



# Mag Layers Scientific-Technics., Co., Ltd

## Material Description

.....  
Mag. Layers certify below statement for material description.

Component type

### Ultra High Current Power Inductors

### MMD-S SERIES

#### Description:

- Comply with Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS).
- Comply with the request for Halogen Free limit.

The limit as below :

Cl : 900 ppm

Br : 900 ppm

Total halogens contained : 1500 ppm

#### Material:

Name of material	Pb	Cd	Hg	Cr+6	PBBs	PBDEs	Br	Cl	Report NO
CORE	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	CE/2014/64357
WIRE	N.D	N.D	N.D	Negative	N.D	N.D	--	--	CE/2014/B2065
SOLDER	24ppm	N.D	N.D	Negative	N.D	N.D	N.D	N.D	SHAEC1417415901
INK	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	ECL01G031248004R1 ECL01G031248006

## 測試報告 Test Report

號碼(No.) : CE/2014/64357

日期(Date) : 2014/06/30

頁數(Page) : 1 of 7

美磊科技股份有限公司

MAG. LAYERS SCIENTIFIC-TECHNICS CO., LTD.

新竹縣湖口鄉新竹工業區自強路18號

18 TZ-CHIANG RD., HSIN-CHU INDUSTRIAL PARK, HUKOU, HSIN-CHU, TAIWAN 303, R. O. C.



以下測試樣品係由申請廠商所提供及確認 (The following sample(s) was/were submitted and identified by/on behalf of the applicant as) :

送樣廠商(Sample Submitted By) : 美磊科技股份有限公司 (MAG. LAYERS SCIENTIFIC-TECHNICS CO., LTD.)  
 樣品名稱(Sample Description) : POWDER-S TYPE  
 樣品型號(Style/Item No.) : MMD-S  
 收件日期(Sample Receiving Date) : 2014/06/23  
 測試期間(Testing Period) : 2014/06/23 TO 2014/06/30

=====  
 測試需求(Test Requested) : (1) 依據客戶要求, 參考RoHS 2011/65/EU Annex II 指令進行鎘, 鉛, 汞, 六價鉻, 多溴聯苯, 多溴聯苯醚測試. (As specified by client, with reference to RoHS Directive 2011/65/EU Annex II to determine Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs contents in the submitted sample.)  
 (2) 依據客戶指定, 進行鹵素-氯、溴測試. (As specified by client, to test Halogen-Chlorine, Bromine contents in the submitted sample.)

測試方法(Test Method) : 請見下一頁 (Please refer to next pages).

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

結論(Conclusion) : (1) 根據客戶所提供的樣品, 其鎘, 鉛, 汞, 六價鉻, 多溴聯苯, 多溴聯苯醚的測試結果符合RoHS指令2002/95/EC的更新指令2011/65/EU之要求 (Based on the performed tests on submitted samples, the test results of Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.)

  
 Edison Chang / Sr. Supervisor  
 Signed for and on behalf of  
 SGS TAIWAN LTD.  
 Chemical Laboratory – Taipei

# 測試報告

## Test Report

號碼(No.) : CE/2014/64357

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美磊科技股份有限公司

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### 測試結果(Test Results)

測試部位(PART NAME) No.1 : 灰色粉末 (GRAY POWDER)

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 62321-5: 2013 方法, 以感應耦合電漿原子發射光譜儀檢測。 / With reference to IEC 62321-5: 2013 and performed by ICP-AES.	2	n.d.	100
鉛 / Lead (Pb)	mg/kg	參考 IEC 62321-5: 2013 方法, 以感應耦合電漿原子發射光譜儀檢測。 / With reference to IEC 62321-5: 2013 and performed by ICP-AES.	2	n.d.	1000
汞 / Mercury (Hg)	mg/kg	參考 IEC 62321-4: 2013 方法, 以感應耦合電漿原子發射光譜儀檢測。 / With reference to IEC 62321-4: 2013 and performed by ICP-AES.	2	n.d.	1000
六價鉻 / Hexavalent Chromium Cr(VI)	mg/kg	參考 IEC 62321: 2008 方法, 以 UV-VIS 檢測。 / With reference to IEC 62321: 2008 and performed by UV-VIS.	2	n.d.	1000
鹵素 (氯) / Halogen-Chlorine (Cl) (CAS No.: 22537-15-1)	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.: 10097-32-2)	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.	-

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# 測試報告

## Test Report

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美磊科技股份有限公司

MAG. LAYERS SCIENTIFIC-TECHNICS CO., LTD.

新竹縣湖口鄉新竹工業區自強路18號

18 TZ-CHIANG RD., HSIN-CHU INDUSTRIAL PARK, HUKOU, HSIN-CHU, TAIWAN 303, R. O. C.



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/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			-	n.d.	1000
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.	-

