

**CONG TY TNHH A BO LUO MATERIALS VIET NAM**

CUM CONG NGHIEP HAP LINH, PHUONG KHAC NIEM, THANH PHO BAC NINH, TINH BAC NINH, VIET NAM

The following sample was submitted and identified on behalf of the client as below:

SGS Job No. : VNHL2004005410EE

Sample Description : “KEM HAN: M705, SACX0307, SAC105, SAC205, SAC 305, SAC 357, SAC 387, SAC396, SAC405, WS-820, CVP520, CVP390, Sn42Bi57.6Ag0.4”

Color : “GHI XAM”

Characteristic : “MOT LOAI KEM DUNG DE HAN, GAN LINH KIEN VA CAC THANH PHAN SMDs LEN BE MAT CUA BANG MACH IN PCB TRONG CONG NGHE SMT”

Country of Origin : VIETNAM

Country of Destination : DOMESTIC AND INTERNATIONAL

Date of Production : 7/4/2020

Manufacturer : CONG TY TNHH A BO LUO MATERIALS VIET NAM

Sample Receiving Date : APRIL 10, 2020

Final confirmed Date : APRIL 10, 2020

Testing Period : APRIL 10, 2020 TO APRIL 15, 2020

Test Requested : PLEASE REFER TO THE RESULT SUMMARY.

Test Results : PLEASE REFER TO NEXT PAGE(S).

Result Summary :

Test(s) Requested	Result(s)
RoHS Directive 2011/65/EU Annex II [amended by Directive (EU) 2015/863] (Cadmium, Lead, Mercury, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP))	Pass/ See results
Halogen content (Cl, Br, F, I)	Data/ See results

Signed for and on behalf of  
**SGS Vietnam LTD**



Dinh Duy Hai  
Chemical Lab Manager

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# Test Report

No. VNHL2004005410EE

Date: April 15, 2020

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Test result(s):

Test Part Description: 1. GRAY PASTE

**1 RoHS Directive 2011/65/EU Annex II [amended by Directive (EU) 2015/863]**

Test Item(s):	Unit	Test Method	Results	MDL	Limit	
			1			
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5:2013 (Determination of Cd by ICP-OES)	ND	2	100	
Lead (Pb)	mg/kg	With reference to IEC 62321-5:2013 (Determination of Pb by ICP-OES)	50	2	1000	
Mercury (Hg)	mg/kg	With reference to IEC 62321-4:2013 (Determination of Hg by ICP-OES)	ND	2	1000	
Hexavalent Chromium (CrVI)	mg/kg	With reference to IEC 62321-7-2:2017 (Determination of CrVI by UV-VIS)	ND	8	1000	
<b>Sum of PBBs</b>	mg/kg	With reference to IEC 62321:2015 (Determination of PBB by GC-MS)	ND	-	1000	
Monobromobiphenyl	mg/kg		ND	5	-	
Dibromobiphenyl	mg/kg		ND	5	-	
Tribromobiphenyl	mg/kg		ND	5	-	
Tetrabromobiphenyl	mg/kg		ND	5	-	
Hexabromobiphenyl	mg/kg		ND	5	-	
Pentabromobiphenyl	mg/kg		ND	5	-	
Heptabromobiphenyl	mg/kg		ND	5	-	
Octabromobiphenyl	mg/kg		ND	5	-	
Nonabromobiphenyl	mg/kg		ND	5	-	
Decabromobiphenyl	mg/kg		ND	5	-	
<b>Sum of PBDEs</b>	mg/kg		With reference to IEC 62321:2015 (Determination of PBDE by GC-MS)	ND	-	1000
Monobromodiphenyl ether	mg/kg			ND	5	-
Dibromodiphenyl ether	mg/kg	ND		5	-	
Tribromodiphenyl ether	mg/kg	ND		5	-	
Tetrabromodiphenyl ether	mg/kg	ND		5	-	
Pentabromodiphenyl ether	mg/kg	ND		5	-	
Hexabromodiphenyl ether	mg/kg	ND		5	-	
Heptabromodiphenyl ether	mg/kg	ND		5	-	
Octabromodiphenyl ether	mg/kg	ND		5	-	
Nonabromodiphenyl ether	mg/kg	ND		5	-	
Decabromodiphenyl ether	mg/kg	ND		5	-	
Bis (2-ethylhexyl) phthalate (DEHP)	mg/kg	With reference to IEC 62321-8:2017 (Determination of DEHP by GC-MS)	ND	50	1000	
Butyl benzyl phthalate (BBP)	mg/kg	With reference to IEC 62321-8:2017 (Determination of BBP by GC-MS)	ND	50	1000	
Dibutyl phthalate (DBP)	mg/kg	With reference to IEC 62321-8:2017 (Determination of DBP by GC-MS)	ND	50	1000	
Diisobutyl phthalate (DIBP)	mg/kg	With reference to IEC 62321-8:2017 (Determination of DIBP by GC-MS)	ND	50	1000	

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**Note:**

1. mg/kg = ppm; 0.1wt% = 1000ppm
2. MDL = Method Detection Limit
3. ND = Not detected
4. - = not regulated
5. IEC 62321 is equivalent to EN 62321  
[http://www.cenelec.eu/dyn/www/f?p=104:110:721668440899381:::FSP\\_PROJECT,FSP\\_LANG\\_ID:20662,25](http://www.cenelec.eu/dyn/www/f?p=104:110:721668440899381:::FSP_PROJECT,FSP_LANG_ID:20662,25).
6. The above test(s) was / were accredited ISO 17025:2017 by VILAS  
 The above test(s) was / were performed by SGS VN's Chemical lab.

