



**TEST REPORT**

NUMBER: SHAH00202048

APPLICANT: LITEON SEMICONDUCTOR CORP.  
28-1, WU SHIN STREET, TA WU LUNG,  
KEELUNG 204, TAIWAN, R.O.C  
SHANGHAI SEEFULL ELECTRONIC CO.,  
LTD.  
6 ZHENYE RD., DONGJING,  
SONGJIANG DISTRICT, SHANGHAI  
, CHINA.  
ATTN: CLORIS WEI

DATE: JUN 24, 2010

SAMPLE DESCRIPTION:

TWO(2) PIECES OF SUBMITTED SAMPLES SAID TO BE **BLACK SOLID WITH SILVERY METAL.**

ITEM NAME :SMD:GREEN MOLDING COMPOUND.  
ITEM NO. :SMC\_HF(SMCJXXA\_HF,SMCJXXXA\_HF, 3.0SMCJXX\_HF,  
3.0SMCJXXA\_HF(TESTED), 3.0SMCJXXX\_HF,  
3.0SMCJXXXA\_HF, B3XX\_HF, B3100\_HF, BXXXC\_HF,  
ES3X\_HF, FS3X\_HF, MURSXXX\_HF, RS3X\_HF, S3X\_HF,  
S5XC\_HF, S8XC\_HF ETC).

TESTED COMPONENTS:

- (1) MIXED ALL PARTS OF BODY
- (2) SILVER COLORED METAL PIN
- (3) BLACK PLASTIC BODY WITHOUT SOLDER PASTE & DIE

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TESTS CONDUCTED:

AS REQUESTED BY THE APPLICANT, FOR DETAILS REFER TO ATTACHED PAGE(S)

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TO BE CONTINUED

PREPARED AND CHECKED BY:  
FOR INTERTEK TESTING SERVICES  
LTD., SHANGHAI

AUTHORIZED BY:  
FOR INTERTEK TESTING SERVICES  
LTD., SHANGHAI

MYRA LV  
CHEMICAL LAB SENIOR MANAGER

STEPHEN TSANG  
GENERAL MANAGER



**TEST REPORT**

NUMBER: SHAH00202048

TESTS CONDUCTED

1 (A) TEST RESULT SUMMARY:

<b><u>TESTING ITEM</u></b>	<b><u>RESULT</u></b>
	(1)
CADMIUM (Cd) CONTENT (mg/kg)	ND
LEAD (Pb) CONTENT (mg/kg)	6670
MERCURY (Hg) CONTENT (mg/kg)	ND
CHROMIUM (VI) (Cr <sup>6+</sup> ) CONTENT (mg/kg)	ND
POLYBROMINATED BIPHENYLS (PBBs) (mg/kg)	
MONOBROMO BIPHENYLS (MonoBB)	ND
DIBROMO BIPHENYLS (DiBB)	ND
TRIBROMO BIPHENYLS (TriBB)	ND
TETRABROMO BIPHENYLS (TetraBB)	ND
PENTABROMO BIPHENYLS (PentaBB)	ND
HEXABROMO BIPHENYLS (HexaBB)	ND
HEPTABROMO BIPHENYLS (HeptaBB)	ND
OCTABROMO BIPHENYLS (OctaBB)	ND
NONABROMO BIPHENYLS (NonaBB)	ND
DECABROMO BIPHENYL (DecaBB)	ND
POLYBROMINATED DIPHENYL ETHERS (PBDEs) (mg/kg)	
MONOBROMO DIPHENYL ETHERS (MonoBDE)	ND
DIBROMO DIPHENYL ETHERS (DiBDE)	ND
TRIBROMO DIPHENYL ETHERS (TriBDE)	ND
TETRABROMO DIPHENYL ETHERS (TetraBDE)	ND
PENTABROMO DIPHENYL ETHERS (PentaBDE)	ND
HEXABROMO DIPHENYL ETHERS (HexaBDE)	ND
HEPTABROMO DIPHENYL ETHERS (HeptaBDE)	ND
OCTABROMO DIPHENYL ETHERS (OctaBDE)	ND
NONABROMO DIPHENYL ETHERS (NonaBDE)	ND
DECABROMO DIPHENYL ETHER (DecaBDE)	ND