### 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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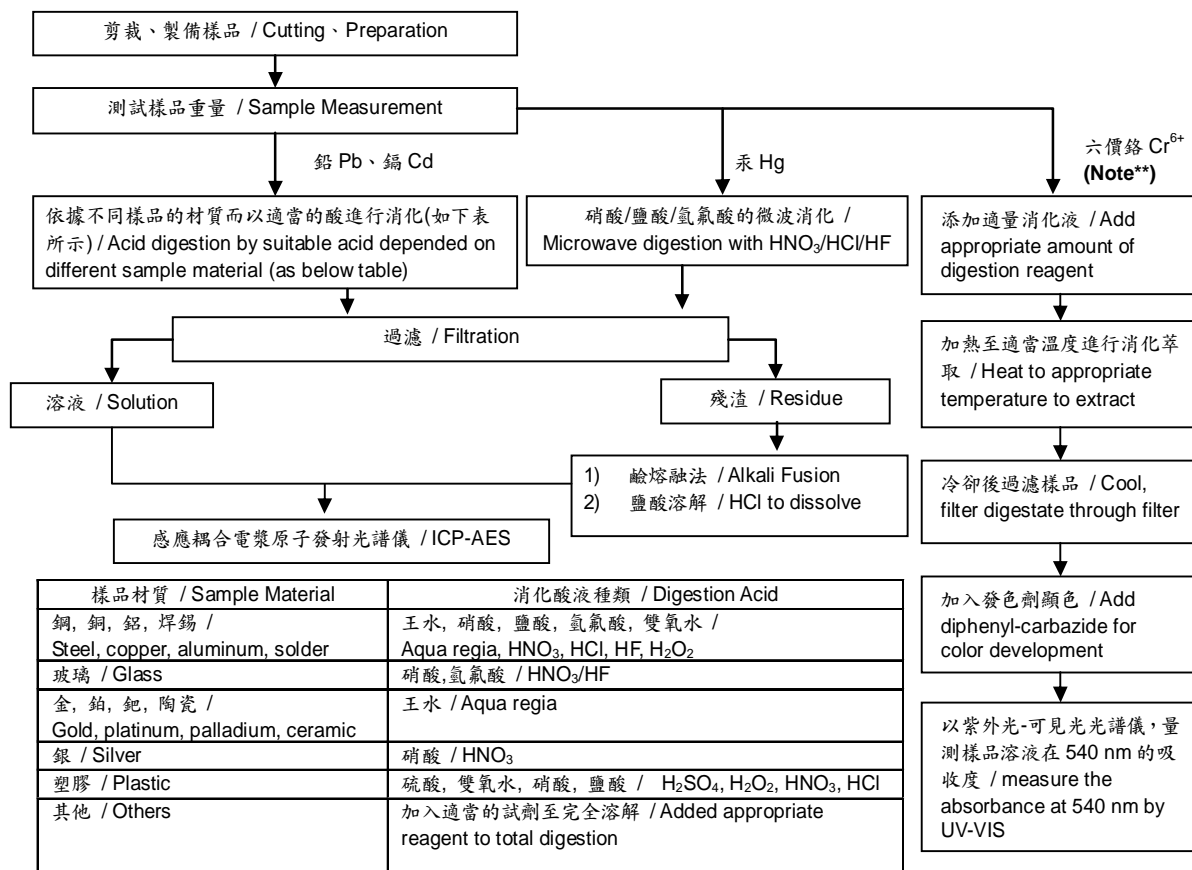
MAG. LAYERS SCIENTIFIC-TECHNICS CO., LTD.

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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：楊登偉 / Name of the person who made measurement: Climbgreat Yang
- 3) 測試負責人：張啓興 / Name of the person in charge of measurement: Troy Chang



**Note\*\*:** (1) 針對非金屬材料加入鹼性消化液, 加熱至 90~95°C 萃取. / For non-metallic material, add alkaline digestion reagent and heat to 90~95°C.  
 (2) 針對金屬材料加入純水, 加熱至沸騰萃取. / For metallic material, add pure water and heat to boiling.

## 測試報告 Test Report

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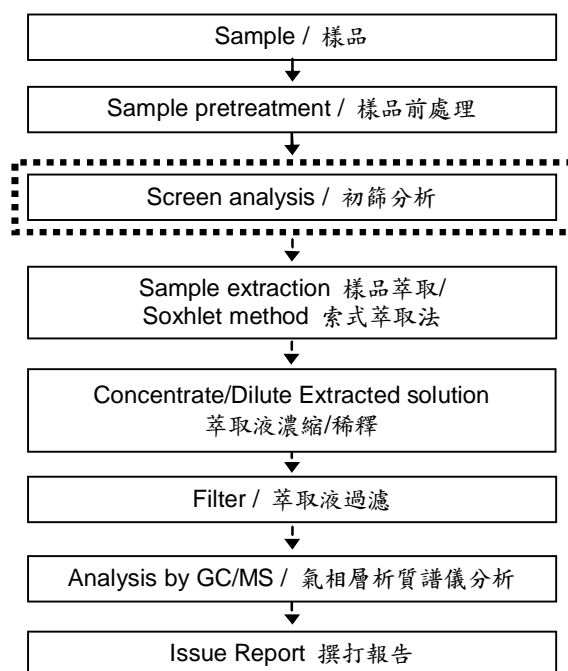
### 多溴聯苯/多溴聯苯醚分析流程圖 / PBB/PBDE analytical FLOW CHART

- 測試人員：翁賜彬 / Name of the person who made measurement: Roman Wong
- 測試負責人：張啓興 / Name of the person in charge of measurement: Troy 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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# 測試報告 Test Report

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頁數(Page) : 6 of 7

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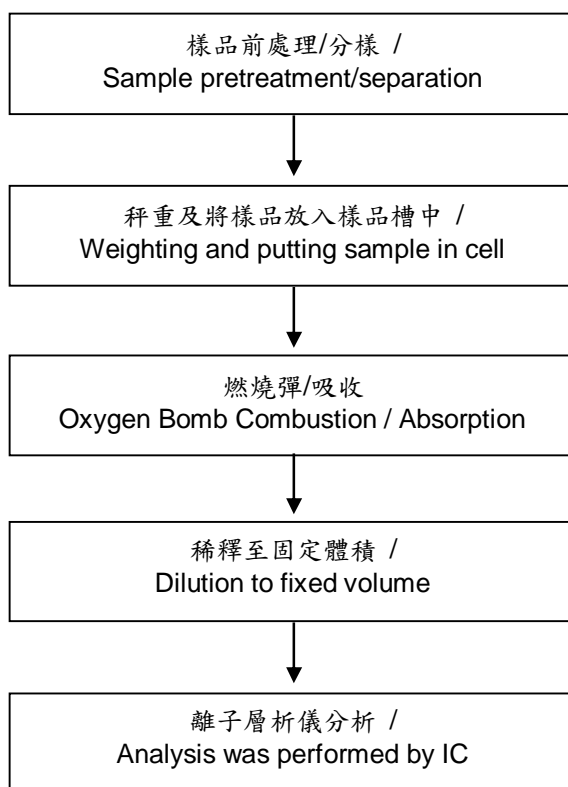
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## 鹵素分析流程圖 / Analytical flow chart of halogen content

