



# ANALYTICAL LABORATORIES (SINGAPORE) PTE. LTD

Analytical Chemists; Environmental and Materials Testing

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CO. REG NO. 197302347G GST REG NO. M2-0017430-5



## REPORT

Lab No. : AC/HS/3436B/10  
 Company Name : Lee Soon Seng Plastic Industries Sdn Bhd  
 Date Received : 18/06/2010 Date Reported: 24/06/2010  
 Sample Description : One sample of Sheet/Product  
 Date Tested: 18/06/2010 – 24/06/2010


The sample consisted of a packet of Sheet/Product and marked:


### APET Sheet

On analysis, the following results were obtained:-

| Test Parameter                            | Digestion/<br>Extraction Method                         | Analysis Method | MDL, ppm<br>(w/w) | Results, ppm<br>(w/w) |
|---|---|-----------------|-------------------|-----------------------|
| Mercury (Hg)                              | AC/RoHS/0010Ver1.1/05<br>Wet Acid Digestion (Microwave) | CVAAS           | 2                 | Not detected          |
| Lead (Pb)                                 | AC/RoHS/0007Ver1.1/05<br>Dry Ashing                     | ICP-AES         | 2                 | Not detected          |
| Cadmium (Cd)                              | AC/RoHS/0007Ver1.1/05<br>Wet Acid Digestion (Microwave) | ICP-AES         | 2                 | Not detected          |
| Hexavalent<br>Chromium (Cr 6+)            | AC/RoHS/0011Ver1.0/05                                   |                 | 2                 | Not detected          |
| Polybrominated Biphenyls<br>(PBBs)        | AC/RoHS/0012Ver1.2/06<br>(Microwave extraction)         | GC-MS           | 5                 | Not detected          |
| Polybrominated<br>Diphenyl Ethers (PBDEs) | AC/RoHS/0012Ver1.2/06<br>(Microwave extraction)         | GC-MS           | 5                 | Not detected          |

- Remarks:**
- Sample was prepared as in AC/ROHS/0006Ver1.0/05 and all the methods listed above are reference to the IEC 62321:2008 – Procedure for determination of Levels of regulated Substances in Electrotechnical Products.
  - CVAAS = Cold Vapour Atomic Absorption Spectrometry.  
ICP-AES = Inductively-Coupled Plasma – Atomic Emission Spectrometry.  
GC-MS = Gas Chromatography – Mass Spectrometry.
  - MDL = Method Detection Limit.
  - PBBs and PBDEs: see attached appendix I for details.

  
 CHIOK KIAN SOON  
 ASST. MANAGER

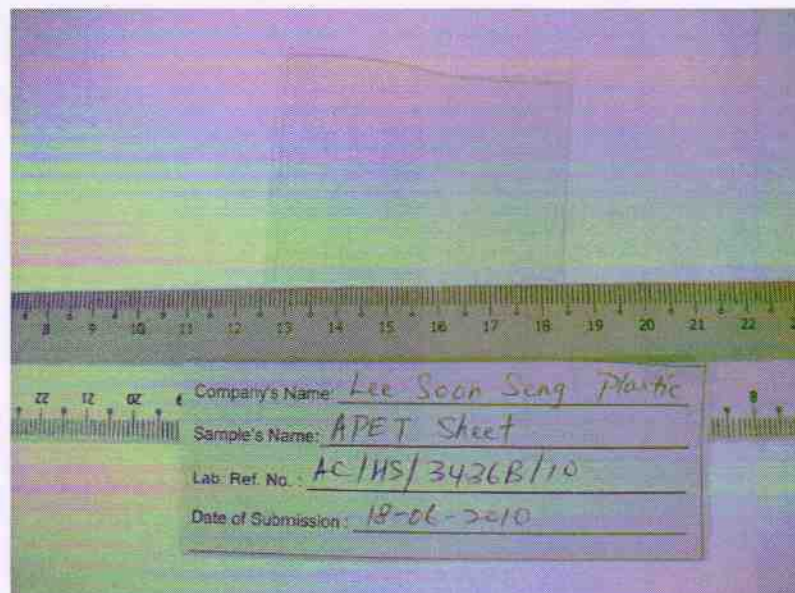
  
 CHARLES CHIN  
 TECHNICAL MANAGER  
 ANALYTICAL LABORATORIES (S) PTE. LTD.