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TO BE CONTINUED

**TEST REPORT**

NUMBER: SHAH00202048

TESTS CONDUCTED

<u>TESTING ITEM</u>	<u>RESULT</u>
	(2)
CADMIUM (Cd) CONTENT (mg/kg)	ND
LEAD (Pb) CONTENT (mg/kg)	ND
MERCURY (Hg) CONTENT (mg/kg)	ND
CHROMIUM (VI) (Cr <sup>6+</sup> ) RESULT (BY BOILING WATER EXTRACTION ON METAL) (mg/kg WITH 50cm <sup>2</sup> )	ND

<u>TESTING ITEM</u>	<u>RESULT</u>
	(3)
LEAD (Pb) CONTENT (mg/kg)	ND

REMARK:

mg/kg = MILLIGRAM PER KILOGRAM = ppm

mg/kg WITH 50cm<sup>2</sup> = MILLIGRAM PER KILOGRAM WITH 50 SQUARE CENTIMETER  
THE TESTED COMPONENT (1) WAS NOT HOMOGENEOUS MATERIAL, SAMPLING  
RANDOMLY.

ND = NOT DETECTED

(B) RoHS REQUIREMENT:

<b>RESTRICTED SUBSTANCES</b>	<b>LIMITS</b>
CADMIUM (Cd)	0.01% (100 mg/kg)
LEAD (Pb)	0.1% (1000 mg/kg)
MERCURY (Hg)	0.1% (1000 mg/kg)
CHROMIUM (VI) (Cr <sup>6+</sup> )	0.1% (1000 mg/kg)
POLYBROMINATED BIPHENYLS (PBBs)	0.1% (1000 mg/kg)
POLYBROMINATED DIPHENYL ETHERS (PBDEs)	0.1% (1000 mg/kg)

THE ABOVE LIMITS WERE QUOTED FROM 2002/95/EC AND AMENDMENT  
2005/618/EC FOR HOMOGENEOUS MATERIAL.

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TO BE CONTINUED



**TEST REPORT**

NUMBER: SHAH00202048

TESTS CONDUCTED

(C) TEST METHOD:

<u>TESTING ITEM</u>	<u>TESTING METHOD</u>	<u>REPORTING LIMIT</u>
CADMIUM (Cd) CONTENT	WITH REFERENCE TO IEC 62321 EDITION 1.0: 2008, BY ACID DIGESTION UNTIL THE TESTED SAMPLE WAS TOTALLY DISSOLVED AND DETERMINED BY ICP-OES	2 mg/kg
LEAD (Pb) CONTENT	WITH REFERENCE TO IEC 62321 EDITION 1.0: 2008, BY ACID DIGESTION UNTIL THE TESTED SAMPLE WAS TOTALLY DISSOLVED AND DETERMINED BY ICP-OES	2 mg/kg
MERCURY (Hg) CONTENT	WITH REFERENCE TO IEC 62321 EDITION 1.0: 2008, BY ACID DIGESTION UNTIL THE TESTED SAMPLE WAS TOTALLY DISSOLVED AND DETERMINED BY ICP-OES	2 mg/kg
CHROMIUM (VI) (Cr <sup>6+</sup> ) CONTENT (FOR NON-METAL)	WITH REFERENCE TO IEC 62321 EDITION 1.0: 2008, BY ALKALINE DIGESTION AND DETERMINED BY UV- VIS SPECTROPHOTOMETER	1 mg/kg
CHROMIUM (VI) (Cr <sup>6+</sup> ) CONTENT (FOR METAL)	WITH REFERENCE TO IEC 62321 EDITION 1.0: 2008, BY BOILING WATER EXTRACTION AND DETERMINED BY UV-VIS SPECTROPHOTOMETER	0.02mg/kg WITH 50cm <sup>2</sup> (IN TESTING SOLUTION)
POLYBROMINATED BIPHENYLS (PBBs) & POLYBROMINATED DIPHENYL ETHERS (PBDEs)	WITH REFERENCE TO IEC IEC 62321 EDITION 1.0: 2008, BY SOLVENT EXTRACTION AND DETERMINED BY GC/MS AND FURTHER HPLC CONFIRMATION WHEN NECESSARY.	5 mg/kg