**2. Halogen content**

Test Item(s)	Unit	Method	MDL	Result
				1
Halogen-Chlorine (Cl) (CAS No.: 022537-15-1)	mg/kg	With reference to BS EN 14582:2016. Determination of halide content by oxygen bomb combustion using Ion Chromatography.	50	ND
Halogen-Bromine (Br) (CAS No.: 010097-32-2)	mg/kg		50	ND
Halogen-Fluorine (F) (CAS No.: 014762-94-8)	mg/kg		50	ND
Halogen-Iodine (I) (CAS No.: 014362-44-8)	mg/kg		50	ND

**Note:**

1. mg/kg = ppm; 0.1wt% = 1000ppm
2. MDL = Method Detection Limit
3. ND = Not detected
4. The above test(s) was / were accredited ISO 17025:2017 by VILAS  
 The above test(s) was / were performed by SGS VN's Chemical lab.

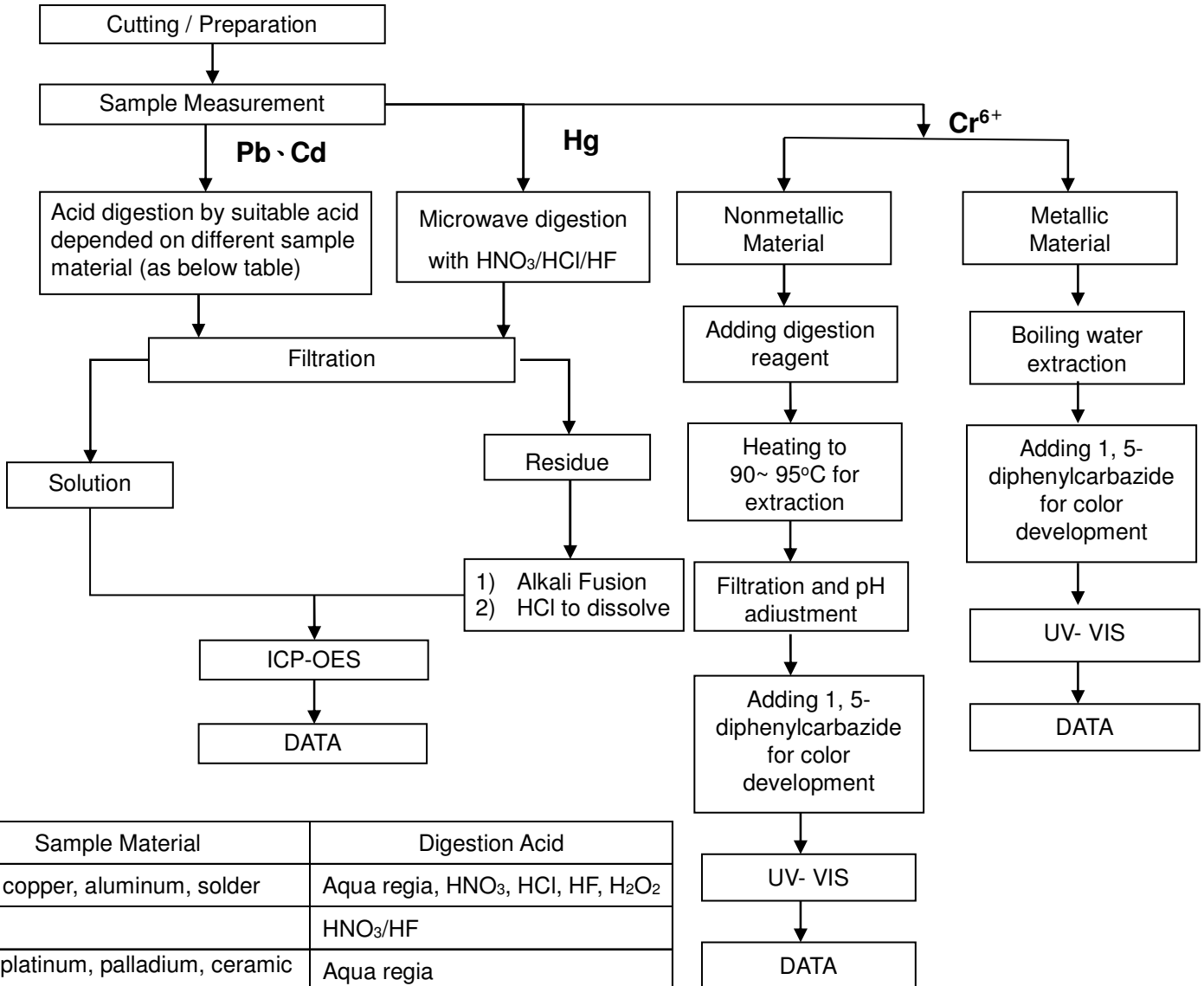
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**Flow Chart for RoHS: Pb/Cd/Hg/Cr<sup>6+</sup> Testing**