Lee Soon Seng Plastic Industries Sdn Bhd  
 Lot 3304, Batu 24-1/2, Jalan Kulai, Air Hitam  
 81000 Kulai, Johor

/jaz

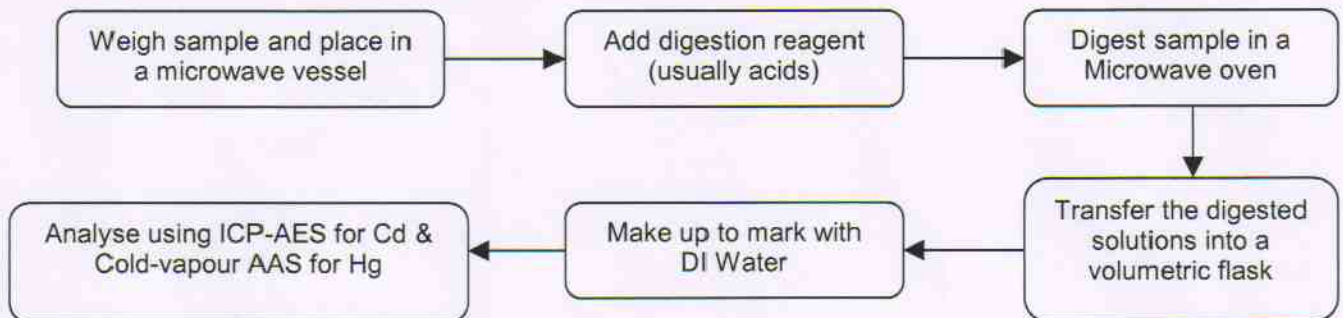
|  |  | Brand /Make of Equipment   |
|--|--|--|
| 1). Pre-conditioning Method<br>Mercury (Hg)<br>Lead (Pb)<br>Cadmium (Cd)<br>Hexavalent Chromium (Cr <sup>6+</sup> )<br>Polybrominated Biphenyls &<br>Polybrominated Diphenyl<br>Ethers       | Microwave – Pressurized Acid Decomposition Method<br>Dry Ashing/Acid Decomposition<br>Microwave – Pressurized Acid Decomposition Method<br>Alkaline Extraction Method<br>Microwave Extraction<br>Microwave Extraction<br><br>(Above Methods are in accordance to the IEC (International Electrotechnical Committee) Method – Procedure for determination of Levels of Regulated Substances in Electrotechnical Products.)<br>The pre-conditioning procedures above ensure that the samples are completely dissolute prior to analyses. | Freezer Mill – Spex 6750<br><br>Microwave Oven – CEM MARS 5<br><br>Microwave Oven – ANTON PARR Multiwave 3000 SOLV                             |
| 2) Measurement Method<br>Mercury (Hg)<br>Lead (Pb)<br><br>Cadmium (Cd)<br><br>Hexavalent Chromium (Cr <sup>6+</sup> )<br><br>Polybrominated Biphenyls &<br>Polybrominated Diphenyl<br>Ethers | CVAAS – Cold Vapour Atomic Absorption Spectrometry<br>ICP-AES- Inductively Coupled Plasma-Atomic Emission Spectrometry<br>ICP-AES- Inductively Coupled Plasma-Atomic Emission Spectrometry<br>UV-VIS – Ultra Violet-Visible Spectrometry<br><br>GC-MS- Gas Chromatograph-Mass Spectrometry<br>GC-MS- Gas Chromatograph-Mass Spectrometry   | Varian Spectra AA – 220/FS<br>ICP-AES – Varian Vista MPA (Simultaneous)<br><br>UV-VIS- Shimadzu UV 1601<br><br>GC-MS – Perkin Elmer Clarus 500 |
| 3) Name of Analyst   | Mr. Chiok Kian Soon (Asst Manager)   |  |
| 4) Name of Person Responsible  | Mr. Charles Chin (Technical Manager)   |  |

