



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/3436A/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:

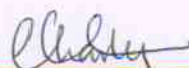
HIPS Sheet

On analysis, the following results were obtained:-

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

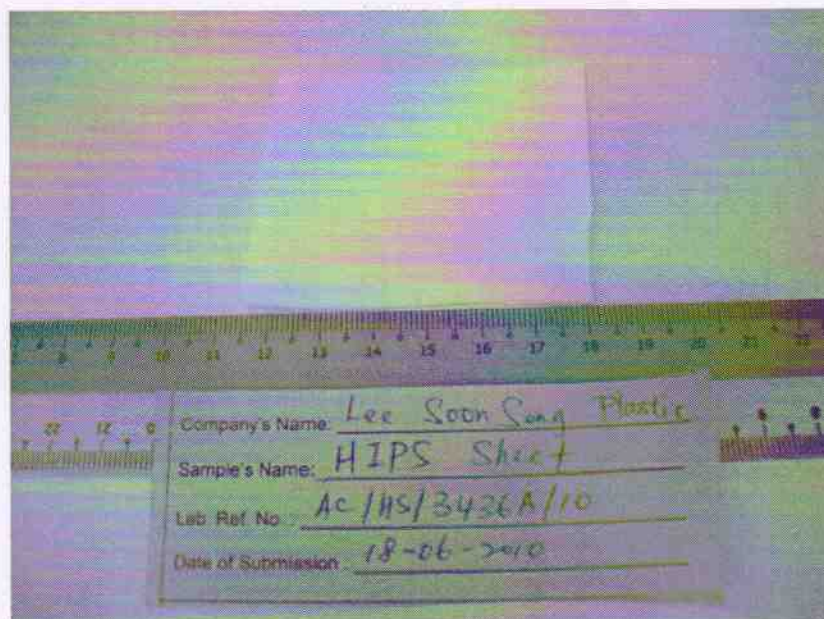

 CHARLES CHIN
 TECHNICAL MANAGER
 ANALYTICAL LABORATORIES (S) PTE. LTD.

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 Lot 3304, Batu 24-1/2, Jalan Kulai, Air Hitam
 81000 Kulai, Johor

/jaz

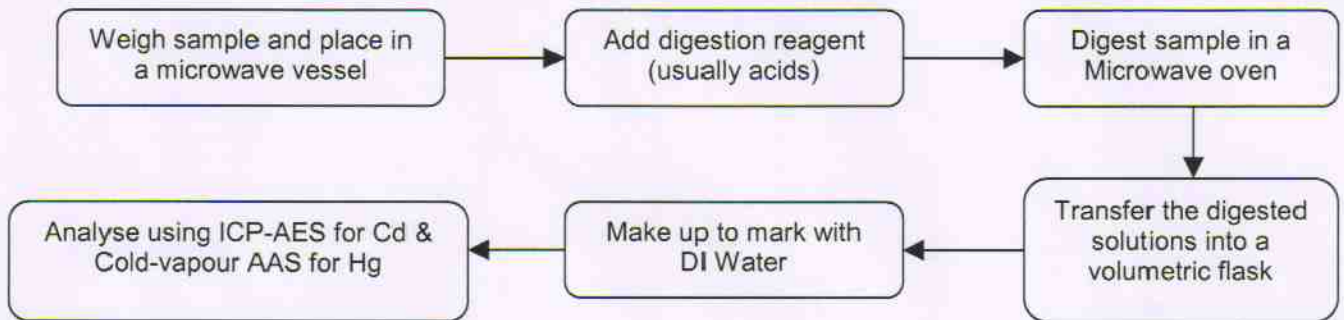
		Brand /Make of Equipment
1). Pre-conditioning Method Mercury (Hg) Lead (Pb) Cadmium (Cd) Hexavalent Chromium (Cr ⁶⁺) Polybrominated Biphenyls & Polybrominated Diphenyl Ethers	Microwave – Pressurized Acid Decomposition Method Dry Ashing/Acid Decomposition Microwave – Pressurized Acid Decomposition Method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

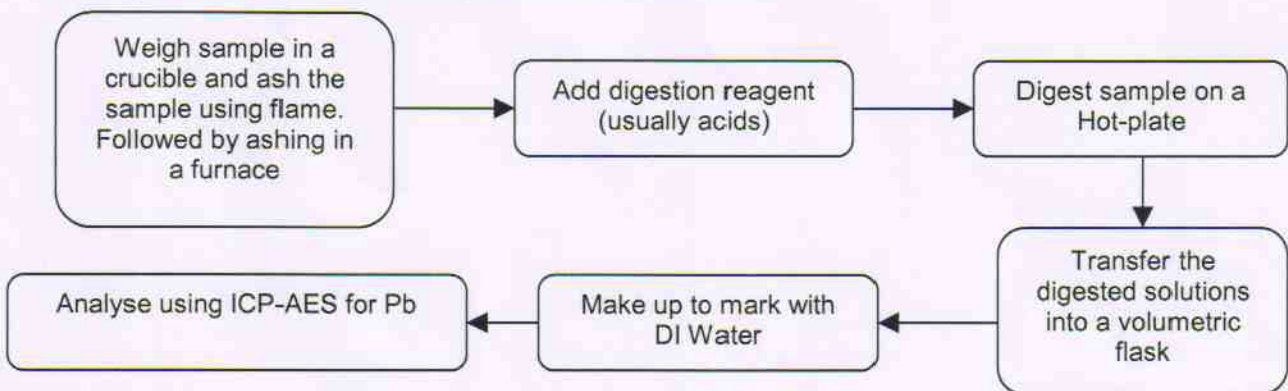


Attachment: Flowchart showing the flow of work for Plastic Materials, chemicals, etc (PBBs & PBDEs using Microwave extraction)