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TO BE CONTINUED

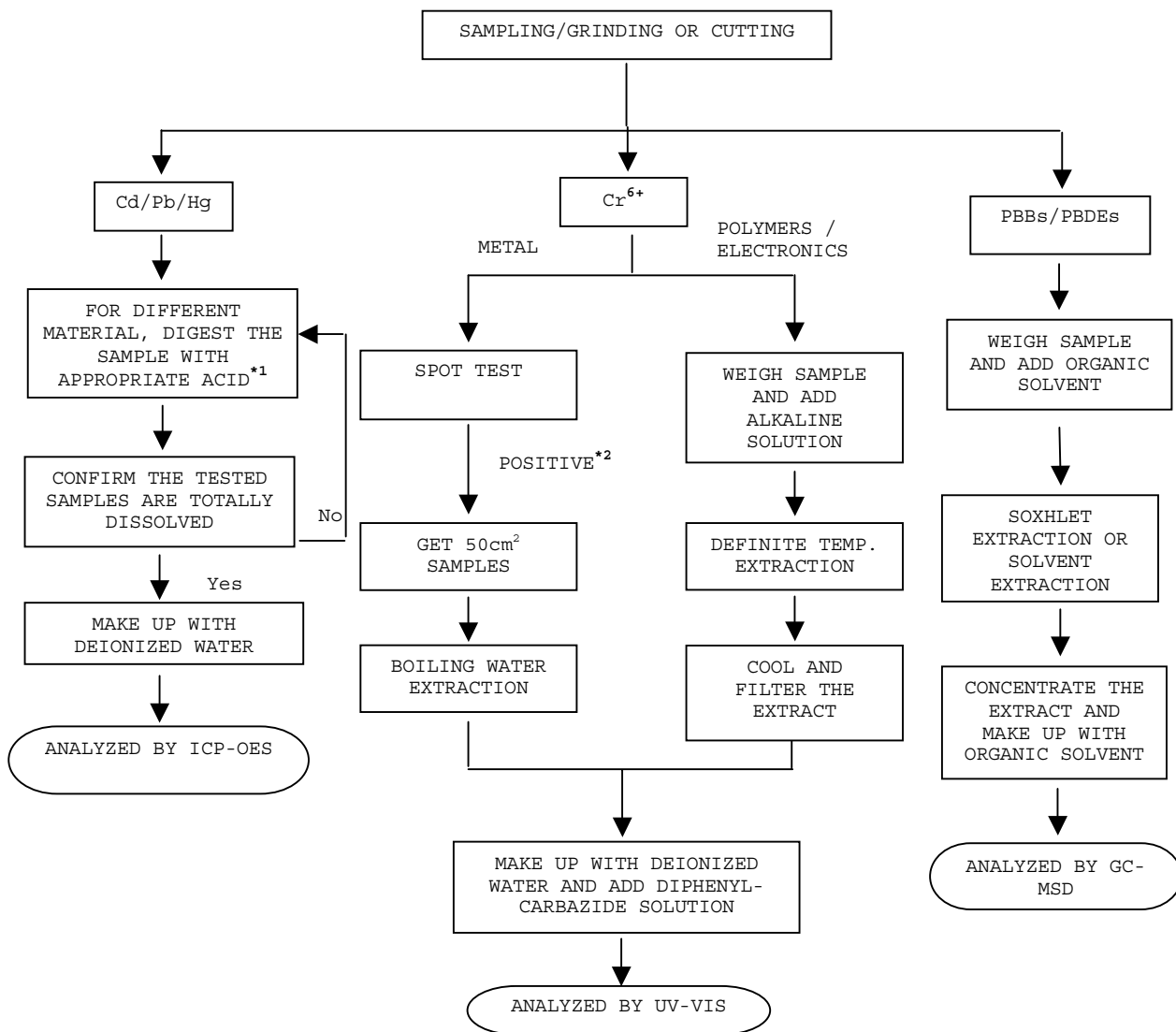
**TEST REPORT**

NUMBER: SHAH00202048

TESTS CONDUCTED

(D) MEASUREMENT FLOWCHART:

TEST FOR Cd/Pb/Hg/Cr (VI)/PBBs/PBDEs CONTENTS  
REFERENCE STANDARD: IEC 62321 EDITION 1.0: 2008



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TO BE CONTINUED



**TEST REPORT**

NUMBER: SHAH00202048

TESTS CONDUCTED

REMARKS:

\*1: LIST OF APPROPRIATE ACID:

<u>MATERIAL</u>	<u>ACID ADDED FOR DIGESTION</u>
POLYMERS	HNO <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub> , H <sub>3</sub> BO <sub>3</sub>
METALS	HNO <sub>3</sub> , HCl, HF
ELECTRONICS	HNO <sub>3</sub> , HCl, H <sub>2</sub> O <sub>2</sub> , HBF <sub>4</sub>

\*2: IF THE RESULT OF SPOT TEST IS POSITIVE, CHROMIUM VI WOULD BE DETERMINED AS DETECTED.

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TO BE CONTINUED

**TEST REPORT**

NUMBER: SHAH00202048

TESTS CONDUCTED

2 POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) FOR GS CERTIFICATION

AS PER THE DOCUMENT ZEK 01.2-08 ISSUED BY THE CENTRAL EXPERIENCE EXCHANGE OFFICE (ZEK), BY SOLVENT EXTRACTION AND DETERMINED BY GC-MSD.

(I) TEST RESULT

<u>TESTING ITEM</u>	<u>RESULT (ppm)</u>
	(1)