### Digital Recording of sample

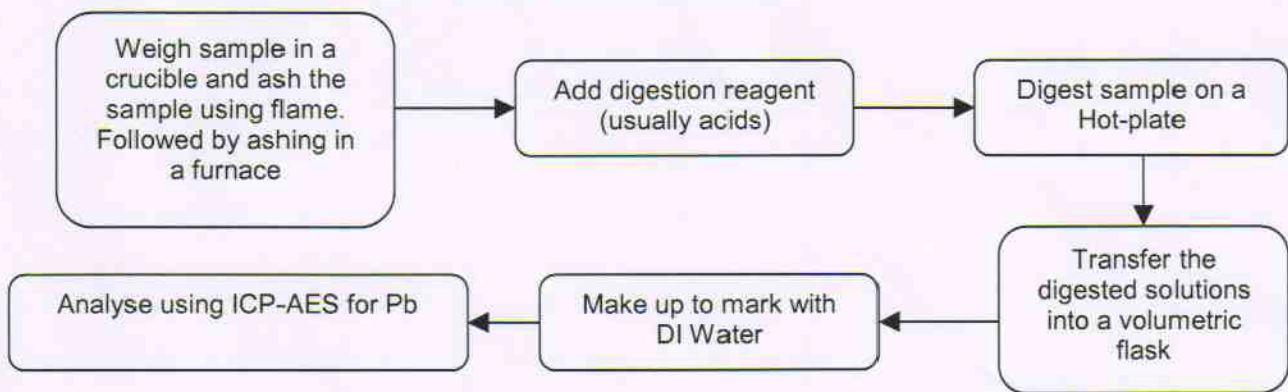


**Attachment: Flowchart showing the flow of work for Plastic Materials, chemicals, etc (PBBs & PBDEs using Microwave extraction)**

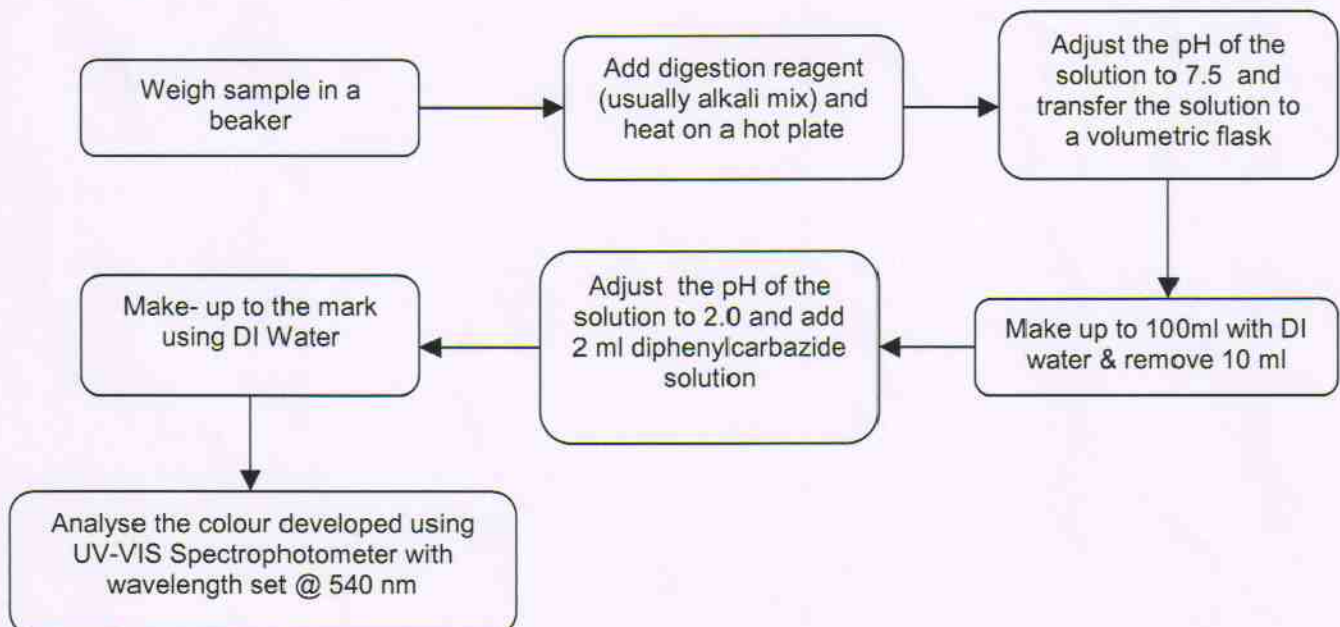
1. Analyses of Cadmium and Mercury in Plastics/Polymeric materials/chemicals



