



# TEST REPORT

No. : SH170500501C03

Report Date: 2017/05/12

**Applicant** : Tongfu MICROELECTRONICS CO., LTD.  
**Address** : No.288,Chongchuan Road,Nantong,Jiangsu, China

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

**Sample Name** : DIP8

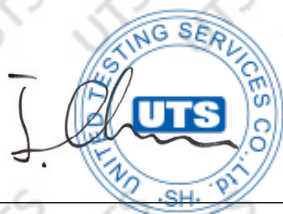
**Receiving Date** : May.03, 2017

**Testing Period** : May.03, 2017 - May.12, 2017

**Test Requested** : Please refer to next page(s).

**Test Method** : Please refer to next page(s).

**Test Results** : Please refer to next page(s).



Approved by Jeffery Chou

Tim Bian

Reviewed by Tim Bian

Luciana Wang

Redact by Luciana Wang

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## TEST RESULTS:

### 1. RoHS 6

Test Items	Methods	MDL (mg/kg)	Results (mg/kg)		Limited Value* (mg/kg)
			1#	2#	
Pb	M1	2	N.D.	N.D.	1000
Cd		2	N.D.	N.D.	100
Hg	M2	2	N.D.	N.D.	1000
Cr (VI)	M3a	---	Negative	---	---(metal)
	M3	2	---	N.D.	1000(nonmetal)
Monobromobiphenyl (MonoBB)	M4	5	---	N.D.	---
Dibromobiphenyl (DiBB)		5	---	N.D.	---
Tribromobiphenyl (TriBB)		5	---	N.D.	---
Tetrabromobiphenyl (TetraBB)		5	---	N.D.	---
Pentabromobiphenyl (PentaBB)		5	---	N.D.	---
Hexabromobiphenyl (HexaBB)		5	---	N.D.	---
Heptabromobiphenyl (HeptaBB)		5	---	N.D.	---
Octabromobiphenyl (OctaBB)		5	---	N.D.	---
Nonabromobiphenyl (NonaBB)		5	---	N.D.	---
Decabromobiphenyl (DecaBB)		5	---	N.D.	---
<b>Total PBBs / sum of above</b>		---	---	<b>N.D.</b>	1000
Monobromodiphenyl ether (MonoBDE)		5	---	N.D.	---
Dibromodiphenyl ether (DiBDE)		5	---	N.D.	---
Tribromodiphenyl ether (TriBDE)		5	---	N.D.	---
Tetrabromodiphenyl ether (TetraBDE)		5	---	N.D.	---
Pentabromodiphenyl ether (PentaBDE)		5	---	N.D.	---
Hexabromodiphenyl ether (HexaBDE)		5	---	N.D.	---
Heptabromodiphenyl ether (HeptaBDE)		5	---	N.D.	---
Octabromodiphenyl ether (OctaBDE)		5	---	N.D.	---
Nonabromodiphenyl ether (NonaBDE)		5	---	N.D.	---
Decabromodiphenyl ether (DecaBDE)		5	---	N.D.	---
<b>Total PBDEs / sum of above</b>		---	---	<b>N.D.</b>	1000

**Remark :** \*The Limited value is based on the RoHS directive 2011/65/EU.



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## 2. PFOS&PFOA

**Test Method:** With reference to EPA 3550C:2007 and EPA 8321B:2007 Detection of non-volatile material that can be solvent extraction by high-performance liquid chromatography with thermal ionization mass spectrometry.

Test Item	Unit	MDL	Test Result		Limited Value**
			1#	2#	
Perfluorooctane sulfonates(PFOS)	%	0.0001	N.D.	N.D.	0.1
Perfluorooctanoic Acid(PFOA)		0.0001	N.D.	N.D.	---

**Remark :** \*\*The Limited value is based on Directive 2006/122/EC.

## 3. Sb

**Test Method:** With reference to EPA 3052-1996 & EPA 6010C-2007, analysis was performed by ICP-OES.

Test Item	Unit	MDL	Test Result	
			1#	2#
Sb	mg/kg	10	220	86

## 4. HBCDD

**Test Method:** With reference to EPA 3550C-2007&EPA 8270D-2007, analysis was performed by GC-MS.

Test Item	Unit	MDL	Test Result	
			1#	2#
Hexabromocyclododecane (HBCDD)	mg/kg	20	N.D.	N.D.