- 測試人員：陳恩臻 / Name of the person who made measurement: Rita Chen
- 測試負責人：張啓興 / Name of the person in charge of measurement: Troy Chang



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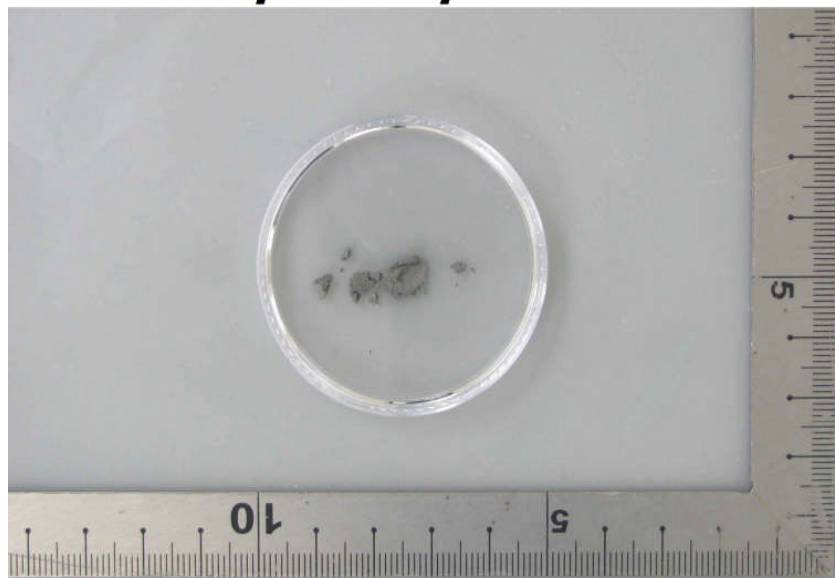
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\* 照片中如有箭頭標示，則表示為實際檢測之樣品/部位。\*  
(The tested sample / part is marked by an arrow if it's shown on the photo.)

### CE/2014/64357



\*\* 報告結尾(End of Report) \*\*

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## 測試報告

號碼(No.) : CE/2014/B2065

日期(Date) : 2014/12/01

頁數(Page): 1 of 6

## Test Report

太平洋電線電纜股份有限公司-ME

PACIFIC ELECTRIC WIRE & CABLE CO., LTD.

桃園縣大溪鎮南興里仁和路二段269號

25F., NO.95, SEC.2, DUNHUA S. RD., DA-AN DISTRICT, TAIPEI, CITY 106. TAIWAN



以下測試樣品係由申請廠商所提供及確認 (The following sample(s) was/were submitted and identified by/on behalf of the applicant as):

送樣廠商(Sample Submitted By) : 太平洋電線電纜股份有限公司 (PACIFIC ELECTRIC WIRE & CABLE CO., LTD.)

樣品名稱(Sample Description) : COPPER ROD (銅條)

樣品型號(Style/Item No.) :  $\phi 8$  mm

收件日期(Sample Receiving Date) : 2014/11/25

測試期間(Testing Period) : 2014/11/25 TO 2014/12/01

=====  
測試需求(Test Requested) : 依據客戶要求, 參考RoHS 2011/65/EU Annex II 指令進行鎘, 鉛, 汞, 六價鉻, 多溴聯苯, 多溴聯苯醚測試. (As specified by client, with reference to RoHS Directive 2011/65/EU Annex II to determine Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs contents in the submitted sample.)

測試方法(Test Method) : 請見下一頁 (Please refer to next pages).

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

  
Troy Chang, Manager - Tech  
Signed for and on behalf of  
SGS TAIWAN LTD.  
Chemical Laboratory - Taipei

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## 測試報告

號碼(No.) : CE/2014/B2065

日期(Date) : 2014/12/01

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## Test Report

太平洋電線電纜股份有限公司-ME

PACIFIC ELECTRIC WIRE &amp; CABLE CO., LTD.

桃園縣大溪鎮南興里仁和路二段269號

25F., NO.95, SEC.2, DUNHUA S. RD., DA-AN DISTRICT, TAIPEI, CITY 106. TAIWAN



## 測試結果(Test Results)

測試部位(PART NAME)No.1 : 銅色金屬 (COPPER COLORED METAL)