NAPHTHALENE	ND
ACENAPHTHYLENE	ND
ACENAPHTHENE	ND
FLUORENE	ND
PHENANTHRENE	ND
ANTHRACENE	ND
FLUORANTHENE	ND
PYRENE	ND
CHRYSENE	ND
BENZO [a] ANTHRACENE	ND
BENZO [b] FLUORANTHENE	ND
BENZO [k] FLUORANTHENE	ND
<b>BENZO [a] PYRENE</b>	ND
DIBENZO [a, h] ANTHRACENE	ND
INDENO [1, 2, 3 - cd] PYRENE	ND
BENZO [g, h, i] PERYLENE	ND
<b>SUM OF PAHs</b>	ND
<b>CLASSIFICATION OF SAMPLE: CATEGORY</b>	II
<b>CONCLUSION</b>	P

REMARKS: ppm = PARTS PER MILLION = mg/kg

ND = NOT DETECTED

P = PASS

DETECTION LIMIT = 0.2 ppm

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TO BE CONTINUED

**TEST REPORT**

NUMBER: SHAH00202048

TESTS CONDUCTED

(II) LIMITS FOR PAHs IN PRODUCTS

PARAMETER	PRODUCT	BENZO [a] PYRENE	SUM 16 PAHs (EPA)
CATEGORY I	MATERIALS INTENDED TO BE PUT IN THE MOUTH, OR MATERIALS OF TOYS FOR CHILDREN AGED < 36 MONTHS WITH INTENDED SKIN CONTACT <sup>2)</sup>	NOT DETECTED (<0.2 mg/kg) <sup>1)</sup>	NOT DETECTED (<0.2 mg/kg) <sup>1)</sup>
CATEGORY II	MATERIALS NOT COVERED BY CATEGORY I, WITH FORESEEABLE SKIN CONTACT FOR LONGER THAN 30 SECONDS (LONG-TERM SKIN CONTACT)	1 mg/kg	10 mg/kg
CATEGORY III	MATERIALS NOT COVERED BY CATEGORY I OR II, WITH FORESEEABLE SKIN CONTACT UP TO 30 SECONDS (SHORT TERM SKIN CONTACT)	20 mg/kg	200 mg/kg