## 5. Halogen

**Test Method:** With reference to EN 14582: 2007, analysis was performed by IC.

Test Item	Unit	MDL	Limit	Test Result	
				1#	2#
Fluorine (F)	mg/kg	30	---	---	149
Chlorine (Cl)	mg/kg	30	900	---	60
Bromine (Br)	mg/kg	30	900	---	N.D.
Iodine (I)	mg/kg	30	---	---	N.D.
Total (Cl+Br)	mg/kg	---	1500	---	60





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## 6. 15P

**Test Method:** With reference to EPA 3550C-2007&EPA 8270D-2007, analysis was performed by GC-MS.

Test Items	Unit	MDL	Test Results
			2#
Di-iso-nonyl phthalate (DINP)	mg/kg	50	N.D.
Di-n-octyl phthalate (DNOP)		10	N.D.
Di (2-ethyl hexyl)-phthalate (DEHP) (DOP)		10	N.D.
Diisodecyl phthalate (DIDP)		50	N.D.
Butylbenzyl phthalate (BBP)		10	N.D.
Diisobutyl phthalate (DIBP)		10	N.D.
Dibutyl phthalate (DBP)		10	N.D.
Di-n-hexyl phthalate (DNHP)		10	N.D.
1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich		10	N.D.
1,2-Benzenedicarboxylic acid, ihexylester, branched and linear		10	N.D.
Bis(2-methoxyethyl) phthalate(DMEP)		10	N.D.
Diisopentylphthalate (DIPP)		10	N.D.
Dipentyl phthalate (DPP)		10	N.D.
N-pentyl-isopentylphthalate		10	N.D.
Dipentyl phthalate (DNPP)		10	N.D.

- Note :**
- 1) “---” = Not Regulated.
  - 2) MDL = Method Detection Limit.
  - 3) N.D. = Not detected, less than MDL.
  - 4) M1: With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.
  - 5) M2: With reference to IEC 62321-4: 2013, analysis was performed by ICP-OES.
  - 6) M3: With reference to IEC 62321-7-2: 2017, analysis was performed by UV-Vis.  
M3a: With reference to IEC 62321-7-1: 2015, analysis was performed by UV-Vis Colorimetric Determination.
  - 7) M4: With reference to IEC 62321-6: 2015, analysis was performed by GC-MS.
  - 8) Boiling water extraction method:  
Negative: The Cr(VI) concentration of plating detected is below 0.1µg/cm<sup>2</sup>;



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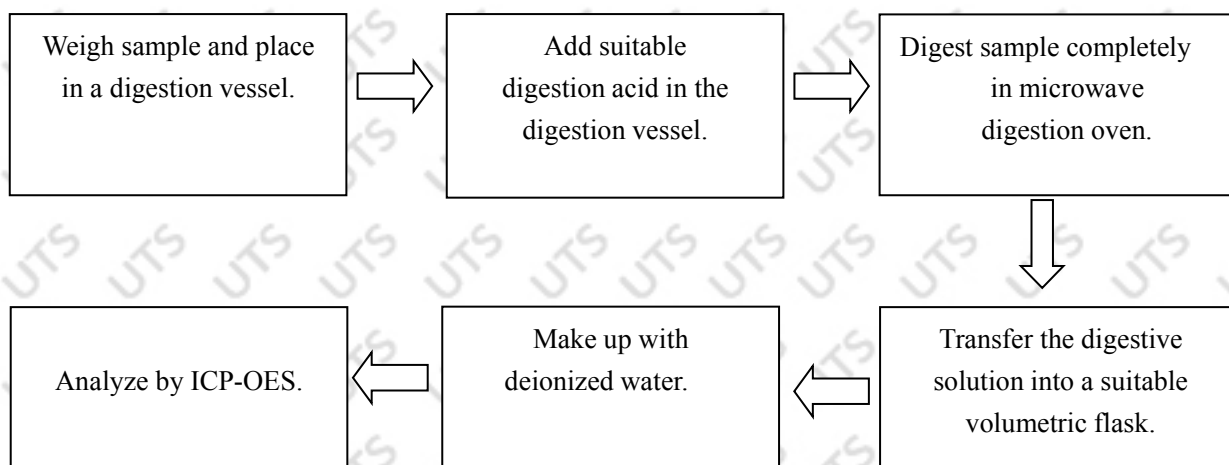
Positive: The Cr(VI) concentration of plating detected is above  $0.13\mu\text{g}/\text{cm}^2$  ;

Inconclusive: The Cr(VI) concentration of plating detected is between  $0.1\mu\text{g}/\text{cm}^2$  and  $0.13\mu\text{g}/\text{cm}^2$  .

