







MATERIAL DECLARATION & RoHS REPORT



Product Part Number	2038-XX-SMLF			
Product Line	Gas Discharge Tube			
MSL	1			
RoHS Compliant	Yes	Compliance Date	May-2015	

No.	Construction Element (subpart)	Homogeneous Material	Material weight [g]	Homogeneous Material\ Substances	CASRN if applicable	Materials Mass %	Material Mass % of total unit wt.	Subpart mass of total wt. (%)	Third Party Lab Analysis
1	Lateral Electrodes	Tin plated Copper	0.308	Copper	7440-50-8	99.2	45.48	45.847	 Tin Plated Copp
				Nickel	7440-02-0	0.2	0.09		
				Tin	7440-31-5	0.6	0.28		
2	Metallized Ceramic	Ceramic	0.163	Aluminum oxide	1344-28-1	93.8	22.76	24.263	 Metallized
				Silicon dioxide	7631-86-9	4.94	1.20		
		Metallization		Tungsten	7440-33-7	0.98	0.24		
		Nickel		7440-02-0	0.28	0.07			
3	Center Electrode	Tin plated Copper	0.1931	Copper	7440-50-8	99.6	28.63	28.744	 Tin Plated Copp
				Nickel	7440-02-0	0.1	0.03		
				Tin	7440-31-5	0.3	0.09		
4	Brazing material	Cusil™	0.006	Silver	7440-22-4	72	0.64	0.893	 CuSil Washer.pi
				Copper	7440-50-8	28	0.25		
5	Filler material	Gas	0.0007	Argon	7440-37-1	100	0.10	0.104	

6	Marking	Green Ink	0.001	Ink (Proprietary mixture)	Trade secret	64	0.10	0.149	 Green Ink.pdf
				Cyclohexane-1,2-dicarboxylic anhydride	85-42-7	5	0.007		
				Carbon black	1333-86-4	1	0.0015		
				Tributyl phosphate	126-73-8	30	0.045		
		TOTAL	0.6718						

This Document was updated on: November, 2018

Important remarks:

1. It is the responsibility of the user to verify they are accessing the latest version.

Test Report

Applicant: Trimpot Electronicas Ltda
Del Cruce a San Antonio de Belen
Autopista Canas-150 Mts Al Oeste,
Costa Rica.

Number : TWNC00666126

Date : Jan 29, 2018

Sample Description:

One (1) group of submitted samples said to be:
Sample Description : Tin Plated Copper Electrodes
Style / Item No. : Copper Electrodes
Date Sample Received : Jan 16, 2018
Date Test Started : Jan 16, 2018

Test Conducted:

As requested by the applicant, for details please refer to attached pages.

Authorized by:
On Behalf of Intertek Testing Services
Taiwan Limited



Matt Wang
Sr. Manager



Test Conducted :

Test Result Summary:

Test Item	Unit	Test Method	Result	RL
			Silvery metal	
Heavy Metal				
Cadmium (Cd) Content	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES.	ND	2
Lead (Pb) Content	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES.	ND	2
Mercury (Hg) Content	ppm	With reference to IEC 62321-4:2013+AMD1:2017, by microwave or acid digestion and determined by ICP-OES.	ND	2
Chromium VI (Cr ⁶⁺) Content @	µg/ cm ²	With reference to IEC 62321-7-1: 2015, by boiling water extraction and determined by UV-Vis Spectrophotometer or visual observation.	Negative	0.10
Polybrominated Biphenyls (PBBs)				
Monobrominated Biphenyls (MonoBB)	ppm	With reference to IEC 62321-6: 2015, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary.	ND	5
Dibrominated Biphenyls (DiBB)	ppm		ND	5
Tribrominated Biphenyls (TriBB)	ppm		ND	5
Tetrabrominated Biphenyls (TetraBB)	ppm		ND	5
Pentabrominated Biphenyls (PentaBB)	ppm		ND	5
Hexabrominated Biphenyls (HexaBB)	ppm		ND	5
Heptabrominated Biphenyls (HeptaBB)	ppm		ND	5
Octabrominated Biphenyls (OctaBB)	ppm		ND	5
Nonabrominated Biphenyls (NonaBB)	ppm		ND	5
Decabrominated Biphenyl (DecaBB)	ppm		ND	5