- 1) The samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr<sup>6+</sup> test method excluded)
- 2) Operator: Mr. Thu
- 3) Section Chief: Mr. Khanh



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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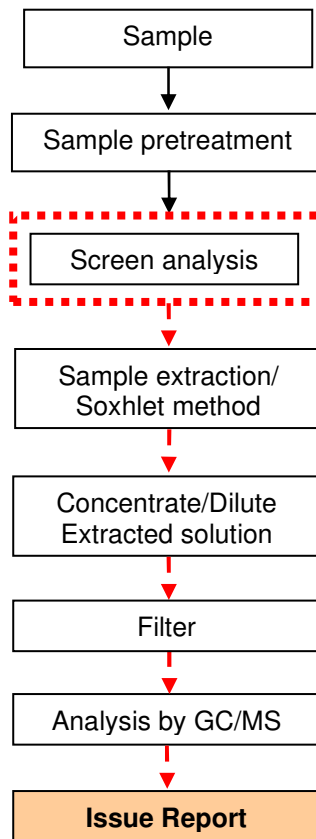
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**PBB/PBDE analytical FLOW CHART**

- 1) Name of the person who made measurement: Mr. Truong
- 2) Name of the person in charge of measurement: Mr. Khanh

First testing process →  
 Optional screen process .....  
 Confirmation process ->



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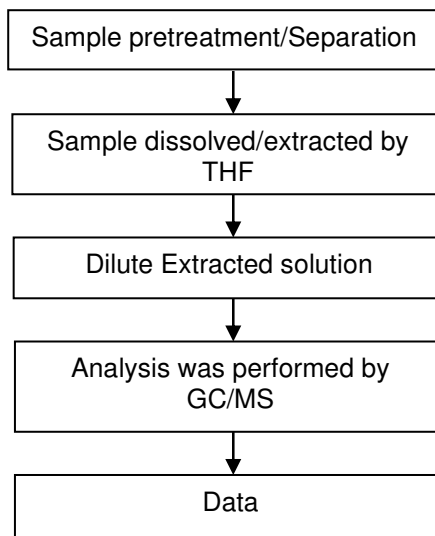
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**Analytical flow chart of phthalate content**

- 3) Name of the person who made measurement: Mr. Truong
- 4) Name of the person in charge of measurement: Mr. Khanh

**Test method: IEC 62321-8:2017**

First testing process →  
Optional screen process .....  
Confirmation process - -▶



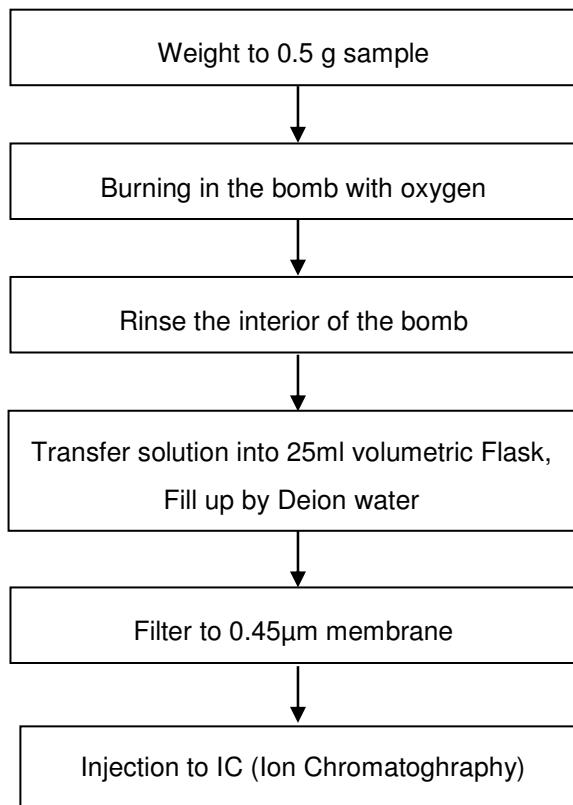
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### Analytical flow chart of Halogen content

- 1) Name of the person who made measurement: Ms. Van
- 2) Name of the person in charge of measurement: Mr. Khanh



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SAMPLE PHOTO:



SGS authenticate the photo on original report only

\*\*\*End of Report\*\*\*

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