

## Test Report

No. : CE/2012/81731C Date : 2012/12/26 Page : 1 of 18

BOURNS. INC.  
1200 COLUMBIA AVE., RIVERSIDE, CA 92507-2114, USA



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

Sample Description : METAL FOIL CURRENT SENSING CHIP RESISTORS/METAL FOIL HIGH  
POWER CURRENT SENSING RESISTORS (RLM/RLN/RLP SERIES)  
Style/Item No. : CRF0805.CRF1206.CRF2010.CRF2512.CSC0612.CSC3720.CRA2010.CRA2512.  
Sample Receiving Date : 2012/08/10  
Testing Period : 2012/08/10 TO 2012/08/16

=====  
**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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BOURNS. INC.  
1200 COLUMBIA AVE., RIVERSIDE, CA 92507-2114, USA



## Test Result(s)

PART NAME No.1 : MIXED ALL PARTS (9 TYPES)

| Test Item(s)  | Unit  | Method  | MDL  | Result   |
|---|-------|---|------|----------|
|   |       |   |      | No.1     |
| Cadmium (Cd)  | mg/kg | With reference to IEC 62321: 2008 and performed by ICP-AES.               | 2    | n.d.     |
| Lead (Pb)   | mg/kg | With reference to IEC 62321: 2008 and performed by ICP-AES.               | 2    | n.d.     |
| Mercury (Hg)  | mg/kg | With reference to IEC 62321: 2008 and performed by ICP-AES.               | 2    | n.d.     |
| Hexavalent Chromium Cr(VI)                                | mg/kg | With reference to IEC 62321: 2008 and performed by UV-VIS.                | 2    | n.d.     |
| Beryllium (Be)  | mg/kg | With reference to US EPA Method 3050B. Analysis was performed by ICP-AES. | 2    | n.d.     |
| PVC   | **    | Analysis was performed by FTIR and FLAME Test.                            | -    | Negative |
| Polychlorinated Biphenyls (PCBs)<br>(CAS No.: 1336-36-3)  | 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.     |
| Perfluorooctane sulfonates (PFOS-Acid, Metal Salt, Amide) | mg/kg | With reference to US EPA 3550C: 2007. Analysis was performed by LC/MS.    | 10   | n.d.     |
| PFOA (CAS No.: 335-67-1)                                  | mg/kg | With reference to US EPA 3550C: 2007. Analysis was performed by LC/MS.    | 10   | n.d.     |
| <b>Organic-tin compounds</b>                              |       |   |      |          |
| Tributyl Tin (TBT)  | mg/kg | With reference to DIN 38407-13. Analysis was performed by GC/FPD.         | 0.03 | n.d.     |
| Triphenyl Tin (TphT)                                      | mg/kg | With reference to DIN 38407-13. Analysis was performed by GC/FPD.         | 0.03 | n.d.     |

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| Test Item(s)                                | Unit  | Method  | MDL | Result |
|---|-------|---|-----|--------|
|   |       |   |     | No.1   |
| <b>Sum of PBBs</b>                          | mg/kg | With reference to IEC 62321: 2008 and performed by GC/MS.         | -   | n.d.   |
| Monobromobiphenyl                           | mg/kg |   | 5   | n.d.   |
| Dibromobiphenyl                             | mg/kg |   | 5   | n.d.   |
| Tribromobiphenyl                            | mg/kg |   | 5   | n.d.   |
| Tetrabromobiphenyl                          | mg/kg |   | 5   | n.d.   |
| Pentabromobiphenyl                          | mg/kg |   | 5   | n.d.   |
| Hexabromobiphenyl                           | mg/kg |   | 5   | n.d.   |
| Heptabromobiphenyl                          | mg/kg |   | 5   | n.d.   |
| Octabromobiphenyl                           | mg/kg |   | 5   | n.d.   |
| Nonabromobiphenyl                           | mg/kg |   | 5   | n.d.   |
| Decabromobiphenyl                           | mg/kg |   | 5   | n.d.   |
| <b>Sum of PBDEs</b>                         | mg/kg |   | -   | n.d.   |
| Monobromodiphenyl ether                     | mg/kg |   | 5   | n.d.   |
| Dibromodiphenyl ether                       | mg/kg |   | 5   | n.d.   |
| Tribromodiphenyl ether                      | mg/kg |   | 5   | n.d.   |
| Tetrabromodiphenyl ether                    | mg/kg |   | 5   | n.d.   |
| Pentabromodiphenyl ether                    | mg/kg |   | 5   | n.d.   |
| Hexabromodiphenyl ether                     | mg/kg |   | 5   | n.d.   |
| Heptabromodiphenyl ether                    | mg/kg |   | 5   | n.d.   |
| Octabromodiphenyl ether                     | mg/kg |   | 5   | n.d.   |
| Nonabromodiphenyl ether                     | mg/kg |   | 5   | n.d.   |
| Decabromodiphenyl ether                     | mg/kg |   | 5   | n.d.   |
| <b>Halogen</b>                              |       |   |     |        |
| Halogen-Fluorine (F) (CAS No.: 14762-94-8)  | mg/kg | With reference to BS EN 14582:2007. Analysis was performed by IC. | 50  | n.d.   |
| Halogen-Chlorine (Cl) (CAS No.: 22537-15-1) | mg/kg | With reference to BS EN 14582:2007. Analysis was performed by IC. | 50  | n.d.   |
| Halogen-Bromine (Br) (CAS No.: 10097-32-2)  | mg/kg | With reference to BS EN 14582:2007. Analysis was performed by IC. | 50  | n.d.   |
| Halogen-Iodine (I) (CAS No.: 14362-44-8)    | mg/kg | With reference to BS EN 14582:2007. Analysis was performed by IC. | 50  | n.d.   |

