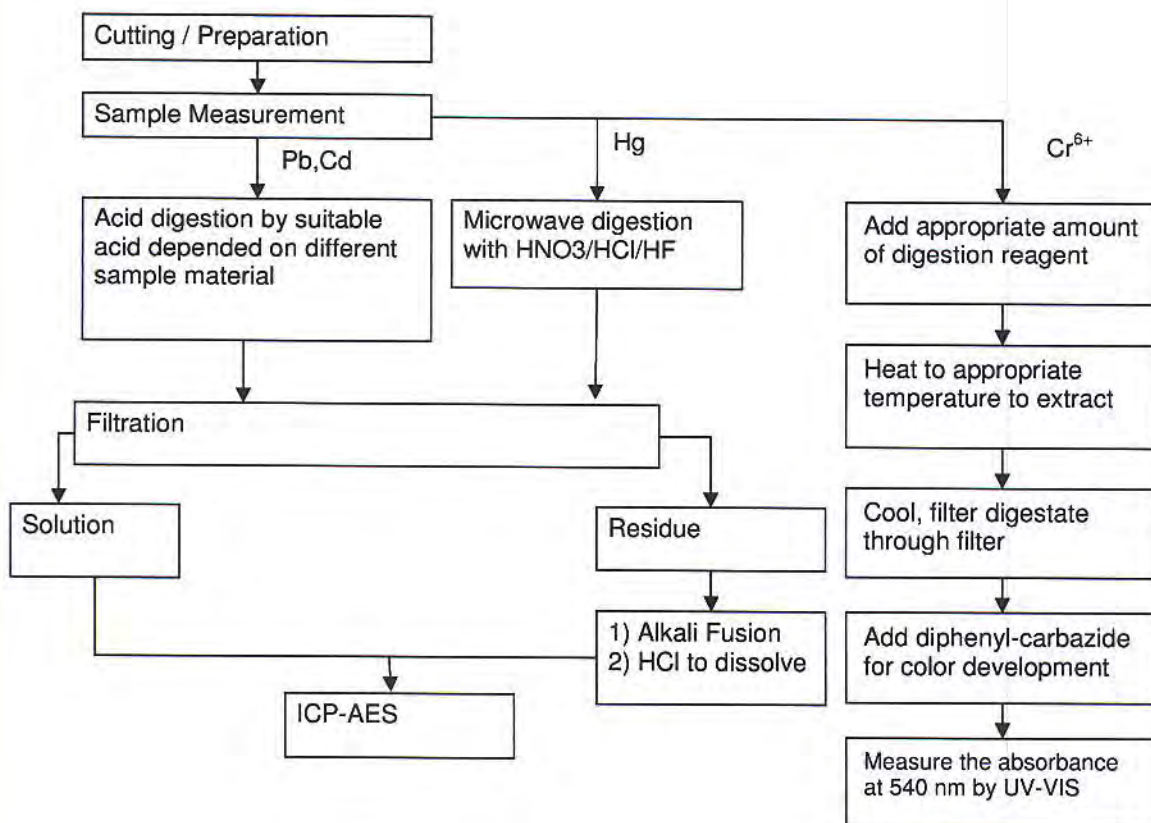
Test Location: 26 Ayer Rajah Crescent, #07-08, Singapore 139944

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### Process Flow of IEC 62321 (Pb, Cd, Hg & Cr<sup>6+</sup>)



Remarks: Sample received was totally dissolved by preconditioning method. (CrVI method excluded)

