

# Test Report

No. SH8193584-1/CHEM

Date: Jan. 23, 2009

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JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD  
NO. 275 BINJIANG RD., JIANGYIN, JIANGSU CHINA

THIS REPORT IS TO SUPERSEDE TEST REPORT NO.SH8193584/CHEM DATE: 2008/12/31

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

Sample Name : TO-92 (GREEN) PACKAGE PART (INCLUDE TO-92/92S/92L/92MOD/94)  
SGS Ref No. : 11518257-7  
Part No : TO-92 (GREEN) (INCLUDE TO-92/92S/92L/92MOD/94)  
Main Substance : BLACK PLASTIC PART

Sample Receiving Date : Dec.24, 2008  
Testing Period : Dec.24 – 30, 2008

Test Requested : (1) In accordance with the RoHS Directive 2002/95/EC, and its amendment directives.  
(2) To determine the PFOS (Perfluorooctane Sulfonates) and PFOA (Perfluorooctanoic Acid) content of the submitted samples.  
(3) To determine the Halogen- Fluorine, Chlorine, Bromine, Iodine Content in the submitted sample.  
(4) To determine the TBBP-A Content in the submitted sample.  
(5) Selected test (s) as requested by client.  
(6) To determine the Antimony, Phosphor content in the submitted sample.  
(7) As specified by client, to determination DBP, BBP, DEHP, DINP, DNOP, DIDP, DnHP contents in the submitted sample.

Test Method /Test Results: Please refer to next pages

Conclusion : (5) Based on the results of the sample as tested and the material category information from applicant, the raw material comply with the requirements of category 1 according to ZEK 01.1-08 of German ZLS and its amendments.

Signed for and on behalf of  
SGS-CSTC Chemical Laboratory



Sandy Hao  
Lab Manager

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Test Method : (1-1) With reference to IEC 62321/2<sup>nd</sup> CDV (111/95/CDV) for Cadmium content.  
Analysis was performed by ICP.  
(1-2) With reference to IEC 62321/2<sup>nd</sup> CDV (111/95/CDV) for Lead content.  
Analysis was performed by ICP and AAS.  
(1-3) With reference to IEC 62321/2<sup>nd</sup> CDV (111/95/CDV) for Mercury content.  
Analysis was performed by ICP.  
(1-4) With reference to IEC 62321/2<sup>nd</sup> CDV (111/95/CDV) for Hexavalent Chromium by Colorimetric Method.  
(1-5) With reference to IEC 62321/2<sup>nd</sup> CDV (111/95/CDV) for PBBs / PBDEs content.  
Analysis was performed by GC/MS.  
(2) With reference to EPA 3550C: 2007.  
Analysis was performed by High Performance Liquid Chromatograph-Mass Spectrometer (HPLC-MS).  
(3) With reference to EN 14582: 2007.  
(3-1) Determination of Fluorine by Ion Chromatograph (IC) method.  
(3-2) Determination of Chlorine by Ion Chromatograph (IC) method.  
(3-3) Determination of Bromine by Ion Chromatograph (IC) method.  
(3-4) Determination of Iodine by Ion Chromatograph (IC) method.  
(4) With reference to US EPA 3550C: 2007. Analysis was performed by Gas Chromatograph / Mass Spectrometer (GC/MS).  
(5) Please refer to next page(s).  
(6) With reference to US EPA 3052: 1996.  
Analysis was performed by Inductively Coupled Argon Plasma-Atomic Emission Spectrometer (ICP-AES).  
(7) With reference to EN 14372: 2004. Analysis was performed by Gas Chromatograph / Mass Spectrometer (GC/MS).

### Test results by chemical method

(1) Cadmium, Lead, Mercury, Hexavalent Chromium, PBBs(Polybrominated biphenyls) and PBBEs(PBDEs) (Polybrominated biphenyl ethers) Content(Unit: mg/kg)

Test Item(s):	Method (refer to)	1*	MDL	RoHS Limit
Cadmium(Cd)	(1-1)	ND	2	100
Lead (Pb)	(1-2)	ND	2	1000
Mercury (Hg)	(1-3)	ND	2	1000
Hexavalent Chromium (CrVI)	(1-4)	ND	2	1000
Sum of PBBs	(1-5)	ND	-	1000
Monobromobiphenyl		ND	5	-
Dibromobiphenyl		ND	5	-
Tribromobiphenyl		ND	5	-
Tetrabromobiphenyl		ND	5	-
Pentabromobiphenyl		ND	5	-
Hexabromobiphenyl		ND	5	-
Heptabromobiphenyl		ND	5	-