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BOURNS. INC.  
1200 COLUMBIA AVE., RIVERSIDE, CA 92507-2114, USA



| Test Item(s)  | Unit  | Method   | MDL | Result   |
|---|-------|--|-----|----------|
|   |       |  |     | No.1     |
| <b>Asbestos</b>                                     |       |  |     |          |
| Actinolite (CAS No.: 77536-66-4)                    | %     | With reference to EPA 600/R-93/116 method. Analysis was performed by Stereo Microscope (SM), Dispersion Staining Polarized Light Microscope (DS-PLM) and X-ray Diffraction Spectrometer (XRD). | -   | Negative |
| Amosite (CAS No.: 12172-73-5)                       | %     |  | -   | Negative |
| Anthophyllite (CAS No.: 77536-67-5)                 | %     |  | -   | Negative |
| Chrysotile (CAS No.: 12001-29-5)                    | %     |  | -   | Negative |
| Crocidolite (CAS No.: 12001-28-4)                   | %     |  | -   | Negative |
| Tremolite (CAS No.: 77536-68-6)                     | %     |  | -   | Negative |
| <b>AZO</b>  |       |  |     |          |
| 1): 4-AMINODIPHENYL (CAS No.: 92-67-1)              | mg/kg | With reference to LFGB 82.02-2. Analysis was performed by GC/MS.   | 3   | n.d.     |
| 2): BENZIDINE (CAS No.: 92-87-5)                    | 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.: 95-69-2)         | mg/kg | With reference to LFGB 82.02-2. Analysis was performed by GC/MS.   | 3   | n.d.     |
| 4): 2-NAPHTHYLAMINE (CAS No.: 91-59-8)              | mg/kg | With reference to LFGB 82.02-2. Analysis was performed by GC/MS.   | 3   | n.d.     |
| 5): O-AMINOAZOTOLUENE (CAS No.: 97-56-3)            | mg/kg | With reference to LFGB 82.02-2. Analysis was performed by GC/MS.   | 3   | n.d.     |
| 6): 2-AMINO-4-NITROTOLUENE (CAS No.: 99-55-8)       | mg/kg | With reference to LFGB 82.02-2. Analysis was performed by GC/MS.   | 3   | n.d.     |
| 7): P-CHLOROANILINE (CAS No.: 106-47-8)             | mg/kg | With reference to LFGB 82.02-2. Analysis was performed by GC/MS.   | 3   | n.d.     |
| 8): 2,4-DIAMINOANISOLE (CAS No.: 615-05-4)          | mg/kg | With reference to LFGB 82.02-2. Analysis was performed by GC/MS.   | 3   | n.d.     |
| 9): 4,4'-DIAMINODIPHENYLMETHANE (CAS No.: 101-77-9) | mg/kg | With reference to LFGB 82.02-2. Analysis was performed by GC/MS.   | 3   | n.d.     |
| 10): 3,3'-DICHLOROBENZIDINE (CAS No.: 91-94-1)      | mg/kg | With reference to LFGB 82.02-2. Analysis was performed by GC/MS.   | 3   | n.d.     |
| 11): 3,3'-DIMETHOXYBENZIDINE (CAS No.: 119-90-4)    | mg/kg | With reference to LFGB 82.02-2. Analysis was performed by GC/MS.   | 3   | n.d.     |
| 12): 3,3'-DIMETHYLBENZIDINE (CAS No.: 119-93-7)     | mg/kg | With reference to LFGB 82.02-2. Analysis was performed by GC/MS.   | 3   | n.d.     |

