

# Test Report

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SWEETA PRODUCTS CORPORATION  
1F, NO.799 CHUNG CHENG ROAD, CHUNG HO CITY, TAIPEI  
HSIEN, TAIWAN R. O. C.



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

Sample Description : PUSHBUTTON SWITCHES  
Sample Receiving Date : 2008/03/19  
Testing Period : 2008/03/19 TO 2008/03/26

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

**Test Method** : With reference to IEC 62321/2nd CDV (111/95/CDV)  
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 for non-metallic samples by UV/Vis Spectrometry.
- (5) Determination of Hexavalent Chromium for metallic samples by Spot test / Colorimetric 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	No.3	No.4	No.5	
Cadmium (Cd)	(1)	n.d.	n.d.	n.d.	n.d.	n.d.	2
Lead (Pb)	(2)	n.d.	n.d.	n.d.	n.d.	11	2
Mercury (Hg)	(3)	n.d.	n.d.	n.d.	n.d.	n.d.	2
Hexavalent Chromium Cr(VI) by alkaline extraction	(4)	n.d.	n.d.	---	---	---	2
Hexavalent Chromium Cr(VI) by Spot test / boiling water extraction	(5)	---	---	Negative	Negative	Negative	See Note 5
<b>Sum of PBBs</b>	(6)	n.d.	n.d.	---	---	---	-
Monobromobiphenyl		n.d.	n.d.	---	---	---	5
Dibromobiphenyl		n.d.	n.d.	---	---	---	5
Tribromobiphenyl		n.d.	n.d.	---	---	---	5
Tetrabromobiphenyl		n.d.	n.d.	---	---	---	5
Pentabromobiphenyl		n.d.	n.d.	---	---	---	5
Hexabromobiphenyl		n.d.	n.d.	---	---	---	5
Heptabromobiphenyl		n.d.	n.d.	---	---	---	5
Octabromobiphenyl		n.d.	n.d.	---	---	---	5
Nonabromobiphenyl		n.d.	n.d.	---	---	---	5
Decabromobiphenyl		n.d.	n.d.	---	---	---	5
<b>Sum of PBDEs (Mono to Nona) (Note 4)</b>		n.d.	n.d.	---	---	---	-
Monobromodiphenyl ether		n.d.	n.d.	---	---	---	5
Dibromodiphenyl ether		n.d.	n.d.	---	---	---	5
Tribromodiphenyl ether		n.d.	n.d.	---	---	---	5
Tetrabromodiphenyl ether		n.d.	n.d.	---	---	---	5
Pentabromodiphenyl ether		n.d.	n.d.	---	---	---	5
Hexabromodiphenyl ether		n.d.	n.d.	---	---	---	5
Heptabromodiphenyl ether		n.d.	n.d.	---	---	---	5
Octabromodiphenyl ether		n.d.	n.d.	---	---	---	5
Nonabromodiphenyl ether	n.d.	n.d.	---	---	---	5	
Decabromodiphenyl ether	n.d.	n.d.	---	---	---	5	
<b>Sum of PBDEs (Mono to Deca)</b>	n.d.	n.d.	---	---	---	-	

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Test Item (s):	Method (Refer to)	Result					MDL
		No.6	No.7	No.8	No.9	No.10	
Cadmium (Cd)	(1)	n.d.	n.d.	n.d.	n.d.	n.d.	2
Lead (Pb)	(2)	27	n.d.	30	23	n.d.	2
Mercury (Hg)	(3)	n.d.	n.d.	n.d.	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	---	Negative	Negative	Negative	See Note 5
<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 (Mono to Nona) (Note 4)</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	
<b>Sum of PBDEs (Mono to Deca)</b>	---	n.d.	---	---	---	-	

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Test Item (s):	Method (Refer to)	Result	MDL
		No.11	
Cadmium (Cd)	(1)	n.d.	2
Lead (Pb)	(2)	8	2
Mercury (Hg)	(3)	n.d.	2
Hexavalent Chromium Cr(VI) by Spot test / boiling water extraction	(5)	Negative	See Note 5

## TEST PART DESCRIPTION:

- NO.1 : BLUE PLASTIC
- NO.2 : WHITE PLASTIC
- NO.3 : SILVER-GRAY COLORED METAL SPRING
- NO.4 : SILVER-GRAY COLORED METAL SPRING
- NO.5 : PLATING LAYER OF SILVER COLORED METAL
- NO.6 : BASE MATERIAL OF SILVER COLORED METAL
- NO.7 : BROWN SHEET
- NO.8 : PLATING LAYER OF SILVER COLORED METAL PIN
- NO.9 : BASE MATERIAL OF SILVER COLORED METAL PIN
- NO.10 : PLATING LAYER OF SILVER COLORED METAL
- NO.11 : BASE MATERIAL OF SILVER COLORED METAL

Note : 1. mg/kg = ppm

2. n.d. = Not Detected

3. MDL = Method Detection Limit

4. According to 2005/717/EC DecaBDE is exempt.

5. 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.