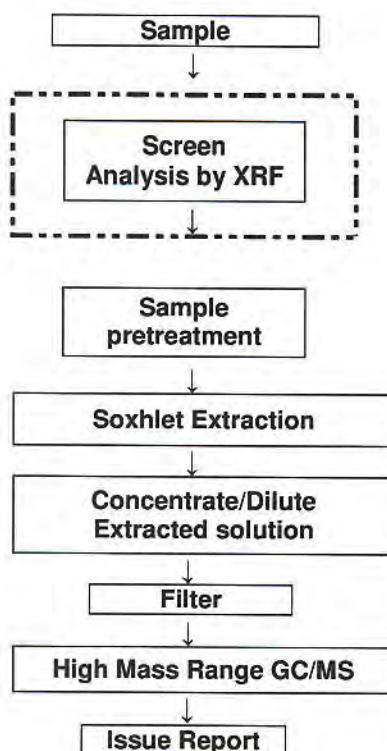
Test Location: 26 Ayer Rajah Crescent, #07-08, Singapore 139944

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### Process Flow of PBBs and PBDEs by GC/MS (IEC 62321)

First Testing Process → Optional screen process ..... Confirmation process ...→



\*\*\*End of Report\*\*\*

Test Location: 26 Ayer Rajah Crescent, #07-08, Singapore 139944

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## Test Report

No. LPCI/00093/11  
CTS Ref. CTS/11/4994/Redring

Date : 05/01/2011

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 Received	:	03/01/2011
Testing Date	:	03/01/2011 to 05/01/2011

---

Test Requested	:	In accordance with the RoHS Directive 2002/95/EC, and its amendment directives.
Test Method	:	Please refer to next page(s).
Test Results	:	Please refer to next page(s).
Analysts	:	Ng Mei Kheng, Loi Woan Yee & Lim Meng Hoe

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## Test Report

No. LPCI/00093/11

Date : 05/01/2011

Page: 2 of 7

Test results:

Test Part Description :

Sample Description : PURE TIN SOLDER

RoHS Directive 2002/95/EC

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	7	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 <sup>2</sup> sample in 50mL solution
<b>Sum of PBBs</b>	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/00093/11

Date : 05/01/2011

Page: 3 of 7

CTS Ref. CTS/11/4994/Redring

Test Item(s):	Unit	Test Method	Results	MDL
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 cm<sup>2</sup> 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/00093/11  
CTS Ref. CTS/11/4994/Redring

Date : 05/01/2011

Page: 4 of 7

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-Chlorine (Cl)	mg/kg	With reference to BS EN 14582. Analysis was performed by IC method for Chlorine content.	N.D.	50
Halogen-Fluorine (F)	mg/kg	With reference to BS EN 14582. Analysis was performed by IC method for Fluorine 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) N.D. = Not detected (<MDL)  
(b) ppm = mg/kg  
(c) MDL= Method Detection Limit

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## Test Report

No. LPCI/00093/11  
CTS Ref. CTS/11/4994/Redring

Date : 05/01/2011

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### Test Part Description :

Sample Description : PURE TIN SOLDER

REDRING SOLDER (M) SDN. BHD.  
LPCI/00093/11



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## Test Report

No. LPCI/00093/11

Date : 05/01/2011

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CTS Ref. CTS/11/4994/Redring

### 1. DETERMINATION OF CADMIUM CONTENT BY IEC 62321 2008

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

### 2. DETERMINATION OF LEAD CONTENT BY IEC 62321 2008

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

### 3. DETERMINATION OF MERCURY CONTENT BY IEC 62321 2008

Sample Receiving and Registration  
↓  
Cut sample in small pieces  
↓  
Weight sample (0.1-0.5g) into digestion vessel  
↓  
Acid digestion (Microwave)  
↓  
"Totally Dissolved"  
↓  
Filtration  
↓  
Analyses by ICP

### 4. DETERMINATION OF HEXAVALENT CHROMIUM BY IEC 62321 2008

Sample Receiving and Registration  
↓  
Sample Preparation  
↓  
Spot-test (Qualitative)  
↓  
Boiling-water-extraction  
↓  
Analyses by UV- Spectrophotometer  
↓  
Test Report

### 5. DETERMINATION OF PBB/PBDE WITH GC-MS BY IEC 62321 2008

Cut sample in small pieces  
↓  
Weight sample (0.5-4.0g) into extraction thimble  
↓  
Soxhlet Extraction with Toluene  
↓  
Filter through 0.45 um membrane filter  
↓  
Analyses by GC-MS (with appropriate dilution)

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# Test Report

No. : CE/2011/11952 Date : 2011/01/18

Page : 1 of 4

EPISIL TECHNOLOGIES INC.