REMARK:

1) IF THE LIMITS OF CATEGORY I ARE SURPASSED BUT THE LIMITS OF CATEGORY II STILL MET, THE CONFIRMATION OF SUITABILITY OF CONTACT WITH FOODSTUFF OR THE ORAL MUCOSA CAN BE VERIFIED BY AN ADDITIONAL MIGRATION TEST OF THE PAHs COMPONENTS ACCORDING TO EN 1186 AND §64 LFGB B80.30-1. THE RESULTS OF THE MIGRATION TEST SHALL BE EVALUATED ACCORDING TO LAW CRITERIA FOR FOODSTUFF.

2) ACCORDING TO THE STIPULATIONS OF THE EK2.

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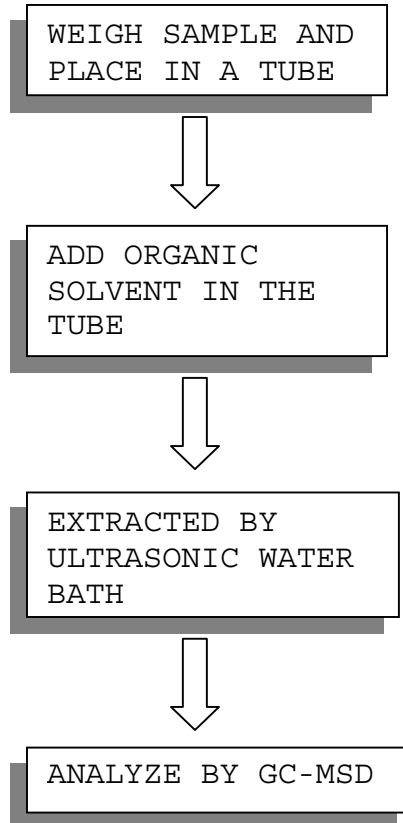
TO BE CONTINUED

**TEST REPORT**

NUMBER: SHAH00202048

TESTS CONDUCTED  
MEASUREMENT FLOWCHART:

TEST FOR **PAHs** CONTENT



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TO BE CONTINUED



**TEST REPORT**

NUMBER: SHAH00202048

TESTS CONDUCTED

3 PERFLUOROOCTANE SULFONATES (PFOS) AND PERFLUOROOCTANOIC ACID (PFOA) CONTENT:

BY SOLVENT EXTRACTION AND FOLLOWED BY LIQUID CHROMATOGRAPHY-MASS SPECTROMETRIC (LC-MS) ANALYSIS.

<u>COMPOUND</u>	<u>RESULT (ppm)</u>	
	(1)	(2)
PERFLUOROOCTANE SULFONATES	<1.0 ppm	<1.0 ppm
PERFLUOROOCTANOIC ACID	<1.0 ppm	<1.0 ppm

REMARK : < = LESS THAN  
ppm = PARTS PER MILLION = mg/kg  
DETECTION LIMIT = 1.0 ppm

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TO BE CONTINUED

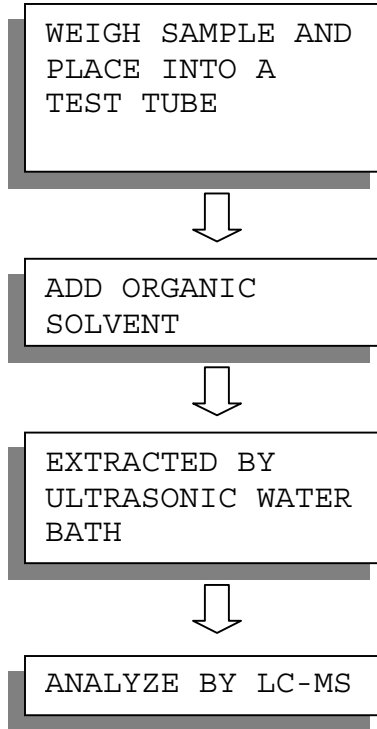
**TEST REPORT**

NUMBER: SHAH00202048

TESTS CONDUCTED

MEASUREMENT FLOWCHART:

TEST FOR **PERFLUOROCTANE SULFONATES (PFOS) AND  
PERFLUOROCTANOIC ACID (PFOA) CONTENT:**



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TO BE CONTINUED



**TEST REPORT**

NUMBER : SHAH00202048

TESTS CONDUCTED  
TEST CONDUCTED

4 ( I ) TEST RESULT SUMMARY :  
HALOGEN CONTENT :

<u>TESTING ITEM</u>	<u>RESULT (ppm)</u>
	(1)
FLUORINE (F) CONTENT	ND
CHLORINE (Cl) CONTENT	ND
BROMINE (Br) CONTENT	ND
IODINE (I) CONTENT	ND

REMARKS : ppm = PARTS PER MILLION = mg/kg  
ND = NOT DETECTED

THE TESTED COMPONENT (1) WAS NOT HOMOGENEOUS MATERIAL AND  
SAMPLING RADNOMLY.

( II ) TEST METHOD :

<u>TESTING ITEM</u>	<u>TESTING METHOD</u>	<u>REPORTING LIMIT</u>
HALOGEN (F, Cl, Br, I) CONTENT	WITH REFERENCE TO EN 14582:2007 BY COMBUSTION IN A CALORIMETRIC BOMB AND DETERMINED BY ION CHROMATOGRAPHY	50 ppm