6. "-" = Not Regulated

7. "---" = Not Conducted

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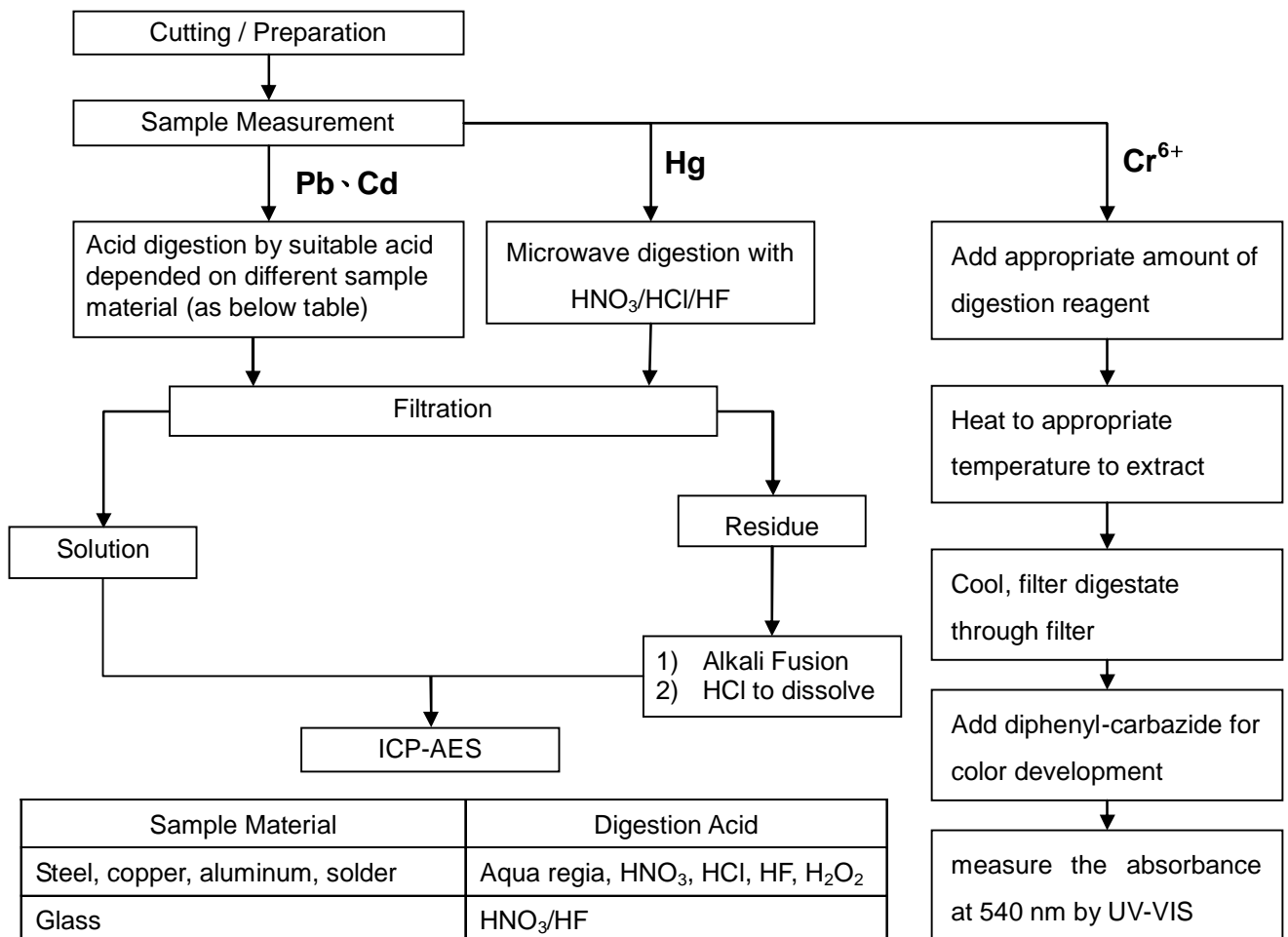
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NO.1~4,6,7,9,11