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| Test Item(s)   | Unit  | Method   | MDL | Result |
|--|-------|--|-----|--------|
|  |       |  |     | No.1   |
| 13): 3,3'-DIMETHYL-4,4'-DIAMINODIPHENYLMETHANE (CAS No.: 838-88-0) | 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.: 120-71-8)   | 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.: 101-14-4)     | mg/kg | With reference to LFGB 82.02-2. Analysis was performed by GC/MS. | 3   | n.d.   |
| 16): 4,4'-OXYDIANILINE (CAS No.: 101-80-4)                         | mg/kg | With reference to LFGB 82.02-2. Analysis was performed by GC/MS. | 3   | n.d.   |
| 17): 4,4'-THIODIANILINE (CAS No.: 139-65-1)                        | mg/kg | With reference to LFGB 82.02-2. Analysis was performed by GC/MS. | 3   | n.d.   |
| 18): O-TOLUIDINE (CAS No.: 95-53-4)                                | mg/kg | With reference to LFGB 82.02-2. Analysis was performed by GC/MS. | 3   | n.d.   |
| 19): 2,4-TOLUYLENEDIAMINE (CAS No.: 95-80-7)                       | 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.: 137-17-7)                    | mg/kg | With reference to LFGB 82.02-2. Analysis was performed by GC/MS. | 3   | n.d.   |
| 21): O-ANISIDINE (CAS No.: 90-04-0)                                | mg/kg | With reference to LFGB 82.02-2. Analysis was performed by GC/MS. | 3   | n.d.   |
| 22): P-AMINOAZOBENZENE (CAS No.: 60-09-3)                          | mg/kg | With reference to LFGB 82.02-2. Analysis was performed by GC/MS. | 3   | n.d.   |
| 23): 2,4-XYLIDINE (CAS No.: 95-68-1)                               | mg/kg | With reference to LFGB 82.02-2. Analysis was performed by GC/MS. | 3   | n.d.   |
| 24): 2,6-XYLIDINE (CAS No.: 87-62-7)                               | mg/kg | With reference to LFGB 82.02-2. Analysis was performed by GC/MS. | 3   | n.d.   |

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### 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. Testing range of asbestos qualitative analysis is from less than 0.1% to 100%. The judgment criterion: asbestos fibers being found is shown as "Positive"; asbestos fibers not being found is shown as "Negative".
8. The sample(s) was/were analyzed on behalf of the applicant as mixing sample in one testing. The above result(s) was/were only given as the informality value.

### PFOS Reference Information : POPs - (EU) 757/2010

Outlawing PFOS as substances or preparations in concentrations above 0.001% (10ppm), in semi-finished products or articles or parts at a level above 0.1%(1000ppm), in textiles or other coated materials above 1µg/m<sup>2</sup>.