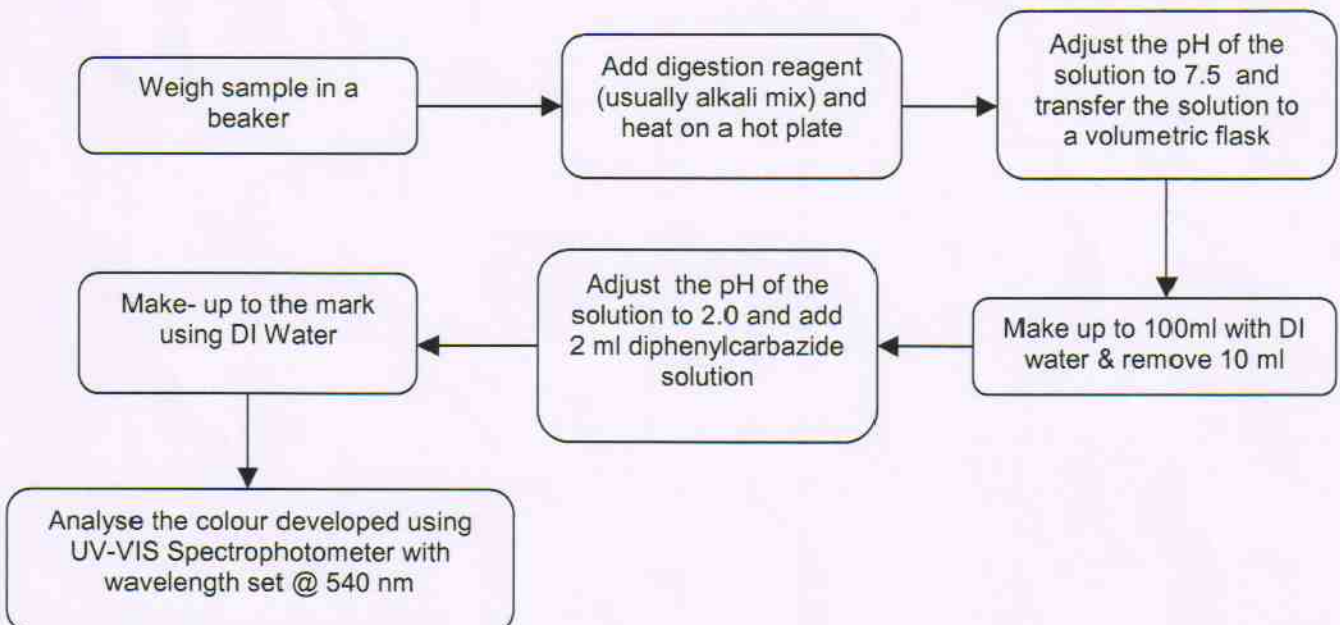
1. Analyses of Cadmium and Mercury in Plastics/Polymeric materials/chemicals



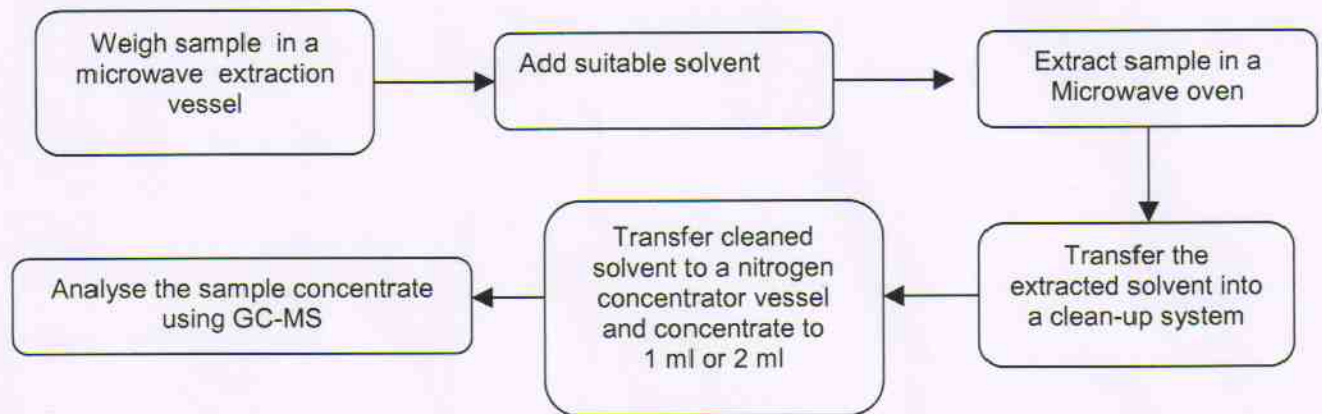
2. Analyses of Lead in Plastics/Polymeric materials/chemicals



3. Analyses for Hexavalent Chromium (Cr⁶⁺)



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