- 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: Troy Chang
- 3) Name of the person in charge of measurement: Chenyu Kung



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

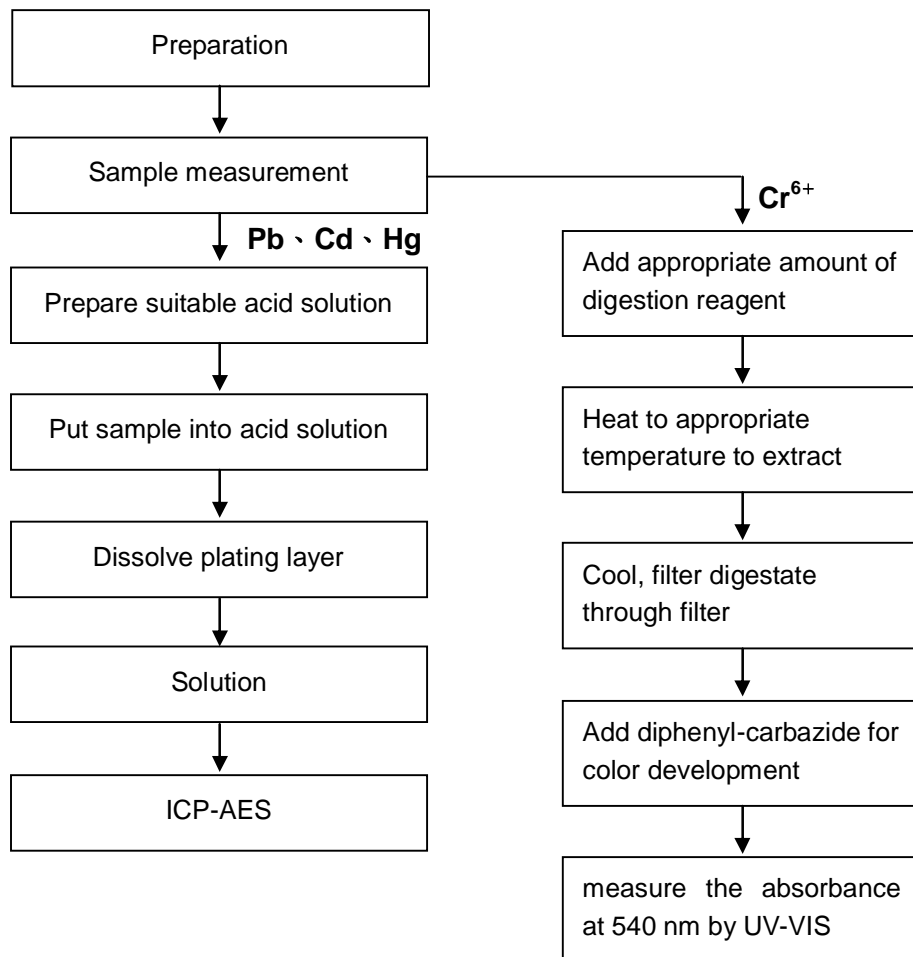
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NO.5,8,10

- 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: Troy Chang
- 3) Name of the person in charge of measurement: Chenyu Kung