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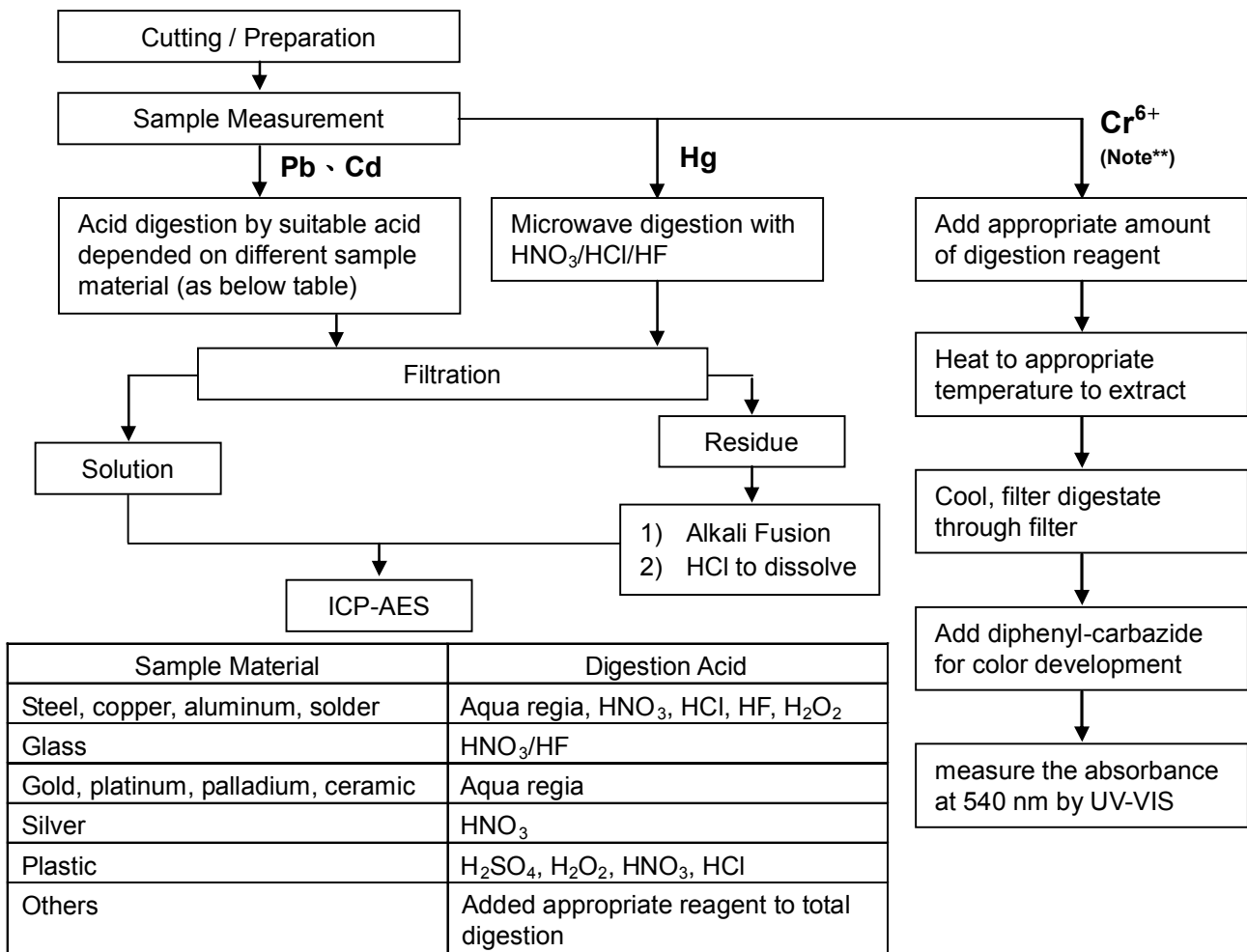
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- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart.  
(Cr<sup>6+</sup> test method excluded)
- 2) Name of the person who made measurement: Climbgreat Yang
- 3) Name of the person in charge of measurement: Troy Chang



**Note\*\* :** (1) For non-metallic material, add alkaline digestion reagent and heat to 90~95 °C.  
(2) For metallic material, add pure water and heat to boiling.

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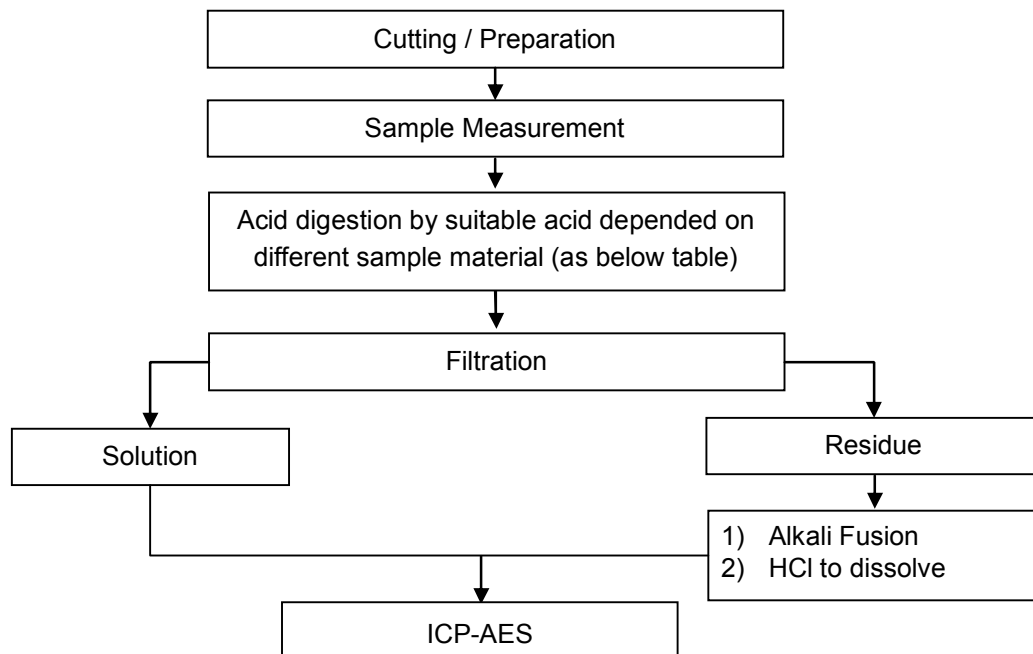
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1200 COLUMBIA AVE., RIVERSIDE, CA 92507-2114, USA



- 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                             | Added appropriate reagent to total digestion  |