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 62321-5: 2013 方法, 以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321-5: 2013 and performed by ICP-AES.	2	n.d.
鉛 / Lead (Pb)	mg/kg	參考 IEC 62321-5: 2013 方法, 以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321-5: 2013 and performed by ICP-AES.	2	n.d.
汞 / Mercury (Hg)	mg/kg	參考 IEC 62321-4: 2013 方法, 以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321-4: 2013 and performed by ICP-AES.	2	n.d.
六價鉻 / Hexavalent Chromium Cr(VI)	**	參考 IEC 62321: 2008 方法, 以沸水萃取法檢測. / With reference to IEC 62321: 2008 and performed by Boiling water extraction Method.#	#	Negative
多溴聯苯總和 / Sum of PBBs	mg/kg	參考 IEC 62321: 2008 方法, 以氣相層析/質譜儀檢測. / With reference to IEC 62321: 2008 and performed by GC/MS.	-	n.d.
一溴聯苯 / Monobromobiphenyl	mg/kg		5	n.d.
二溴聯苯 / Dibromobiphenyl	mg/kg		5	n.d.
三溴聯苯 / Tribromobiphenyl	mg/kg		5	n.d.
四溴聯苯 / Tetrabromobiphenyl	mg/kg		5	n.d.
五溴聯苯 / Pentabromobiphenyl	mg/kg		5	n.d.
六溴聯苯 / Hexabromobiphenyl	mg/kg		5	n.d.
七溴聯苯 / Heptabromobiphenyl	mg/kg		5	n.d.
八溴聯苯 / Octabromobiphenyl	mg/kg		5	n.d.
九溴聯苯 / Nonabromobiphenyl	mg/kg		5	n.d.
十溴聯苯 / Decabromobiphenyl	mg/kg		5	n.d.

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## Test Report

太平洋電線電纜股份有限公司-ME

PACIFIC ELECTRIC WIRE &amp; CABLE CO., LTD.

桃園縣大溪鎮南興里仁和路二段269號

25F., NO.95, SEC.2,DUNHUA S. RD., DA-AN DISTRICT, TAIPEI, CITY 106. TAIWAN



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
多溴聯苯醚總和 / Sum of PBDEs	mg/kg	參考 IEC 62321: 2008 方法, 以氣相層析/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	mg/kg		5	n.d.
二溴聯苯醚 / Dibromodiphenyl ether	mg/kg		5	n.d.
三溴聯苯醚 / Tribromodiphenyl ether	mg/kg		5	n.d.
四溴聯苯醚 / Tetrabromodiphenyl ether	mg/kg		5	n.d.
五溴聯苯醚 / Pentabromodiphenyl ether	mg/kg		5	n.d.
六溴聯苯醚 / Hexabromodiphenyl ether	mg/kg		5	n.d.
七溴聯苯醚 / Heptabromodiphenyl ether	mg/kg		5	n.d.
八溴聯苯醚 / Octabromodiphenyl ether	mg/kg		5	n.d.
九溴聯苯醚 / Nonabromodiphenyl ether	mg/kg		5	n.d.
十溴聯苯醚 / Decabromodiphenyl ether	mg/kg		5	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)
5. \*\* = Qualitative analysis (No Unit) 定性分析(無單位)
6. # =
  - 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 cm<sup>2</sup> tested areas. / 該溶液濃度 $\geq$ 0.02 mg/kg with 50 cm<sup>2</sup> (tested areas)

## 測試報告

號碼(No.) : CE/2014/B2065

日期(Date) : 2014/12/01

頁數(Page): 4 of 6

## Test Report

太平洋電線電纜股份有限公司-ME

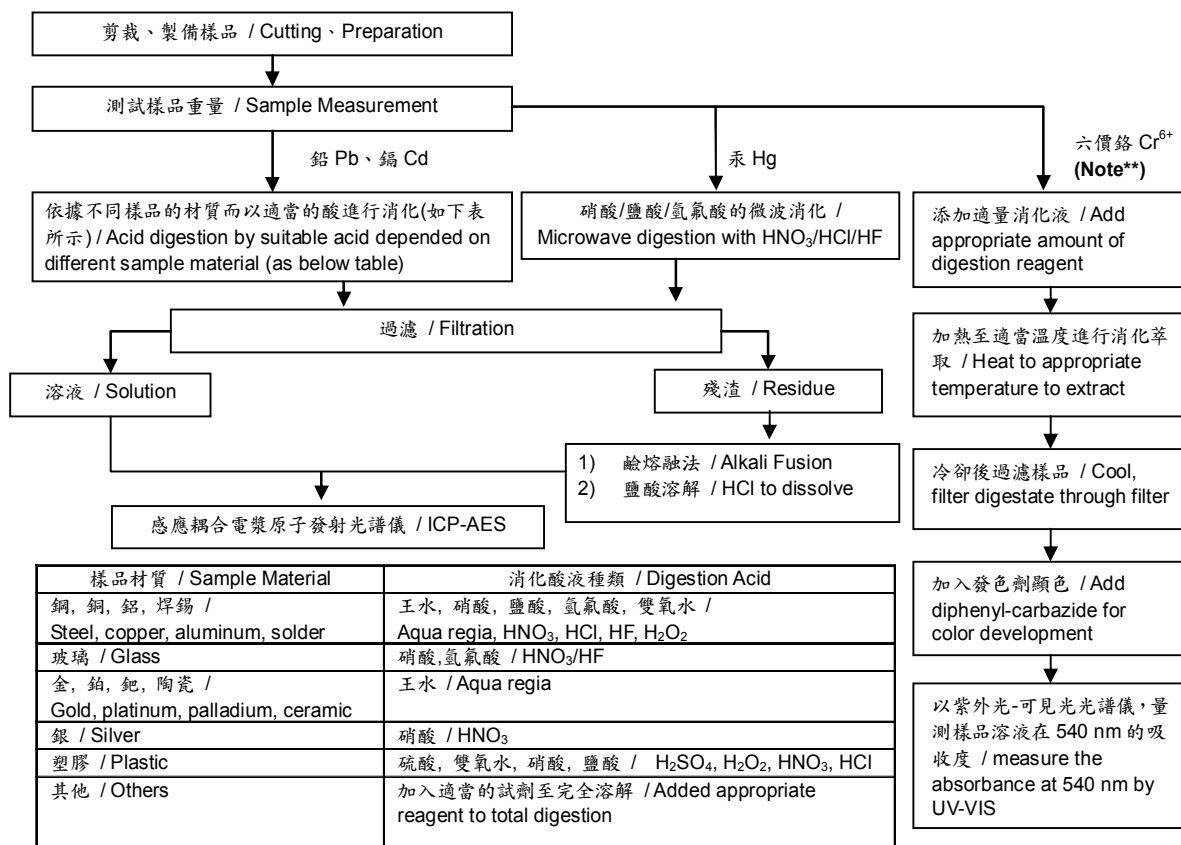
PACIFIC ELECTRIC WIRE & CABLE CO., LTD.

