

## Test Report

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MATSUKI ELECTRIC COMPANY  
4F.-5, NO. 83, SEC. 2, DONGDA RD., HSINCHU CITY 300,  
TAIWAN, R. O. C.



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

Sample Description : MOSFET  
Style/Item No. : TO-251 / TO-252  
Sample Receiving Date : 2010/08/30  
Testing Period : 2010/08/30 TO 2010/09/09

=====  
**Test Requested** : In accordance with the RoHS Directive 2002/95/EC, and its amendment directives.

**Test Method** : With reference to IEC 62321: 2008  
Procedures for the Determination of Levels of Regulated Substances in  
Electrotechnical Products.

- (1) Determination of Cadmium by ICP-AES.
- (2) Determination of Lead by ICP-AES.
- (3) Determination of Mercury by ICP-AES.
- (4) Determination of Hexavalent Chromium by UV/Vis Spectrometry.
- (5) Determination of Hexavalent Chromium by Spot test / boiling water extraction Method.
- (6) Determination of PBB and PBDE by GC/MS.

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

  
  
**Chenyu Kung / Operation Manager**  
Signed for and on behalf of  
**SGS TAIWAN LTD.**  
**Chemical Laboratory – Taipei**

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Test results by chemical method (Unit: mg/kg)

Test Item (s):	Method (Refer to)	Result		MDL
		No.1	No.2	
Cadmium (Cd)	(1)	n.d.	n.d.	2
Lead (Pb)	(2)	7520	n.d.	2
Mercury (Hg)	(3)	n.d.	n.d.	2
Hexavalent Chromium Cr(VI) by alkaline extraction	(4)	n.d.	---	2
Hexavalent Chromium Cr(VI) by Spot test / boiling water extraction	(5)	---	Negative	See Note 4
<b>Sum of PBBs</b>	(6)	n.d.	---	-
Monobromobiphenyl		n.d.	---	5
Dibromobiphenyl		n.d.	---	5
Tribromobiphenyl		n.d.	---	5
Tetrabromobiphenyl		n.d.	---	5
Pentabromobiphenyl		n.d.	---	5
Hexabromobiphenyl		n.d.	---	5
Heptabromobiphenyl		n.d.	---	5
Octabromobiphenyl		n.d.	---	5
Nonabromobiphenyl		n.d.	---	5
Decabromobiphenyl		n.d.	---	5
<b>Sum of PBDEs</b>		n.d.	---	-
Monobromodiphenyl ether		n.d.	---	5
Dibromodiphenyl ether		n.d.	---	5
Tribromodiphenyl ether		n.d.	---	5
Tetrabromodiphenyl ether		n.d.	---	5
Pentabromodiphenyl ether		n.d.	---	5
Hexabromodiphenyl ether		n.d.	---	5
Heptabromodiphenyl ether		n.d.	---	5
Octabromodiphenyl ether		n.d.	---	5
Nonabromodiphenyl ether	n.d.	---	5	
Decabromodiphenyl ether	n.d.	---	5	

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### TEST PART DESCRIPTION:

- No.1 : MIXED ALL PARTS OF BODY (2 STYLE)  
No.2 : MIXED ALL PARTS OF SILVER COLORED METAL PIN (INCLUDING THE PLATING LAYER) (2 STYLE)

### **Note :**

1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. n.d. = Not Detected
3. MDL = Method Detection Limit
4. Spot-test:  
Negative = Absence of Cr(VI) coating / surface layer,  
Positive = Presence of Cr(VI) coating / surface layer;  
(The tested sample should be further verified by boiling-water-extraction method if the spot test result cannot be confirmed.)

#### Boiling-water-extraction:

- Negative = Absence of Cr(VI) coating / surface layer.  
Positive = Presence of Cr(VI) coating / surface layer;  
The detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm<sup>2</sup> sample surface area.
5. "-" = Not Regulated
  6. "---" = Not Conducted
  7. 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.
  8. This report supersedes the previous document bearing the test report number CE/2010/85338 which was issued on 2010/09/02.