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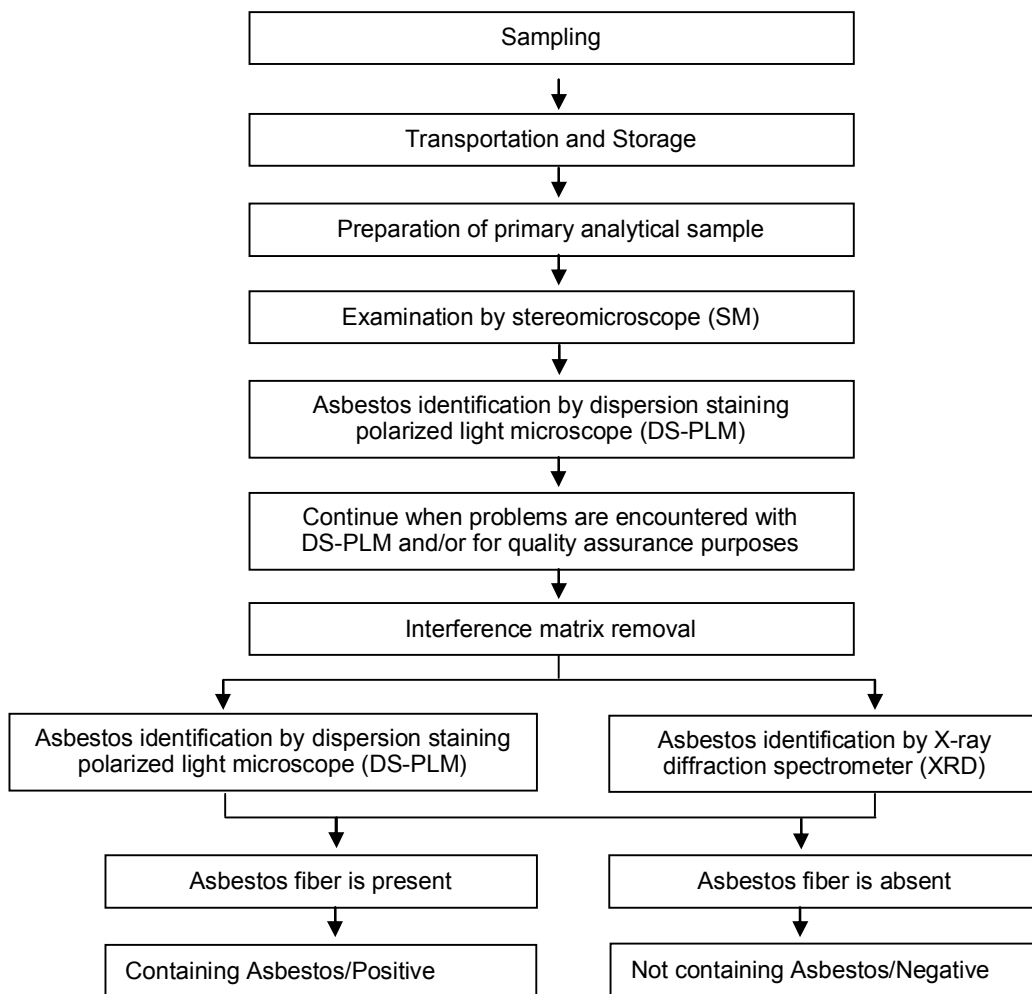
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### Analysis flow chart for determination of Asbestos

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

#### 【 Reference method: EPA 600/R-93/116 】



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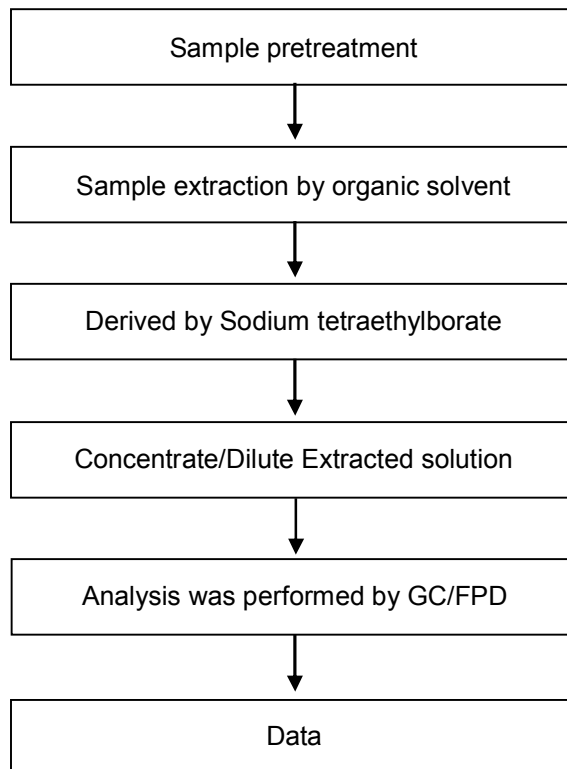
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### Analytical flow chart of Organic-Tin content