桃園縣大溪鎮南興里仁和路二段269號

25F., NO.95, SEC.2,DUNHUA S. RD., DA-AN DISTRICT, TAIPEI, CITY 106. TAIWAN



- 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：楊登偉 / Name of the person who made measurement: Climbgreat Yang
- 3) 測試負責人：張啓興 / Name of the person in charge of measurement: Troy Chang



**Note\*\*:** (1) 針對非金屬材料加入鹼性消化液，加熱至 90~95℃ 萃取。 / For non-metallic material, add alkaline digestion reagent and heat to 90~95℃.  
 (2) 針對金屬材料加入純水，加熱至沸騰萃取。 / For metallic material, add pure water and heat to boiling.

# 測試報告

## Test Report

號碼(No.) : CE/2014/B2065

日期(Date) : 2014/12/01

頁數(Page): 5 of 6

太平洋電線電纜股份有限公司-ME

PACIFIC ELECTRIC WIRE & CABLE CO., LTD.

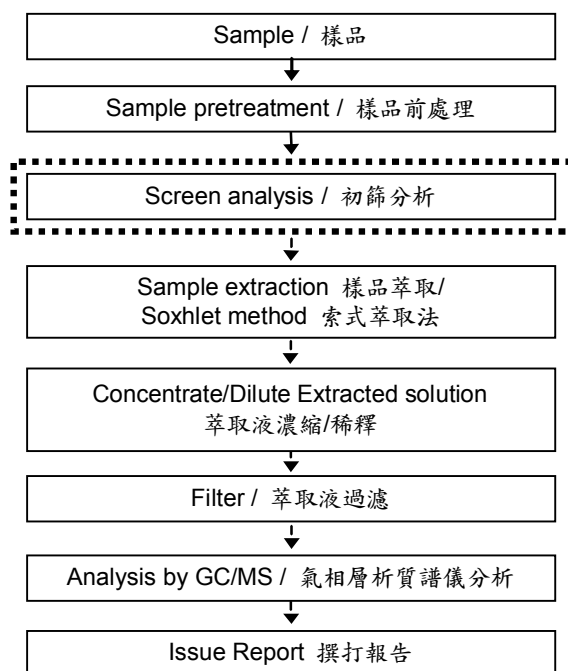
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25F., NO.95, SEC.2,DUNHUA S. RD., DA-AN DISTRICT, TAIPEI, CITY 106. TAIWAN



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

- 測試人員：翁賜彬 / Name of the person who made measurement: Roman Wong
- 測試負責人：張啓興 / Name of the person in charge of measurement: Troy 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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## 測試報告

## Test Report

號碼(No.) : CE/2014/B2065

日期(Date) : 2014/12/01

頁數(Page): 6 of 6

太平洋電線電纜股份有限公司-ME

PACIFIC ELECTRIC WIRE & CABLE CO., LTD.

桃園縣大溪鎮南興里仁和路二段269號

25F., NO.95, SEC.2, DUNHUA S. RD., DA-AN DISTRICT, TAIPEI, CITY 106. TAIWAN



\* 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.)

### CE/2014/B2065



\*\* 報告結尾 (End of Report) \*\*

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## Test Report

No. SHAEC1417415901

Date: 13 Sep 2014

Page 1 of 5

JILIHONG TECHNOLOGY CO., LTD

NO.28,KUN BEI ROAD,KUN SHAN CITY,JIANG SU PROVINCE

The following sample(s) was/were submitted and identified on behalf of the clients as : Lead-free solder bar

SGS Job No. : SP14-028202 - SH

Composition : Sn-Cu, Sn-Ag-Cu

Date of Sample Received : 11 Sep 2014

Testing Period : 11 Sep 2014 - 13 Sep 2014

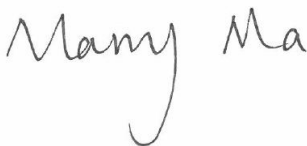
Test Requested : Selected test(s) as requested by client.

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

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

Conclusion : Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.

Signed for and on behalf of  
SGS-CSTC Ltd.



Marry Ma  
Approved Signatory



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# Test Report

No. SHAEC1417415901

Date: 13 Sep 2014

Page 2 of 5

Test Results :

## Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	SHA14-174159.001	Silver metal

Remarks :

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

## RoHS Directive 2011/65/EU

- Test Method :
- (1) With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.
  - (2) With reference to IEC 62321-5:2013, determination of Lead by ICP-OES.
  - (3) With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.
  - (4) With reference to IEC 62321:2008, determination of Hexavalent Chromium by spot test / Colorimetric Method using UV-Vis.
  - (5) With reference to IEC 62321:2008, determination of PBBs and PBDEs by GC-MS.

Test Item(s)	Limit	Unit	MDL	001
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	24
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	-	-	◇	Negative
Sum of PBBs	1000	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
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND



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## Test Report

No. SHAEC1417415901

Date: 13 Sep 2014

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Test Item(s)	Limit	Unit	MDL	001
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 directive 2011/65/EU, Annex II

(2) ◇Spot-test:

Negative = Absence of Cr(VI) coating, Positive = Presence of Cr(VI) coating;

(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:

Negative = Absence of Cr(VI) coating

Positive = Presence of Cr(VI) coating; 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.