Test Conducted :

Test Item	Unit	Test Method	Result	RL
			Silvery metal	
Polybrominated Diphenyl Ethers (PBDEs)				
Monobrominated Diphenyl Ethers (MonoBDE)	ppm	With reference to IEC 62321-6: 2015, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary.	ND	5
Dibrominated Diphenyl Ethers (DiBDE)	ppm		ND	5
Tribrominated Diphenyl Ethers (TriBDE)	ppm		ND	5
Tetrabrominated Diphenyl Ethers (TetraBDE)	ppm		ND	5
Pentabrominated Diphenyl Ethers (PentaBDE)	ppm		ND	5
Hexabrominated Diphenyl Ethers (HexaBDE)	ppm		ND	5
Heptabrominated Diphenyl Ethers (HeptaBDE)	ppm		ND	5
Octabrominated Diphenyl Ethers (OctaBDE)	ppm		ND	5
Nonabrominated Diphenyl Ethers (NonaBDE)	ppm		ND	5
Decabrominated Diphenyl Ether (DecaBDE)	ppm		ND	5
Phthalates				
Di(2-ethylhexyl) Phthalate (DEHP)	ppm	With reference to IEC 62321-8:2017, by solvent extraction and determined by GC-MS.	ND	50
Dibutyl Phthalate (DBP)	ppm		ND	50
Benzyl Butyl Phthalate (BBP)	ppm		ND	50
Diisobutyl Phthalate (DIBP)	ppm		ND	50
Halogen Content				
Fluorine (F)	ppm	With reference to EN 14582:2016 by combustion bomb with oxygen and determined by Ion Chromatography.	ND	50
Chlorine (Cl)	ppm		ND	50
Bromine (Br)	ppm		ND	50
Iodine (I)	ppm		ND	50

Remarks: ppm = Parts per million based on weight of tested sample = mg/kg
 ND = Not detected
 RL = Reporting limit, quantitation limit of analyte in sample



Test Conducted :

@ The explanation of Chromium VI (Cr⁶⁺) analysis results

Colorimetric result	Qualitative Result	Explanation
< 0.10 µg/cm ²	Negative	The result of sample is negative for Cr(VI). The sample coating is considered a non-Cr(VI) based coating.
≥ 0.10 µg/cm ² and ≤ 0.13 µg/cm ²	Inconclusive	The result of sample is considered to be inconclusive. If addition samples are available, recommend to add trials and get the average result for the final determination.
> 0.13 µg/cm ²	Positive	The result of sample is positive for Cr(VI). The sample coating is considered to contain Cr(VI). A result expresses as Positive, while not an actual value, which indicates a visual observation was used.

Responsibility of Chemist: Pelny Hsiao/ Vita Fu

Date Sample Received : Jan 16, 2018
 Test Period : Jan 16, 2018 to Jan 24, 2018

RoHS Limit

Restricted Substances	Limits
Cadmium (Cd) content	0.01% (100ppm)
Lead (Pb) content	0.1% (1000ppm)
Mercury (Hg) content	0.1% (1000ppm)
Chromium VI (Cr ⁶⁺) content	0.1% (1000ppm)
Polybrominated Biphenyls (PBBs)	0.1% (1000ppm)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000ppm)
Di(2-ethylhexyl) Phthalate (DEHP)	0.1% (1000ppm)
Dibutyl Phthalate (DBP)	0.1% (1000ppm)
Benzyl Butyl Phthalate (BBP)	0.1% (1000ppm)
Diisobutyl Phthalate (DIBP)	0.1% (1000ppm)

The limits were quoted from Annex II of 2011/65/EU and Amendment (EU) 2015/863 for homogeneous material.