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Octabromobiphenyl	ND	5	-
Nonabromobiphenyl	ND	5	-
Decabromobiphenyl	ND	5	-
Sum of PBDEs	ND	-	1000
Monobromodiphenyl ether	ND	5	-
Dibromodiphenyl ether	ND	5	-
Tribromodiphenyl ether	ND	5	-
Tetrabromodiphenyl ether	ND	5	-
Pentabromodiphenyl ether	ND	5	-
Hexabromodiphenyl ether	ND	5	-
Heptabromodiphenyl ether	ND	5	-
Octabromodiphenyl ether	ND	5	-
Nonabromodiphenyl ether	ND	5	-
Decabromodiphenyl ether	ND	5	-

## (2) PFOS (Perfluorooctane Sulfonates) and PFOA (Perfluorooctanoic Acid) content (Unit: mg/kg)

Test Items	Test method (refer to)	1*	MDL
Perfluorooctane Sulfonates (PFOS)	(2)	ND	10
PFOS – Acid			
PFOS – Metal Salt			
PFOS – Amide	(2)	ND	10
Perfluorooctyl Acid (PFOA)			

Note : PFOS Reference Information: Directive 2006/122/EC

- (i) May not be placed on the market or used as a substance or constituent of preparations in a concentration equal to or higher than 0.005 % by mass.
- (ii) May not be placed on the market in semi-finished products or articles, or parts thereof, if the concentration of PFOS is equal to or higher than 0.1 % by mass calculated with reference to the mass of structurally or microstructurally distinct parts that contain PFOS or, for textiles or other coated materials, if the amount of PFOS is equal to or higher than 1µg /m<sup>2</sup> of the coated material.

## (3) Halogen Content(Unit: mg/kg)

Test Item(s):	Method (refer to)	1*	MDL
Fluorine(F)	(3-1)	ND	50
Chlorine(Cl)	(3-2)	82	50
Bromine(Br)	(3-3)	397	50
Iodine(I)	(3-4)	ND	50

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Remark : \* = Only PAH substances >0.2 mg/kg are taken into account while calculating the sum of PAHs

\*\* = In case that the maximum values exceed the limits of category 1, but are within the limits of category 2, one may confirm the suitability of the tested material which is in contact with oral mucosa by additional specific migration tests of PAH components based on DIN EN 1186ff and §64 LFGB 80.30-1. The conclusion of the migration test results must be made based on food law criteria.

## (6) Antimony, Phosphor content(Unit: mg/kg)

Test Item(s):	Method (refer to)	1*	MDL
Antimony (Sb)	(6)	ND	2
Phosphor (P)		579	10

## (7)Phthalates Content (Unit: %)

Test Item(s):	Method (refer to)	1*	MDL
phthalates	(7)	-	-
Dibutyl Phthalate (DBP) Content		ND	0.003
Benzylbutyl Phthalate (BBP) Content		ND	0.003
Bis-(2-ethylhexyl) Phthalate (DEHP) Content		ND	0.003
Diisononyl Phthalate (DINP) Content		ND	0.010
Di-n-octyl Phthalate (DNOP) Content		ND	0.003
Diisodecyl Phthalate (DIDP) Content		ND	0.010
Di-n-hexyl Phthalate (DnHP) Content		ND	0.003