**TEST PART DESCRIPTION:** 1# Metallic pin 2# Black main body

## FLOW CHART

### 1. Test for Pb, Hg, Cd and Sb Content



Sample Material	Digestion Acid
Glass	HNO <sub>3</sub> /HF
Plastic	H <sub>2</sub> SO <sub>4</sub> , H <sub>2</sub> O <sub>2</sub> , HNO <sub>3</sub> , HCl
Others	Any acid to total digestion.

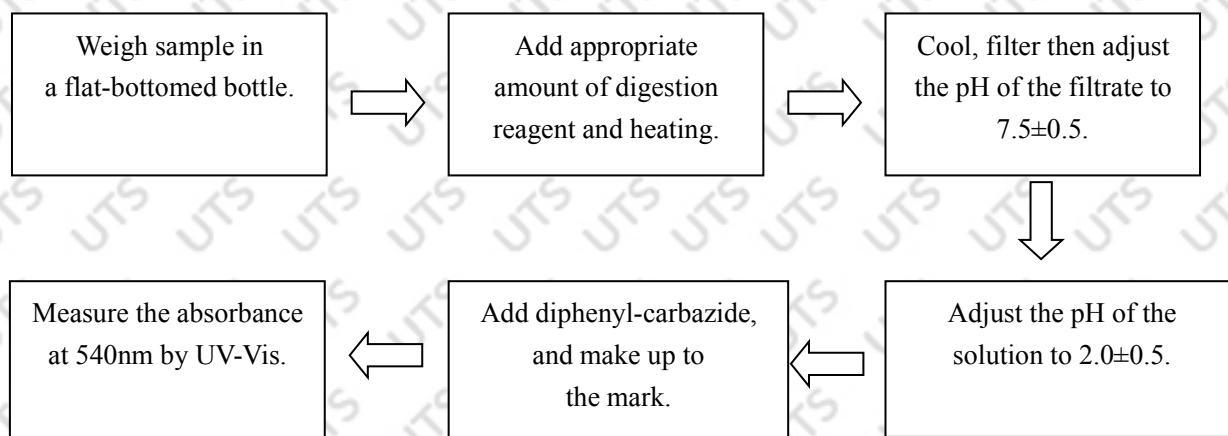
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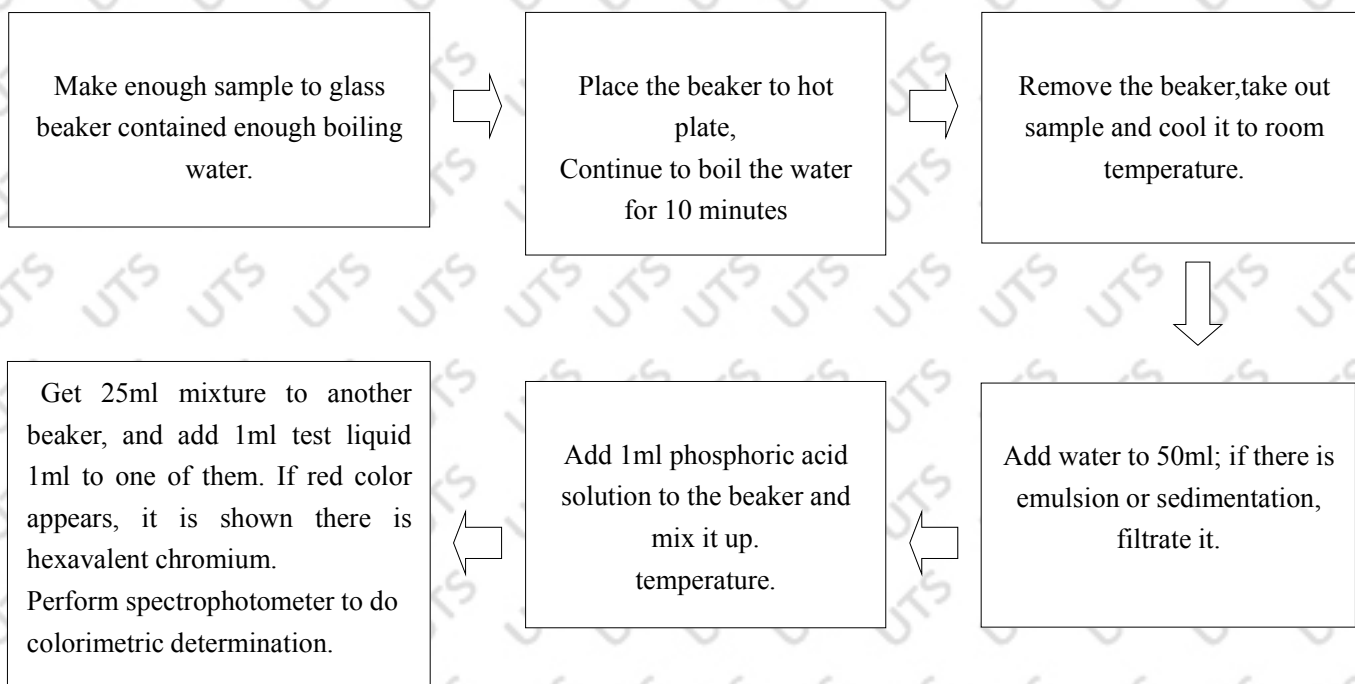
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## 2. Test for Chromium (VI) Content