REMARKS : REPORTING LIMIT = QUANTITATION LIMIT OF ANALYTE IN SAMPLE

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TO BE CONTINUED

**TEST REPORT**

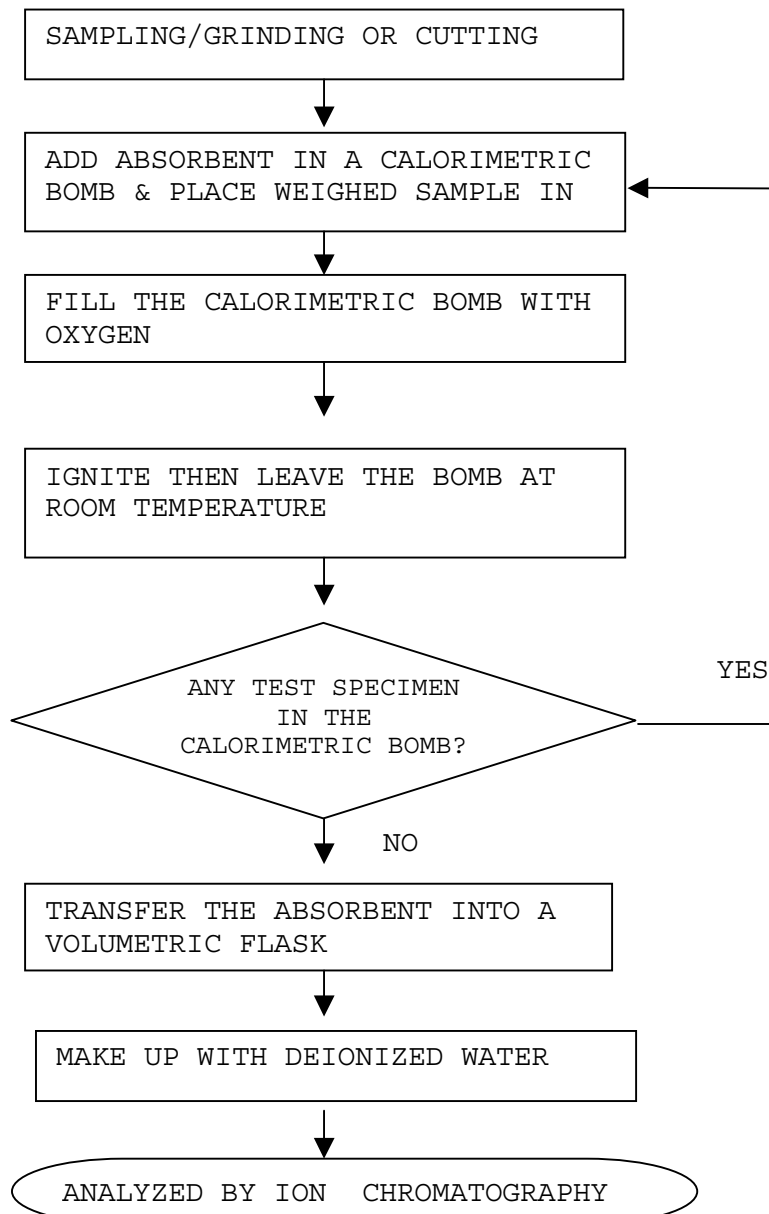
NUMBER: SHAH00202048

TESTS CONDUCTED

(III) MEASUREMENT FLOWCHART:

TEST FOR HALOGEN CONTENT

REFERENCE METHOD: EN 14582:2007



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TO BE CONTINUED



**TEST REPORT**

NUMBER: SHAH00202048

TESTS CONDUCTED

5 TOTAL ANTIMONY (Sb) CONTENT

AS PER CLIENT'S REQUEST, ACID DIGESTION METHOD WAS USED, AND  
TOTAL ANTIMONY CONTENT WAS DETERMINED BY INDUCTIVELY COUPLED  
ARGON PLASMA SPECTROMETRY.