NO. 3, INNOVATION RD 1, SCIENCE BASED INDUSTRIAL PARK,  
HSIN-CHU, 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 : 2011/01/11  
Testing Period : 2011/01/11 TO 2011/01/18

Test Requested : In accordance with the RoHS Directive 2002/95/EC, and its amendment directives.

Test Method : With reference to IEC 62321: 2008  
Procedures for the Determination of Levels of Regulated Substances in Electrotechnical Products.

- (1) Determination of Cadmium by ICP-AES.
- (2) Determination of Lead by ICP-AES.
- (3) Determination of Mercury by ICP-AES.
- (4) Determination of Hexavalent Chromium by UV/Vis Spectrometry.

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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Chemical-Taipei 33 WuChyuan Road, Wuku Industrial Zone, New Taipei City, Taiwan / 新北市五股區 芳山五福路33號 +886 (02)2299 3279 f +886 (02)2299 3237 [www.sgs.com](http://www.sgs.com)

## Test Report

No. : CE/2011/11952 Date : 2011/01/18

Page : 2 of 4

EPISIL TECHNOLOGIES INC.

NO. 3, INNOVATION RD 1, SCIENCE BASED INDUSTRIAL PARK,  
HSIN-CHU, TAIWAN, R. O. C.



Test results by chemical method (Unit: mg/kg)

Test Item (s):	Method (Refer to)	Result	MDL
		No.1	
Cadmium (Cd)	(1)	n.d.	2
Lead (Pb)	(2)	n.d.	2
Mercury (Hg)	(3)	n.d.	2
Hexavalent Chromium Cr(VI) by alkaline extraction	(4)	n.d.	2