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



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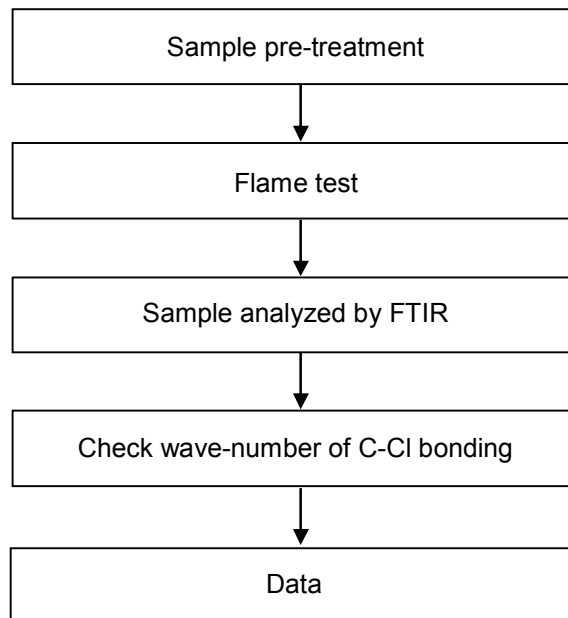
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### Analysis flow chart for determination of PVC in material

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



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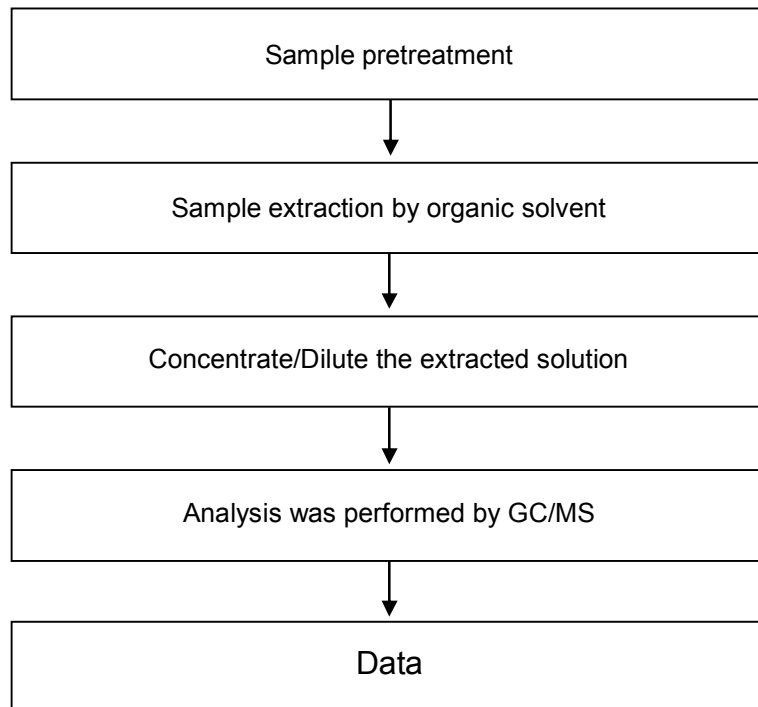
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### PCTs analytical flow chart

- Name of the person who made measurement: Barry Tseng
- Name of the person in charge of measurement: Troy Chang



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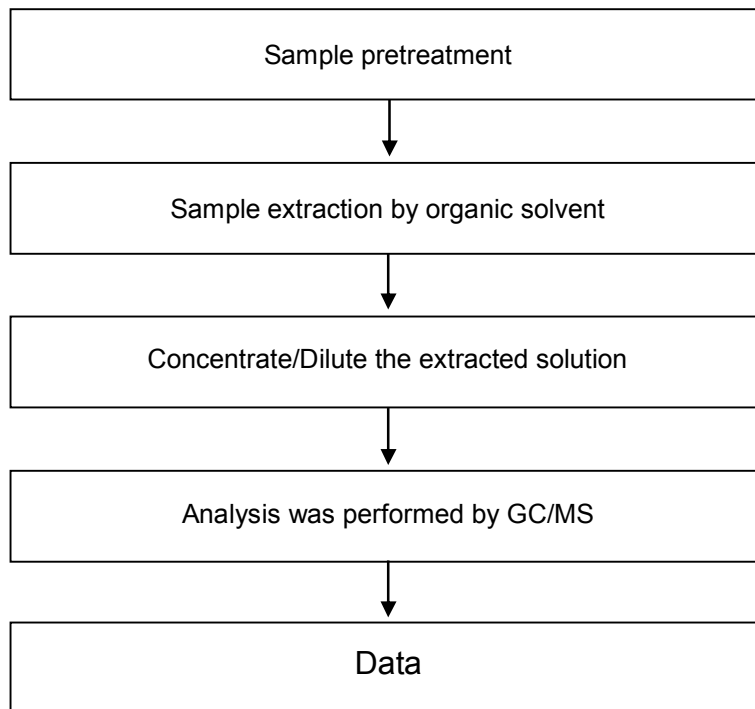
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### PCNs analytical flow chart