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## Test Report

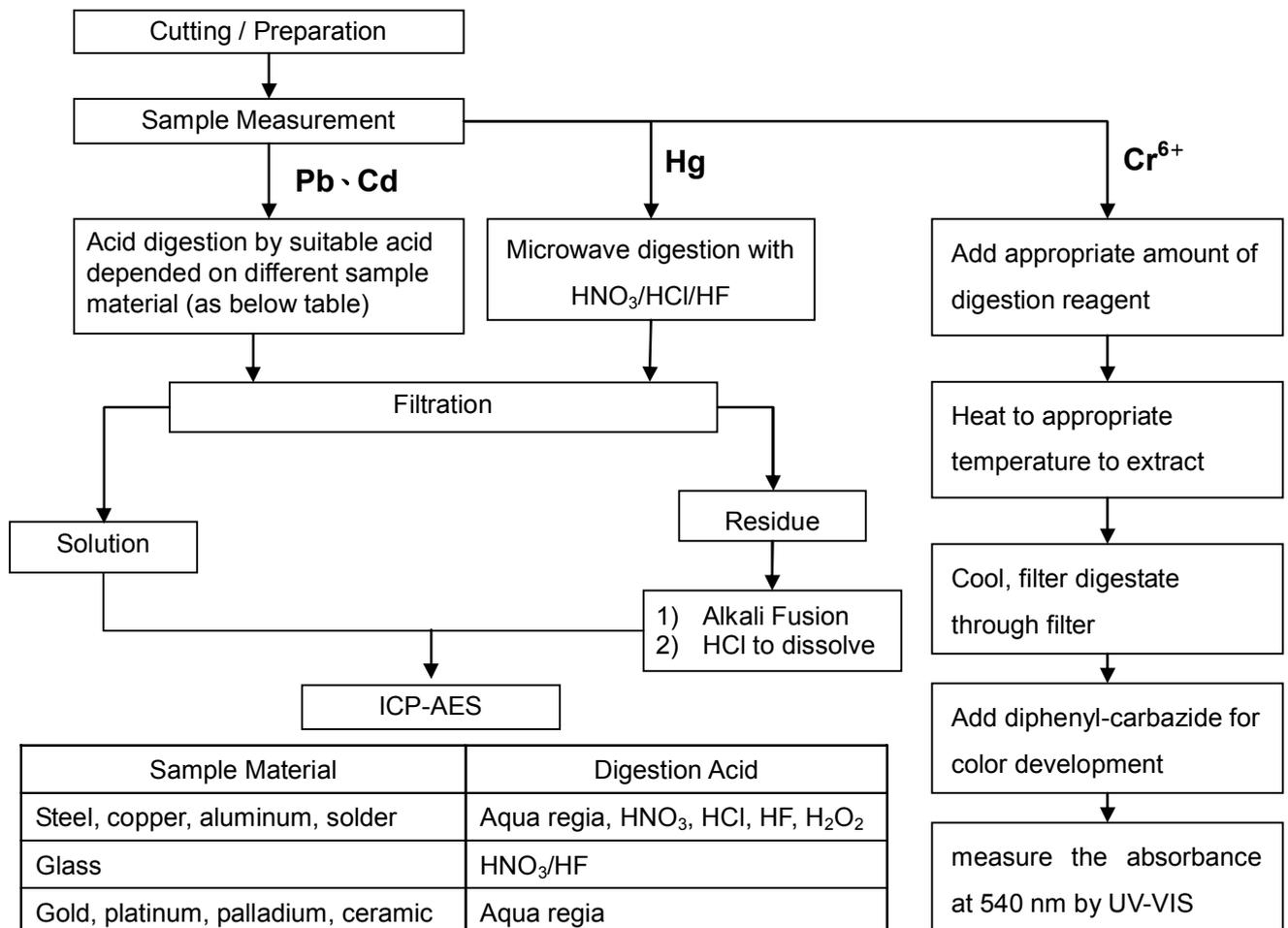
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- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart.  
 (Cr<sup>6+</sup> test method excluded)
- 2) Name of the person who made measurement: Climbgreat Yang
- 3) Name of the person in charge of measurement: Troy Chang



Sample Material	Digestion Acid
Steel, copper, aluminum, solder	Aqua regia, HNO <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub>
Glass	HNO <sub>3</sub> /HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO <sub>3</sub>
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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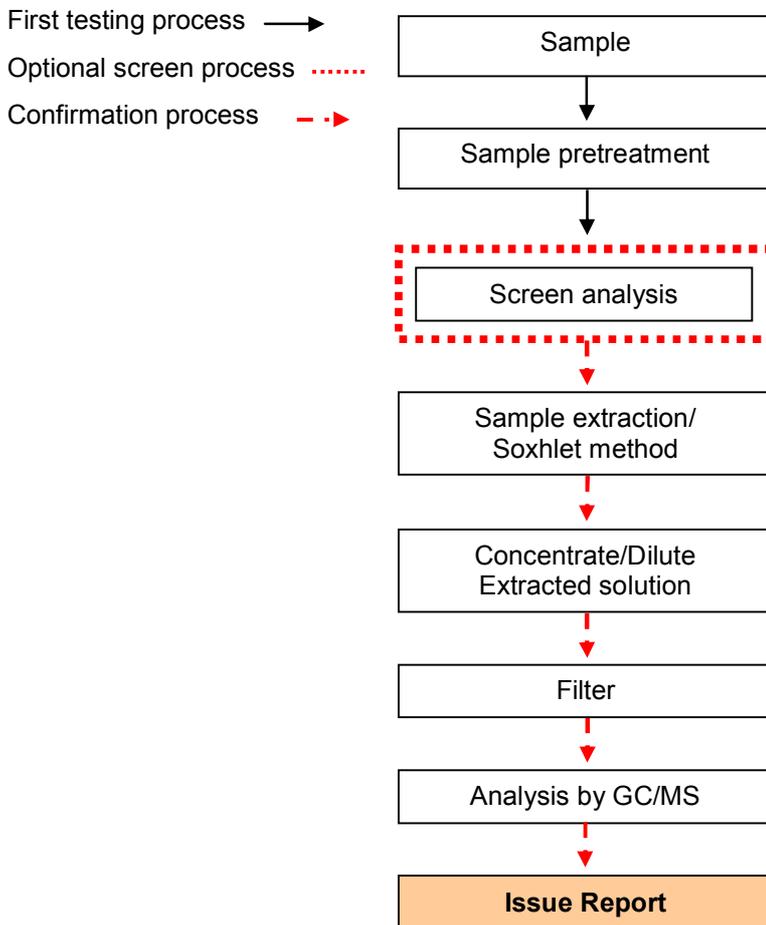
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### PBB/PBDE analytical FLOW CHART

- 1) Name of the person who made measurement: Roman Wong
- 2) Name of the person in charge of measurement: Troy Chang



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\*\* End of Report \*\*

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