### TEST PART DESCRIPTION:

No.1 : MULTICOLOR WAFER

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/2011/11952

Date : 2011/01/18

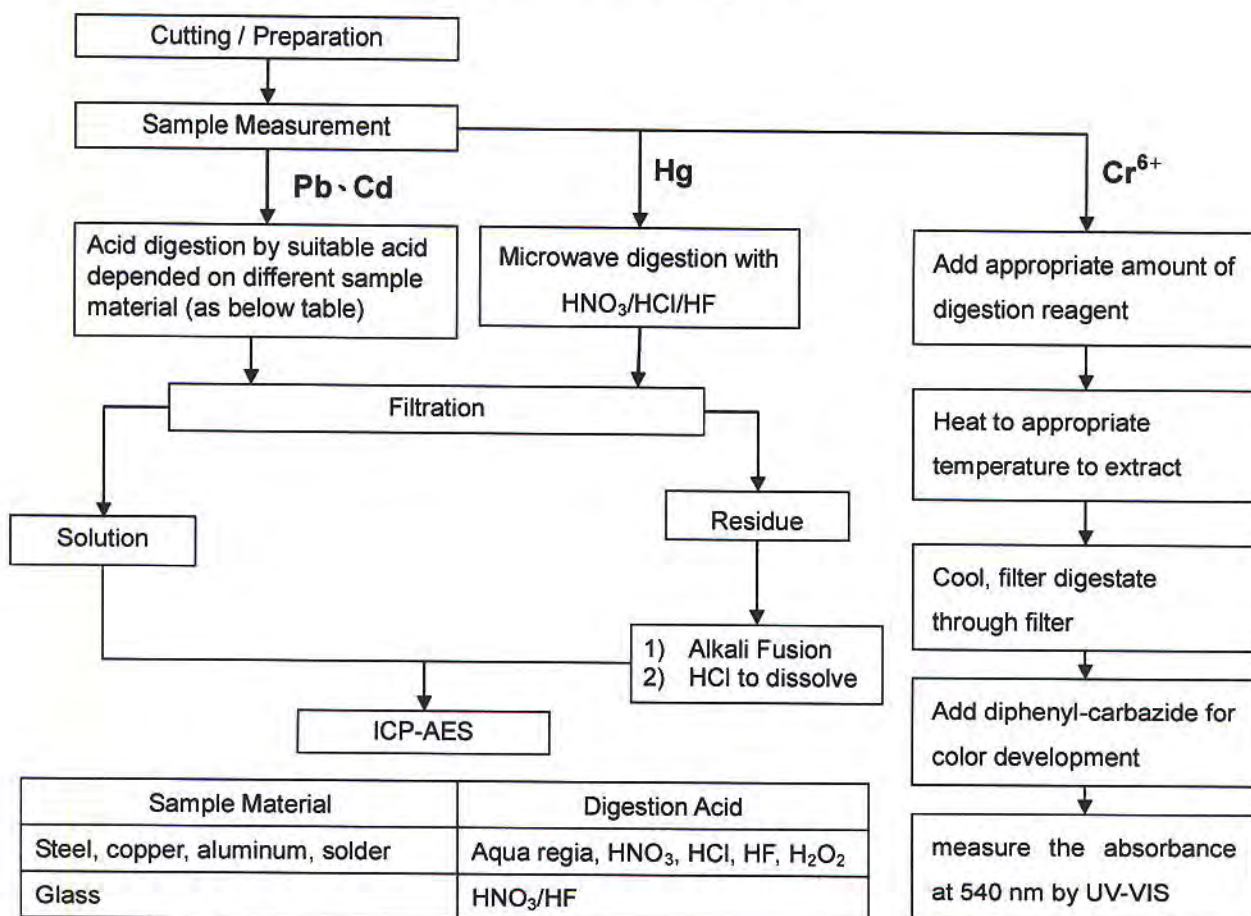
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EPISIL TECHNOLOGIES INC.

NO. 3, INNOVATION RD 1, SCIENCE BASED INDUSTRIAL PARK,  
HSIN-CHU, TAIWAN, R. O. C.



- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart.  
(Cr<sup>6+</sup> 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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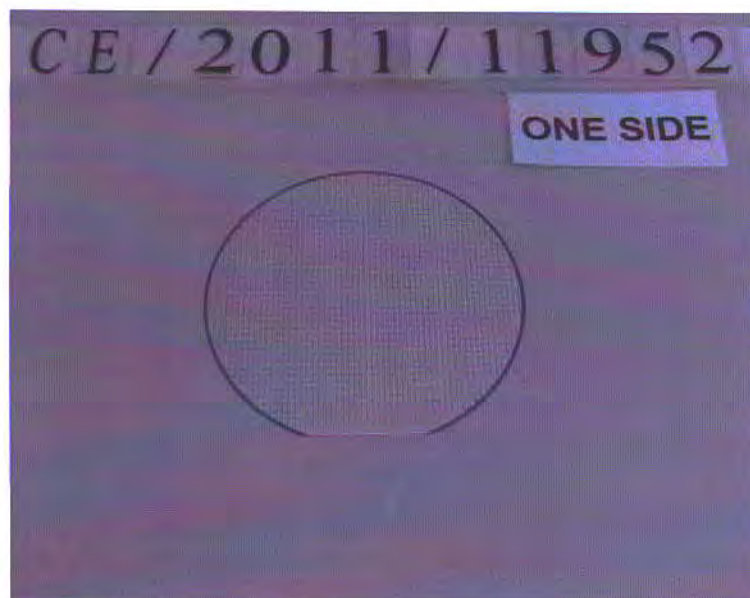
## Test Report

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EPISIL TECHNOLOGIES INC.

NO. 3, INNOVATION RD 1, SCIENCE BASED INDUSTRIAL PARK,  
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\*\* End of Report \*\*

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