## Test Part Description:

1. Black body part (mix all)

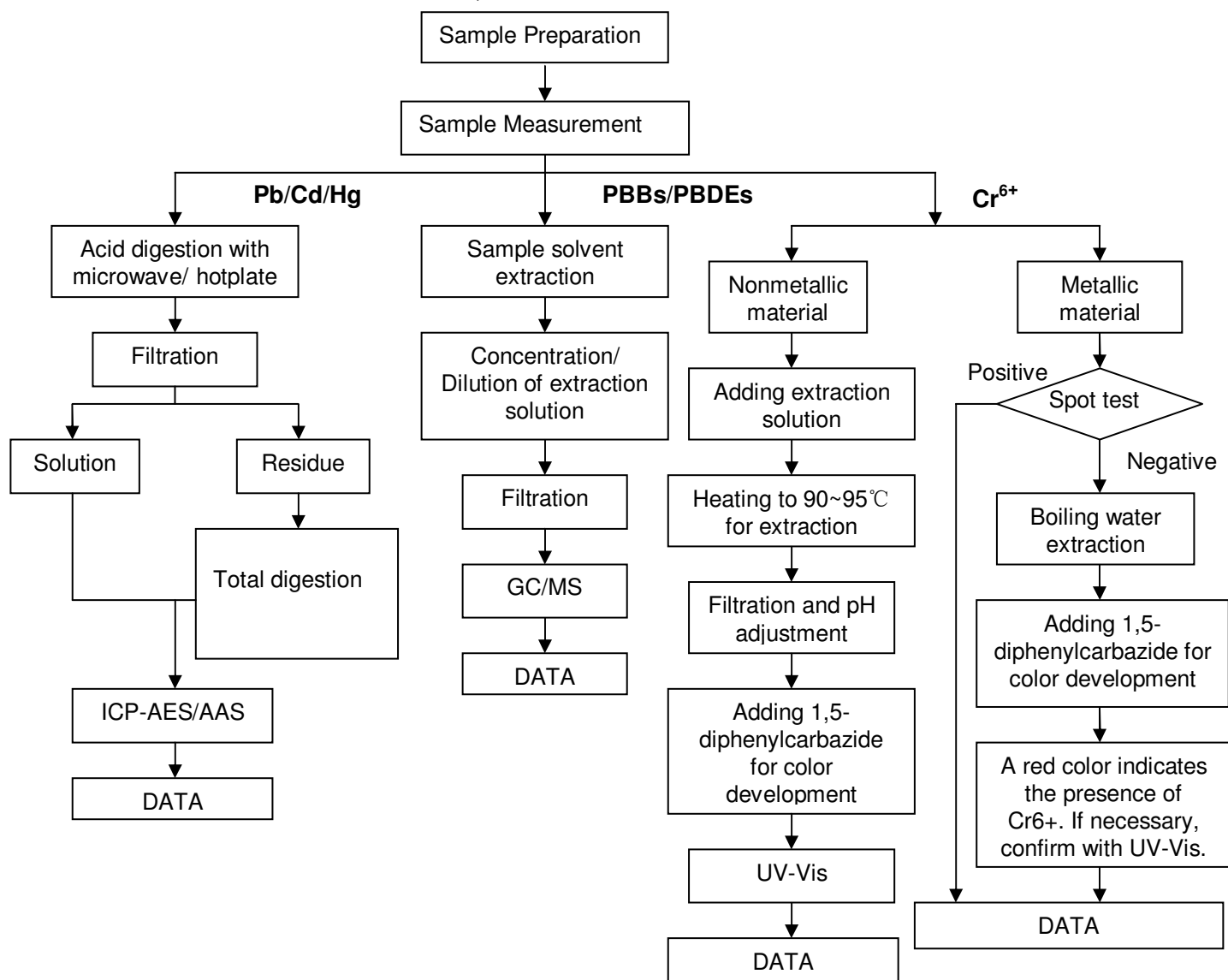
## Note:

- (1) mg/kg = ppm
- (2) ND = Not Detected
- (3) MDL = Method Detection Limit
- (4) The exemption of DecaBDE in polymeric application according 2005/717/EC was overruled by the European Court of Justice by its decision of 01.04.2008. Subsequently DecaBDE will be included in the sum of PBDE after 01.07.2008.
- (5) “-” = Not Regulated
- (6) The maximum permissible limit is quoted from the document 2005/618/EC amending RoHS directive 2002/95/EC
- (7) % = percentage by weight
- (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.