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



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SGS Standards Technical Services (Shanghai) Co., Ltd.  
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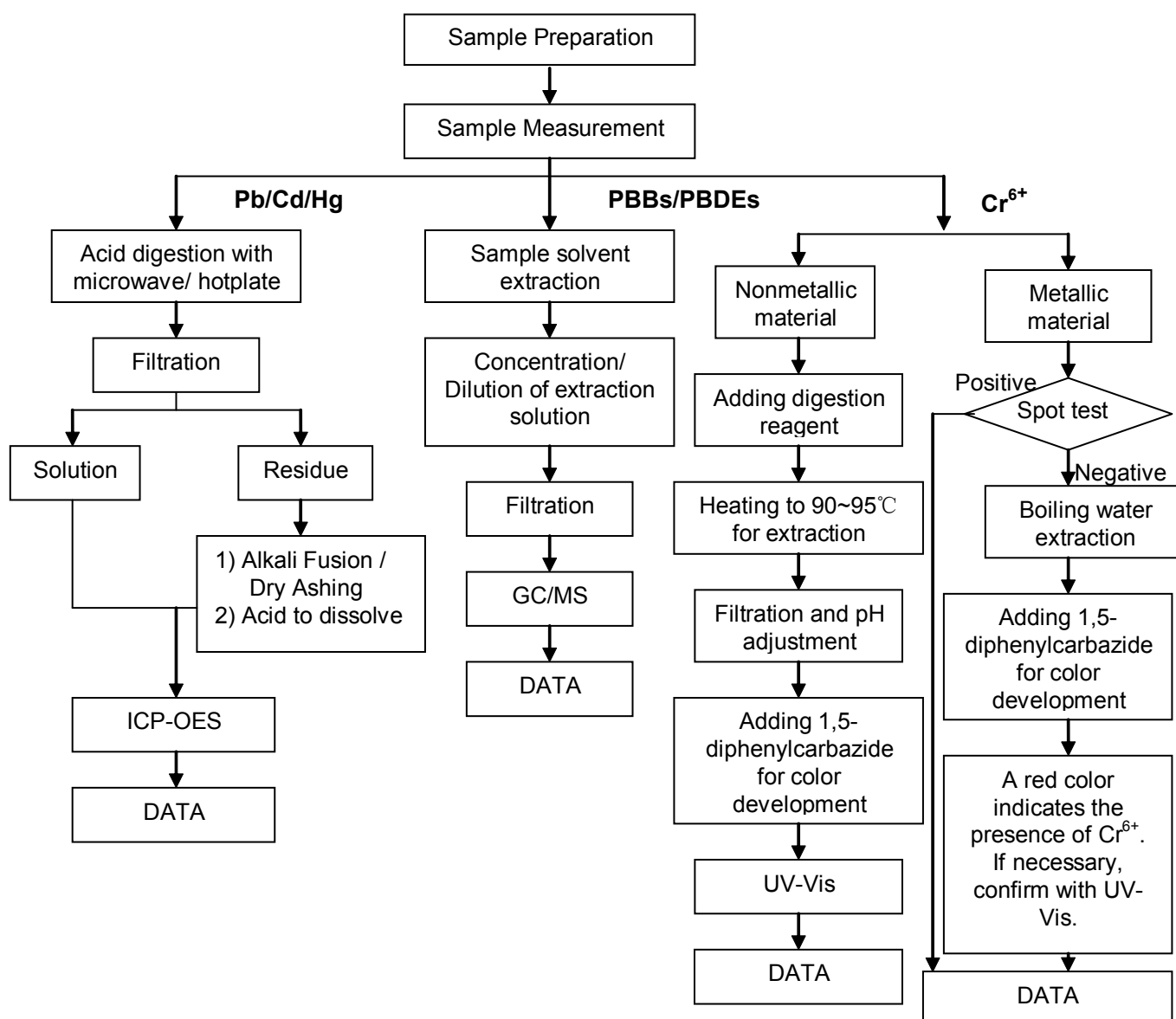
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## ATTACHMENTS

### RoHS Testing Flow Chart

- 1) Name of the person who made testing: Bob Zhang/Star Wang/Shara Wang/Gary Xu
- 2) Name of the person in charge of testing: Jan Shi/Summer Jin/Jessy Huang
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart.  
(Cr<sup>6+</sup> and PBBs/PBDEs test method excluded)



## Test Report

No. SHAEC1417415901

Date: 13 Sep 2014

Page 5 of 5

Sample photo:



SGS authenticate the photo on original report only

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# Test Report

**Report No.** ECL01G031248004R1

Page 1 of 4

**Applicant** MARKEM-IMAJE S.A.S

**Address** 9 RUE GASPARD MONGE – BP 110, 26501 BOURG – LES – VALENCE CEDEX

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

**Sample Name** 5157E/9155E/9175/MB175

**Item/Lot No.** CN14390118

**Color** black

**Material** ink

**Sample Received Date** Dec. 13, 2014

**Testing Period** Dec. 13, 2014 to Dec. 18, 2014

**Test Requested** As specified by client and RoHS Directive 2011/65/EU, to test Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium (Cr(VI)), Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs) in the submitted sample(s).