- Name of the person who made measurement: Barry Tseng
- Name of the person in charge of measurement: Troy Chang



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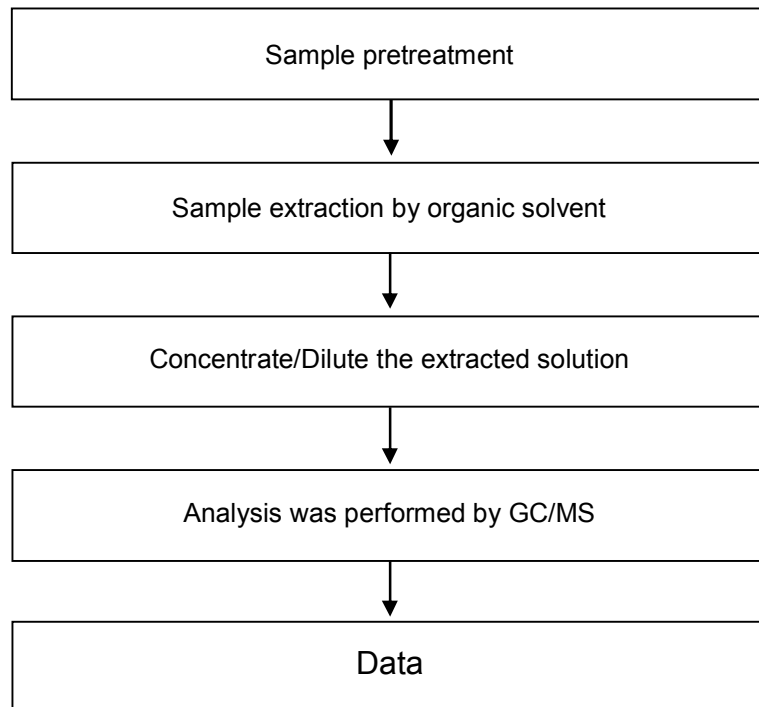
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### PCBs analytical flow chart

- Name of the person who made measurement: Barry Tseng
- Name of the person in charge of measurement: Troy Chang



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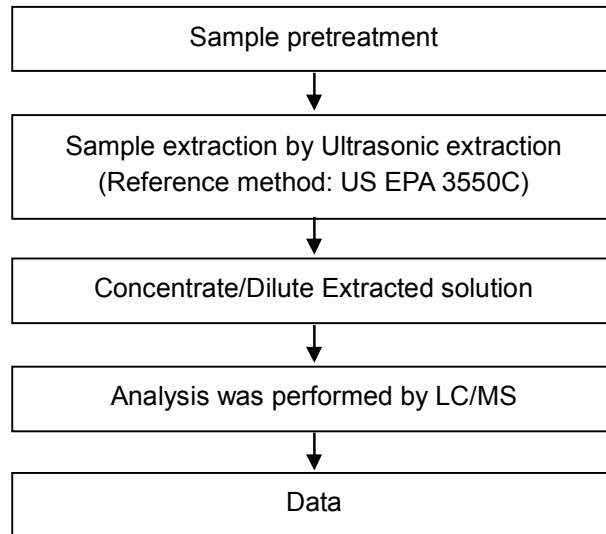
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### PFOA/PFOS analytical flow chart of Ultrasonic extraction (LC/MS) procedure

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



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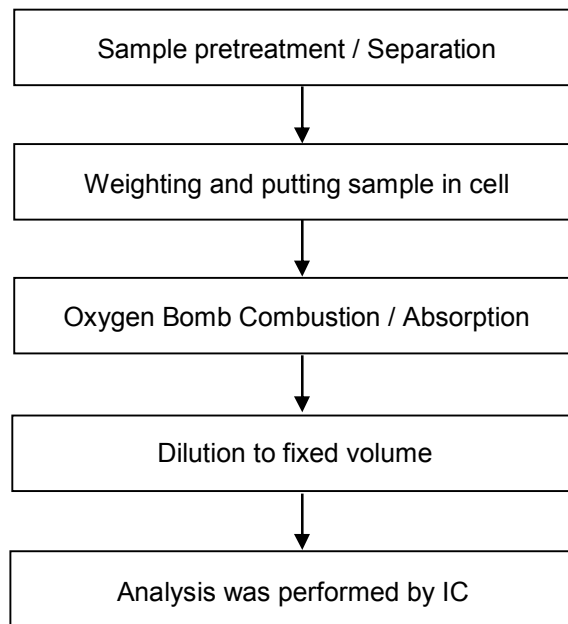
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### Analytical flow chart of halogen content