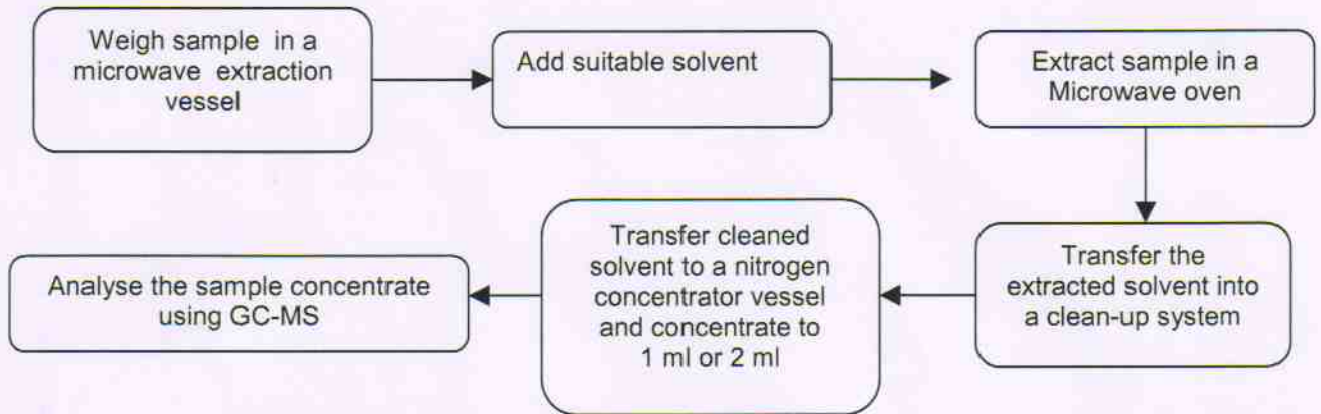
2. Analyses of Lead in Plastics/Polymeric materials/chemicals



3. Analyses for Hexavalent Chromium (Cr<sup>6+</sup>)



4. Analyses of Polybrominated Biphenyls and Polybrominated Diphenyl Ethers Flame Retardants



**Note:**

1. The above dissolution must ensure that the sample is completely digested otherwise a combination of digestion such as fusion prior to acid digestion may be performed.
2. For the purpose of general information, the above flowcharts are presented for the various test parameters to be determined. The presentation provides a generalized pathway from sample preparation to analysis. The procedures may vary depending on the various types of material submitted.



Appendix I

Polybrominated Biphenyls (PBBs)

|    |                    | MDL (ug/g) | Results |
|----|--------------------|------------|---------|
| 1  | Monobromobiphenyl  | 5          | N.D     |
| 2  | Dibromobiphenyl    | 5          | N.D     |
| 3  | Tribromobiphenyl   | 5          | N.D     |
| 4  | Tetrabromobiphenyl | 5          | N.D     |
| 5  | Pentabromobiphenyl | 5          | N.D     |
| 6  | Hexabromobiphenyl  | 5          | N.D     |
| 7  | Heptabromobiphenyl | 5          | N.D     |
| 8  | Octabromobiphenyl  | 5          | N.D     |
| 9  | Nonabromobiphenyl  | 5          | N.D     |
| 10 | Decabromobiphenyl  | 5          | N.D     |

Polybrominated Diphenyl Ethers (PBDEs)

|    |                           | MDL (ug/g) | Results |
|----|---------------------------|------------|---------|
| 1  | Monobromobiphenyl Ethers  | 5          | N.D     |
| 2  | Dibromobiphenyl Ethers    | 5          | N.D     |
| 3  | Tribromobiphenyl Ethers   | 5          | N.D     |
| 4  | Tetrabromobiphenyl Ethers | 5          | N.D     |
| 5  | Pentabromobiphenyl Ethers | 5          | N.D     |
| 6  | Hexabromobiphenyl Ethers  | 5          | N.D     |
| 7  | Heptabromobiphenyl Ethers | 5          | N.D     |
| 8  | Octabromobiphenyl Ethers  | 5          | N.D     |
| 9  | Nonabromobiphenyl Ethers  | 5          | N.D     |
| 10 | Decabromobiphenyl Ethers  | 5          | N.D     |

N.D = Not Detected