### Nonmetal



### Metal

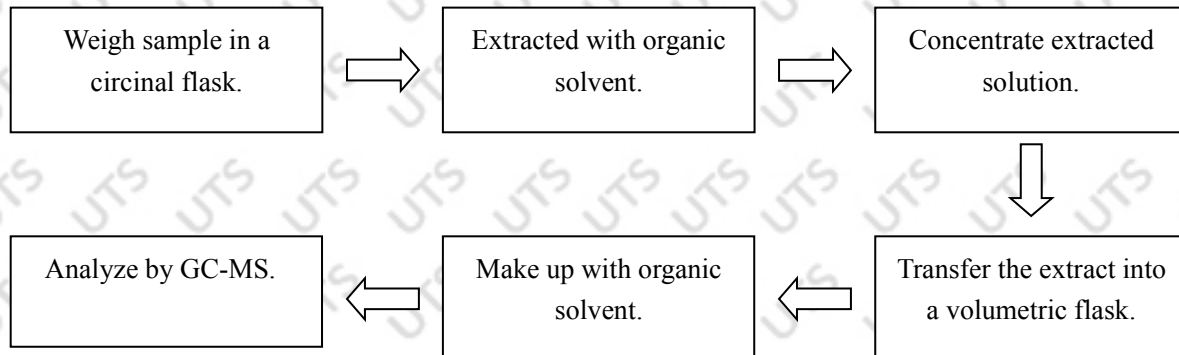


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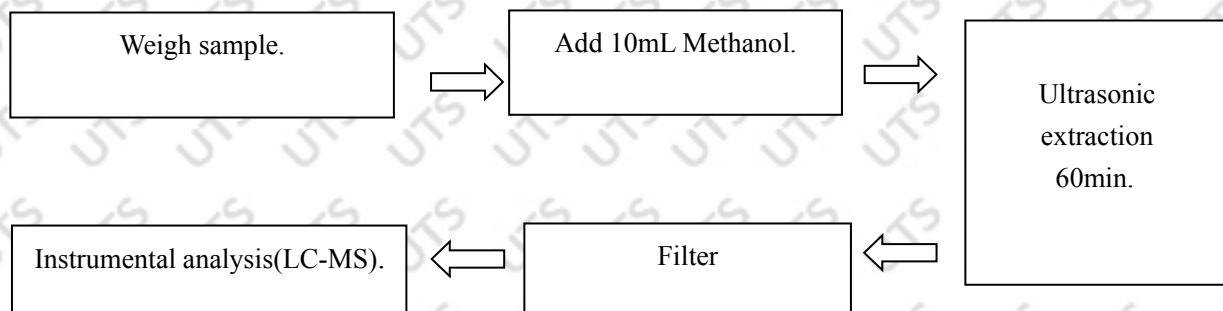
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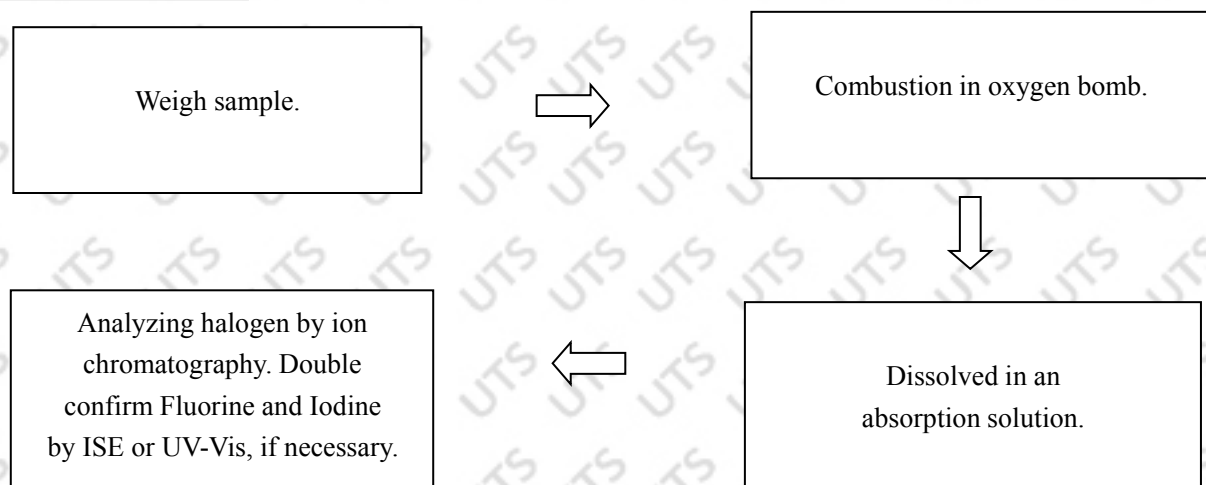