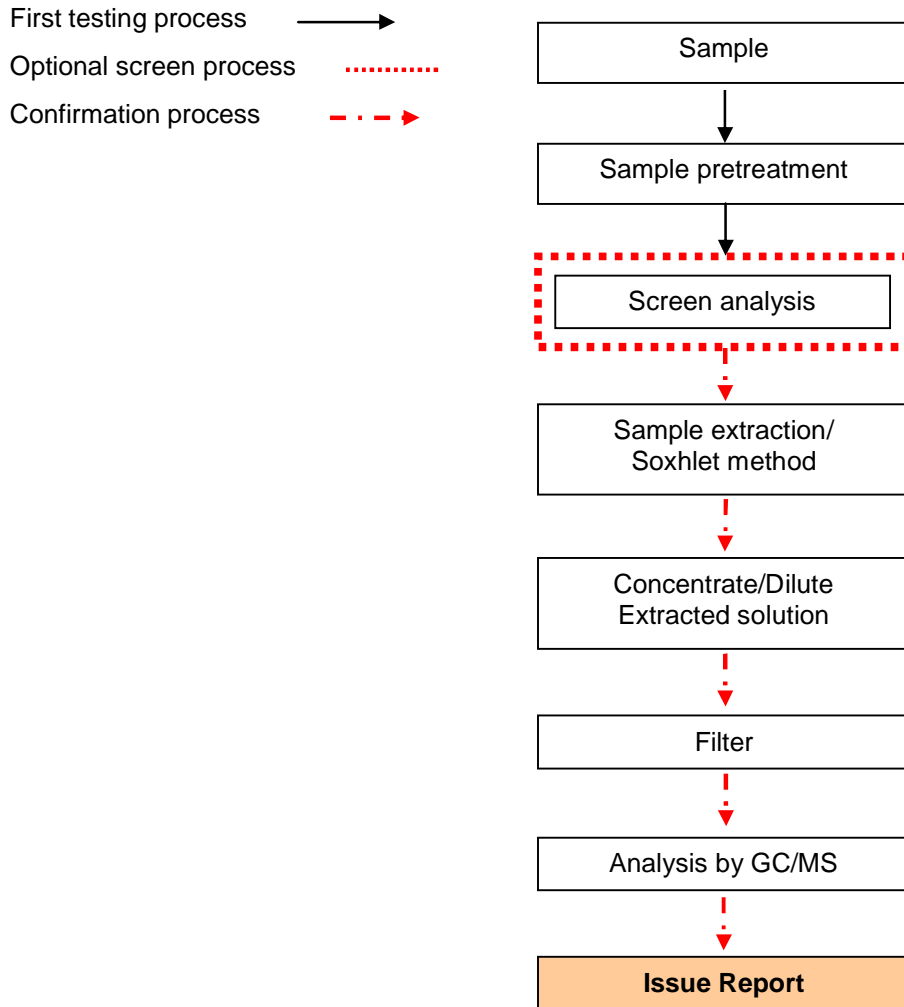
### Flow Chart of Stripping method for metal analysis



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## PBB/PBDE analytical FLOW CHART



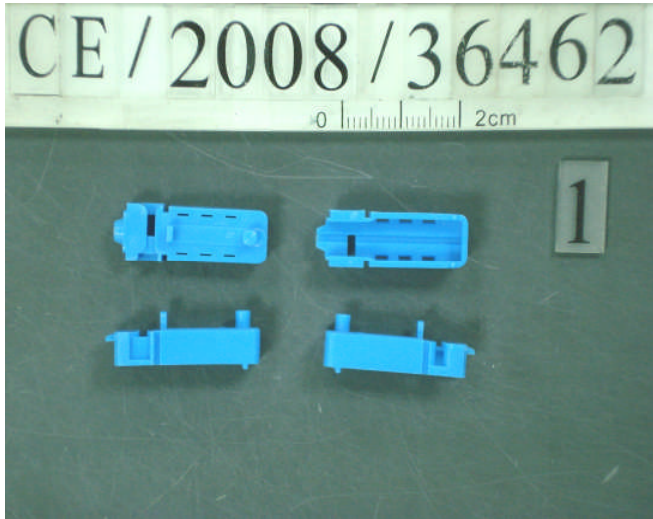
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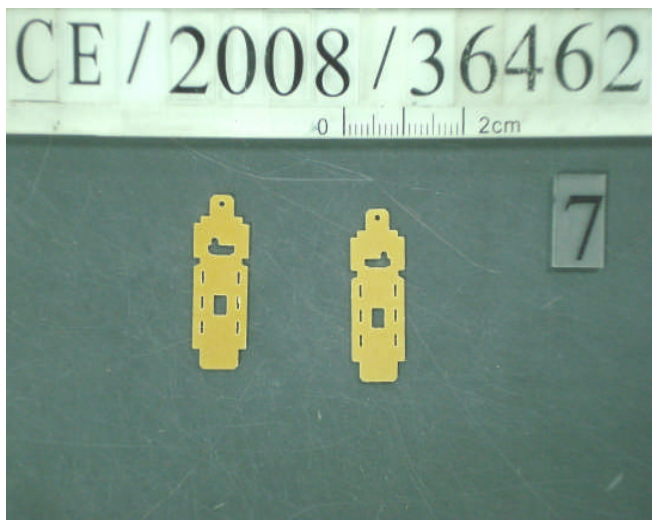
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\*\* End of Report \*\*