## Test Method

Test Item(s)	Test Method	Measured Equipment(s)
Lead (Pb)	IEC 62321-5:2013 Ed.1.0	ICP-OES
Cadmium (Cd)	IEC 62321-5:2013 Ed.1.0	ICP-OES
Mercury (Hg)	IEC 62321-4:2013 Ed.1.0	ICP-OES
Hexavalent Chromium(Cr(VI))	Refer to DIN EN ISO 17075:2008	UV-Vis
Polybrominated Biphenyl(PBBs)	IEC 62321:2008 Ed.1 Annex A	GC-MS
Polybrominated Diphenyl Ethers(PBDEs)	IEC 62321:2008 Ed.1 Annex A	GC-MS

**Test Result(s)** Please refer to the following page(s).

Tested by Tang shi hui

Reviewed by Xu Jing

Approved by Su Hongwei

Date Dec. 24, 2014

Su Hongwei  
Senior Laboratory Manager

No. R108721915

Centre Testing International Co., Ltd. Shanghai Branch

No.1996, New Jinqiao Road, Pudong District, Shanghai, China

# Test Report

Report No. ECL01G031248004R1

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## Test Result(s)

Tested Item(s)	Result	MDL
Lead (Pb)	N.D.	2 mg/kg
Cadmium (Cd)	N.D.	2 mg/kg
Mercury (Hg)	N.D.	2 mg/kg
Hexavalent Chromium (Cr(VI))	N.D.	3 mg/kg

Tested Item(s)	Result	MDL
<b>Polybrominated Biphenyl(PBBs)</b>		
Monobromobiphenyl	N.D.	5 mg/kg
Dibromobiphenyl	N.D.	5 mg/kg
Tribromobiphenyl	N.D.	5 mg/kg
Tetrabromobiphenyl	N.D.	5 mg/kg
Pentabromobiphenyl	N.D.	5 mg/kg
Hexabromobiphenyl	N.D.	5 mg/kg
Heptabromobiphenyl	N.D.	5 mg/kg
Octabromobiphenyl	N.D.	5 mg/kg
Nonabromobiphenyl	N.D.	5 mg/kg
Decabromobiphenyl	N.D.	5 mg/kg

Tested Item(s)	Result	MDL
<b>Polybrominated Diphenyl Ethers(PBDEs)</b>		
Monobromodiphenyl ether	N.D.	5 mg/kg
Dibromodiphenyl ether	N.D.	5 mg/kg
Tribromodiphenyl ether	N.D.	5 mg/kg
Tetrabromodiphenyl ether	N.D.	5 mg/kg
Pentabromodiphenyl ether	N.D.	5 mg/kg
Hexabromodiphenyl ether	N.D.	5 mg/kg
Heptabromodiphenyl ether	N.D.	5 mg/kg
Octabromodiphenyl ether	N.D.	5 mg/kg
Nonabromodiphenyl ether	N.D.	5 mg/kg
Decabromodiphenyl ether	N.D.	5 mg/kg

Tested Sample/Part Description Black ink

**Note:** The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury.  
 -MDL = Method Detection Limit  
 -N.D. = Not Detected (<MDL )  
 -mg/kg = ppm = parts per million  
**This testing report displaces the original report of No. ECL01G031248004, and the original one No. ECL01G031248004 was invalid since the date of this testing report released. The end sign of report number R1 represents the revised version.**