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### ATTACHMENTS

- 1) Name of the person who made measurement: Jeff Zhang/Chaven Lian/Frank Fang/Elim Lin
- 2) Name of the person in charge of measurement: Terry Wang/Phoebe Shen
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr6+ and PBBs/PBDEs test method excluded)



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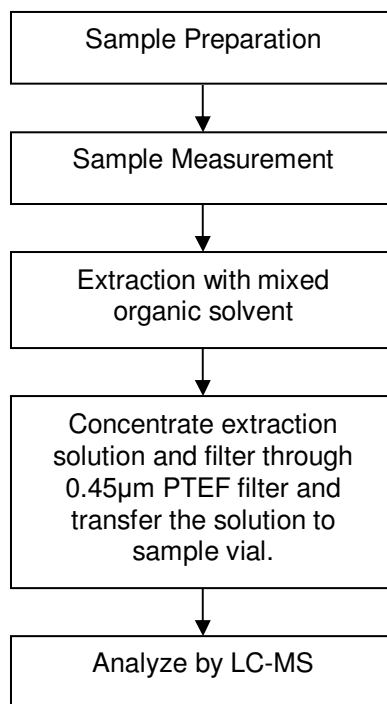
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PFOS/PFOA Measurement Flowchart for sample



Tested by : Judy Li  
Checked by : Jenny Liu

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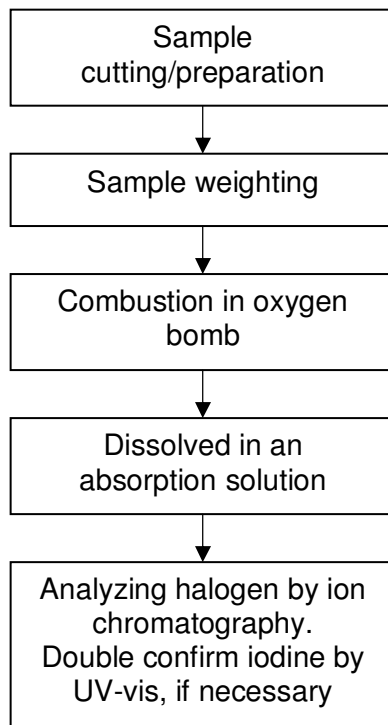
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Halogen Measurement Flowchart for sample



Tested by : Daisy Gong  
Checked by : Alex Jiang

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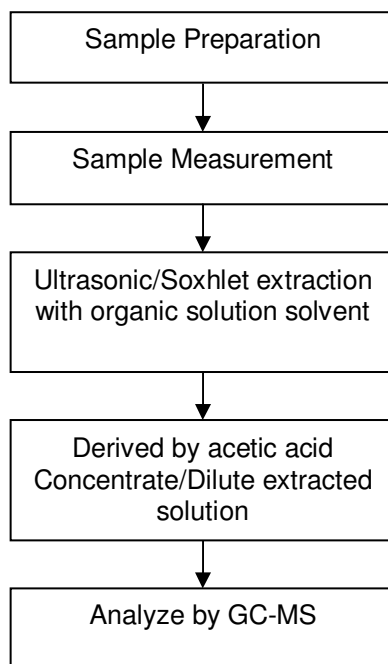
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TBBP-A Measurement Flowchart for sample



Tested by : Kery Shao  
Checked by : Jenny Liu

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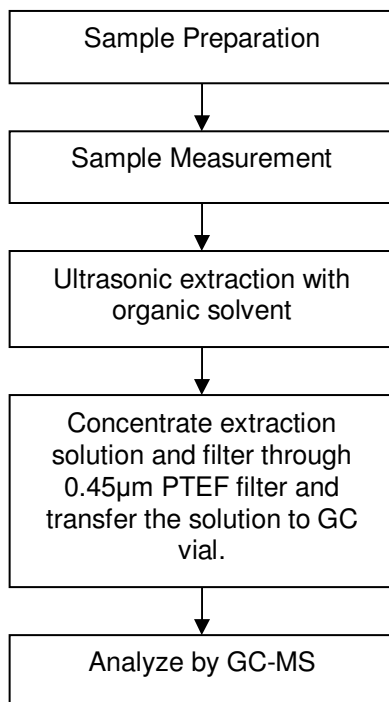
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PAHs Measurement Flowchart for sample



Tested by : Jessy Huang  
Checked by : Phoebe Shen

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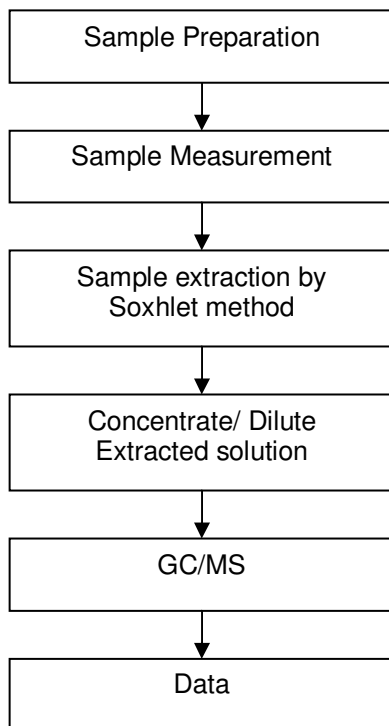
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### Phthalates Measurement Flowchart for sample