### 3. Test for PBBs&PBDEs & HBCDD & Phthalates Content



### 4. Test for PFOS & PFOA Content



### 5. Test for Halogen content





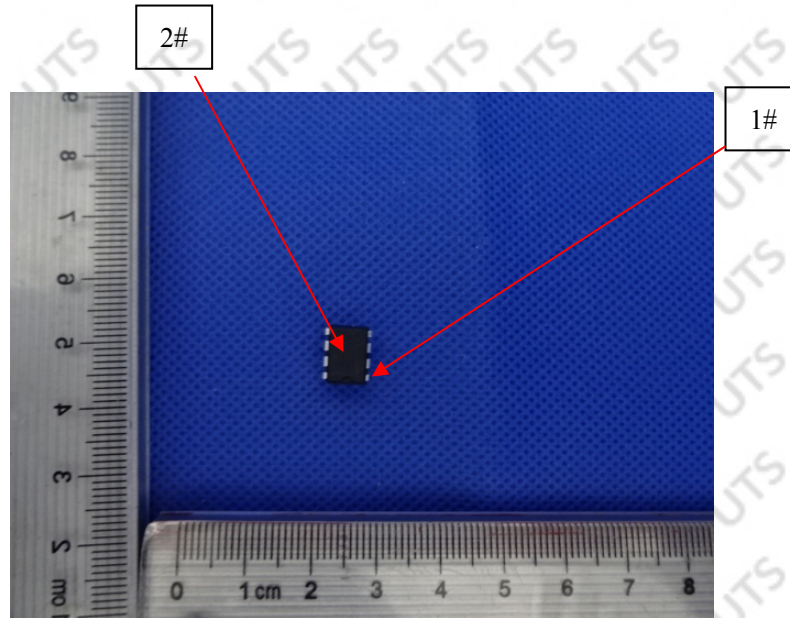


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## SAMPLE PHOTO



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