- 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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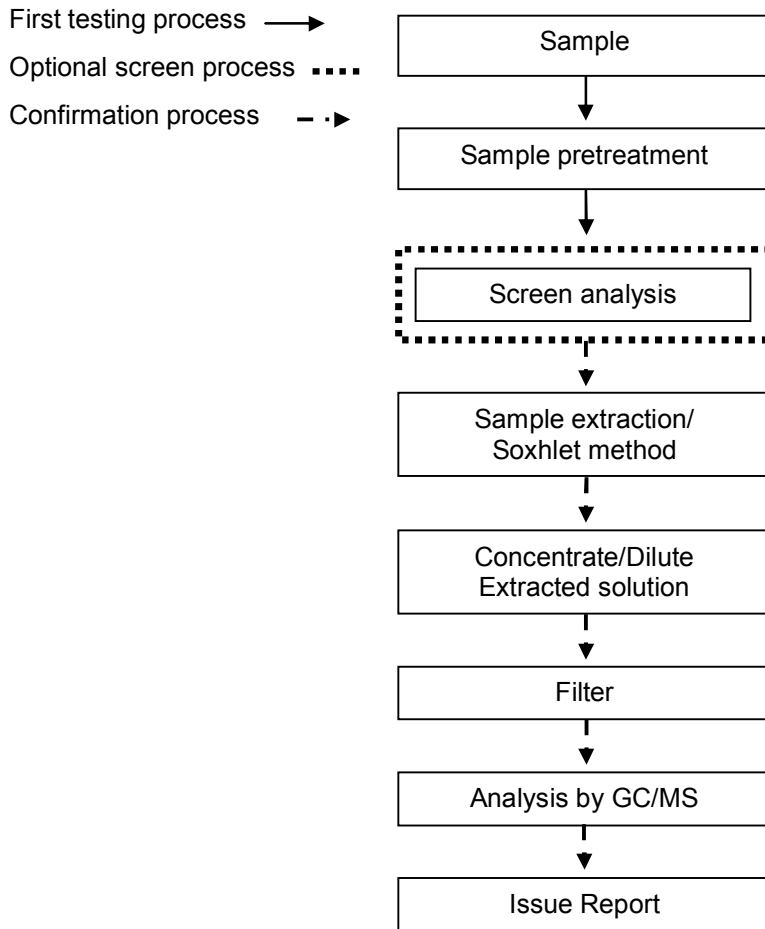
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### PBB/PBDE analytical FLOW CHART

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



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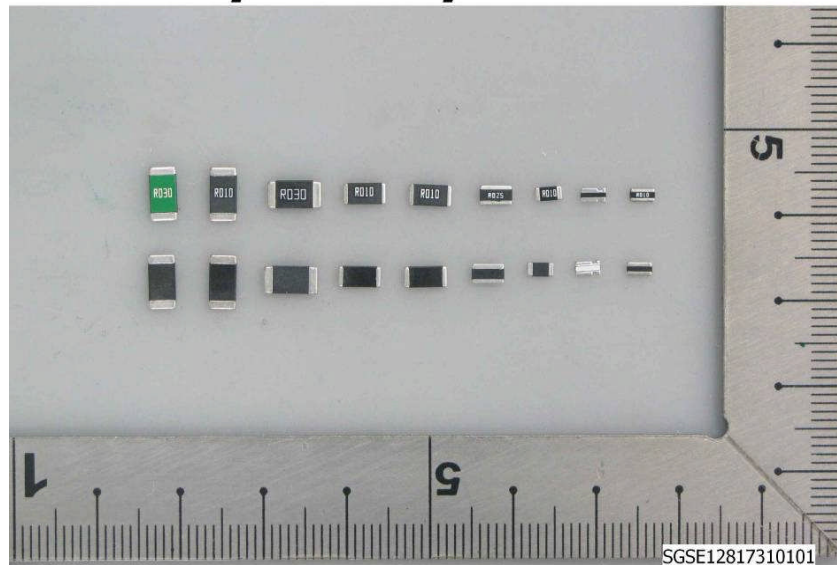
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\* The tested sample / part is marked by an arrow if it's shown on the photo. \*

### CE/2012/81731



\*\* End of Report \*\*

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