Tested by : Bonnie Man  
Checked by : Susan Liu

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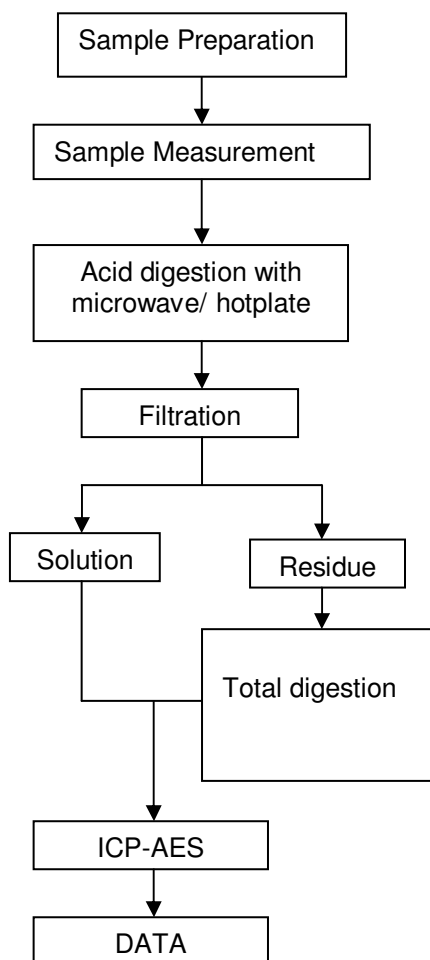
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Antimony and Phosphorus Measurement Flowchart for sample



The samples were dissolved totally by pre-conditioning method according to above flow chart.

Tested by : Jeff Zhang/Chaven Lian  
 Checked by : Terry Wang

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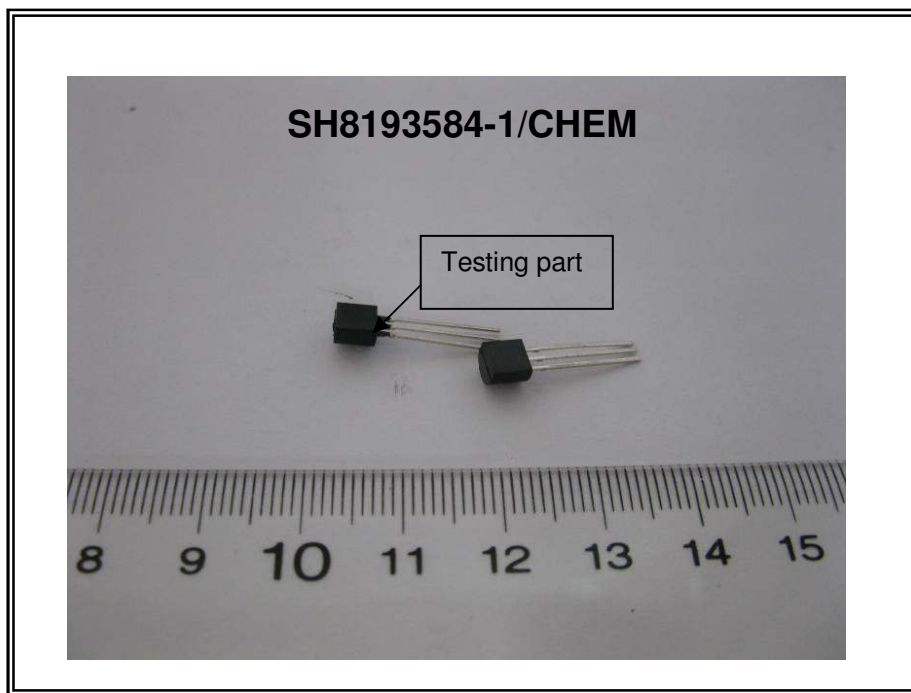
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Sample photo:



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