<u>TESTED COMPONENT</u>	<u>RESULT IN ppm</u>
(1)	<10

ppm = PARTS PER MILLION = mg/kg  
< = LESS THAN

DATE SAMPLE RECEIVED : JUN.15, 2010  
TESTING PERIOD : JUN.15, 2010 TO JUN.21, 2010

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TO BE CONTINUED

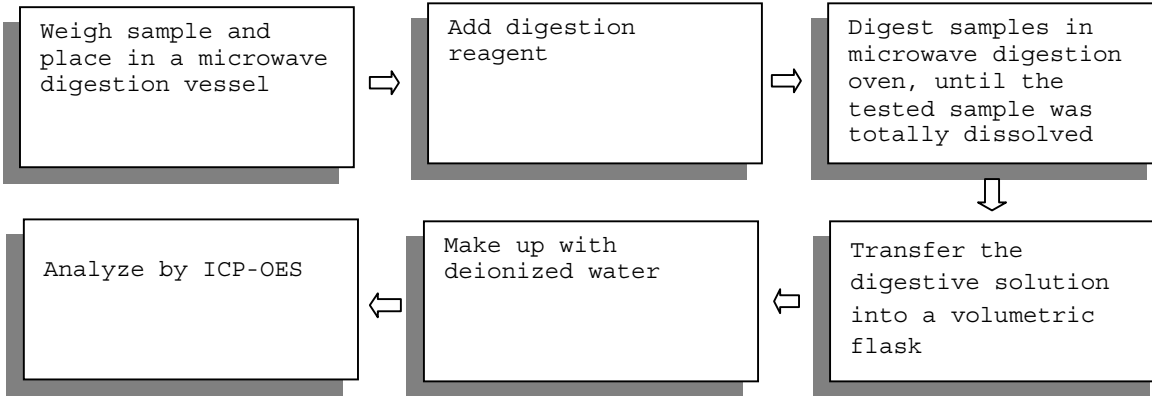
**TEST REPORT**

NUMBER: SHAH00202048

TESTS CONDUCTED

MEASUREMENT FLOWCHART

1. TEST FOR Sb CONTENTS (USEPA3052)



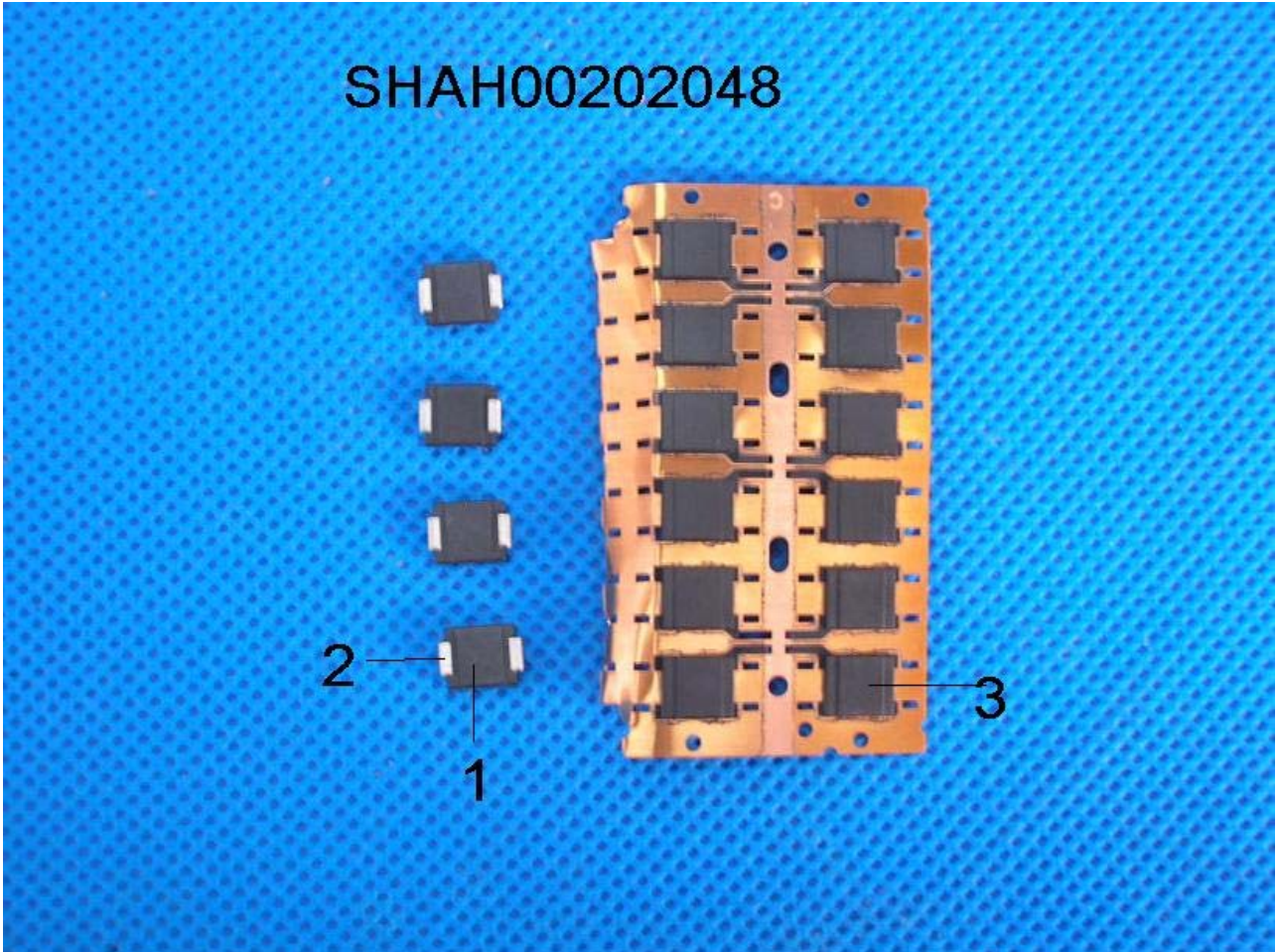
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TO BE CONTINUED

**TEST REPORT**

NUMBER: SHAH00202048

TESTS CONDUCTED



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END OF REPORT