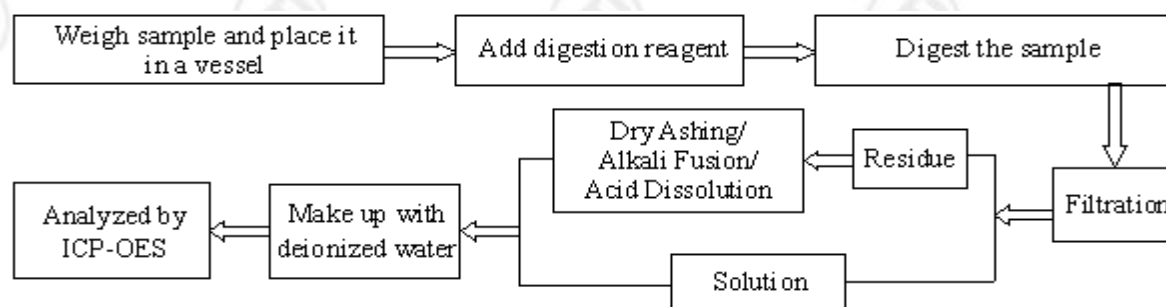
# Test Report

Report No. ECL01G031248004R1

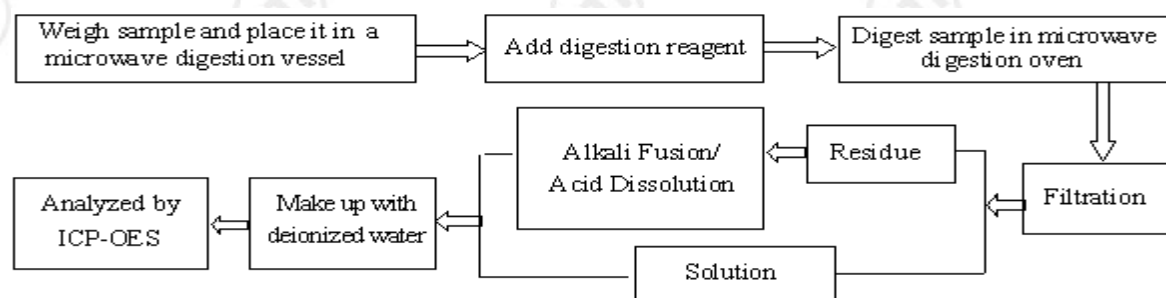
Page 3 of 4

## Test Process

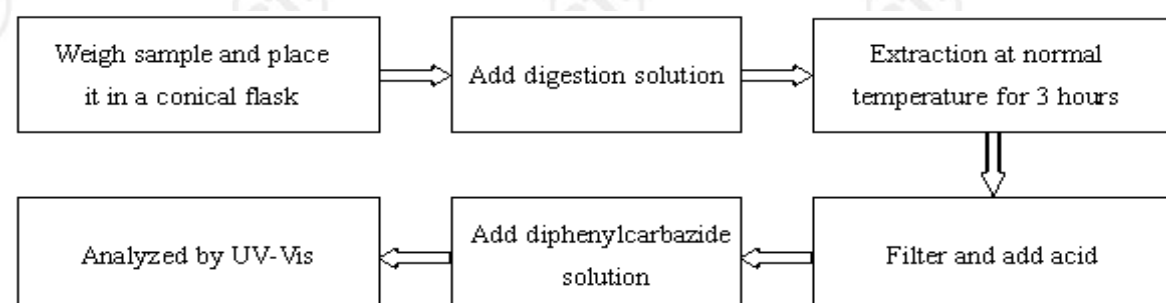
### 1. Lead (Pb), Cadmium (Cd)



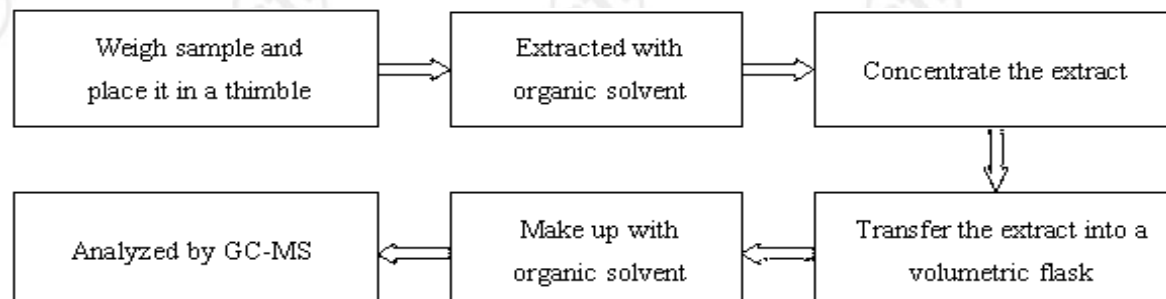
### 2. Mercury (Hg)



### 3. Hexavalent Chromium(Cr(VI))



### 4. Polybrominated Biphenyl(PBBs) , Polybrominated Diphenyl Ethers(PBDEs)



# Test Report

Report No. ECL01G031248004R1

Page 4 of 4

## Photo(s) of the sample(s)



\*\*\* End of report \*\*\*

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# Test Report

Report No. ECL01G031248006

Page 1 of 3

Applicant MARKEM-IMAJE S.A.S

Address 9 RUE GASPARD MONGE – BP 110, 26501 BOURG – LES – VALENCE CEDEX

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

Sample Name 5157E/9155E/9175/MB175

Item/Lot No. CN14390118

Color black

Material ink

Sample Received Date Dec. 13, 2014

Testing Period Dec. 13, 2014 to Dec. 18, 2014

Test Requested As specified by client, to test Fluorine(F), Chlorine(Cl), Bromine(Br), Iodine(I) in the submitted sample(s).

## Test Method

Test Item(s)	Test Method	Measured Equipment(s)
Fluorine(F)	Refer to BS EN 14582:2007	IC
Chlorine(Cl)	Refer to BS EN 14582:2007	IC
Bromine(Br)	Refer to BS EN 14582:2007	IC
Iodine(I)	Refer to BS EN 14582:2007	IC

Test Result(s) Please refer to the following page(s).

Tested by

Tang shi hui

Reviewed by

Xu Jing

Approved by

Su Hongwei

Date

Dec. 18, 2014

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Senior Laboratory Manager

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# Test Report

Report No. ECL01G031248006

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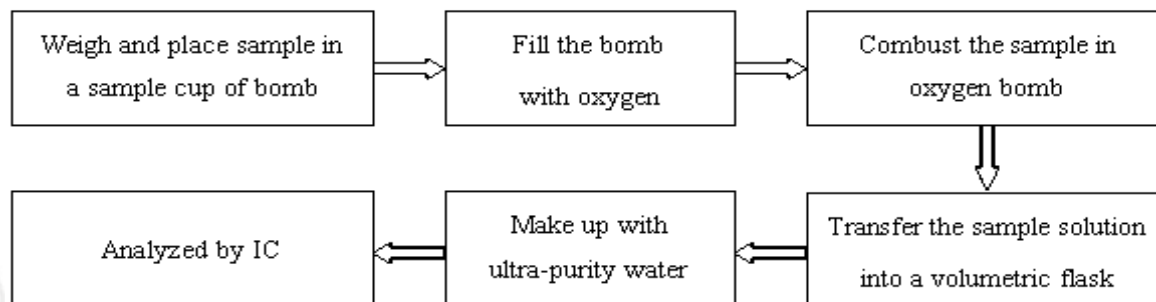
## Test Result(s)

Tested Item(s)	Result	MDL
<b>Halogen(s)</b>		
Fluorine(F)	N.D.	10 mg/kg
Chlorine(Cl)	N.D.	10 mg/kg
Bromine(Br)	N.D.	10 mg/kg
Iodine(I)	N.D.	10 mg/kg

**Tested Sample/Part Description** Black ink

**Note:**  
 -MDL = Method Detection Limit  
 -N.D. = Not Detected (<MDL)  
 -mg/kg = ppm = parts per million

## Test Process



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## Photo(s) of the sample(s)



\*\*\* End of report \*\*\*

The test report is effective only with both signature and specialized stamp. The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CTI, this report can't be reproduced except in full.