Test Conducted :

Measurement Flowchart:

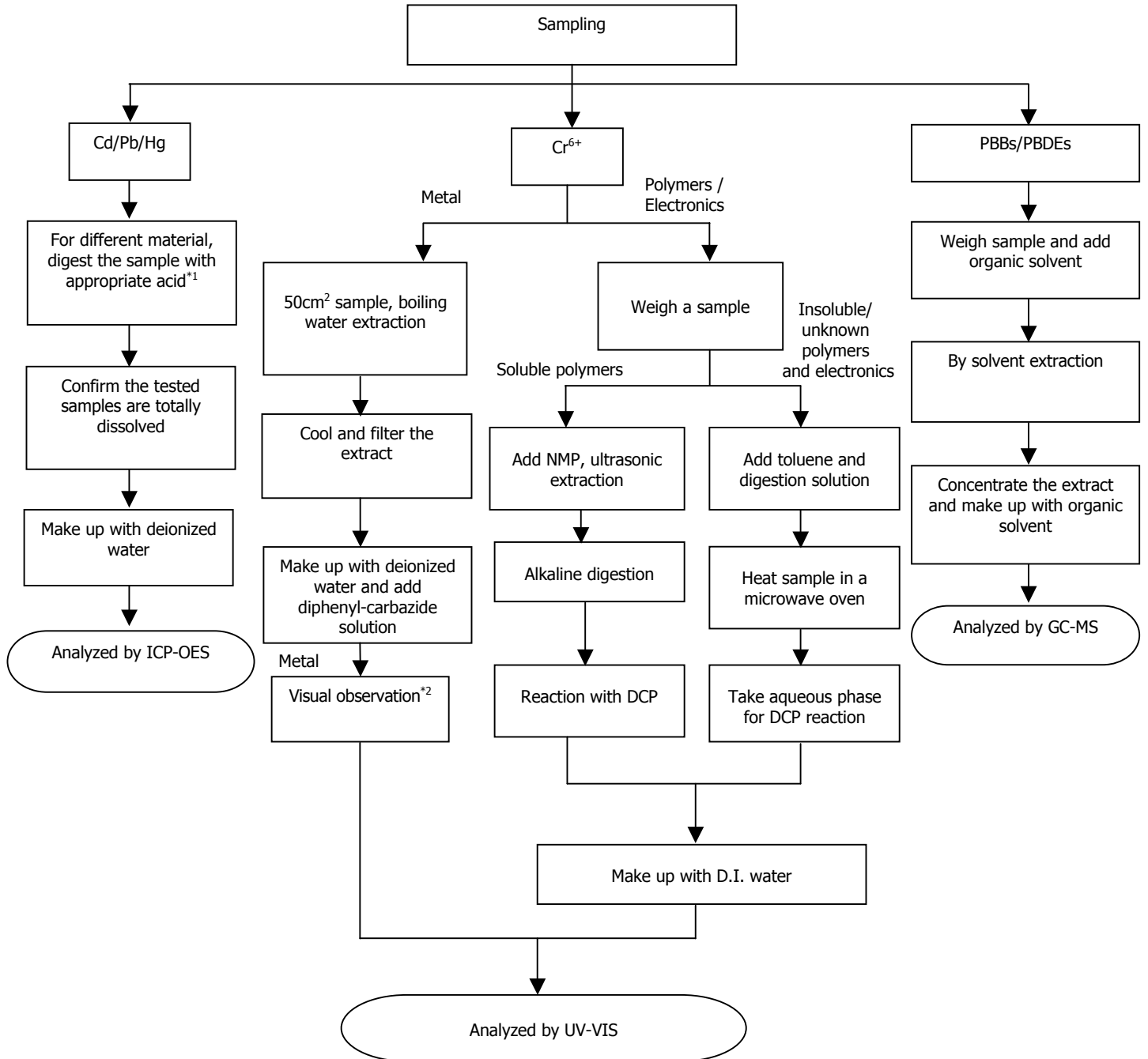
Test for Cd/Pb/Hg/Chromium (VI)/PBBs/PBDEs Content

Reference Standard : Cd/Pb: IEC 62321-5:2013; Hg: IEC 62321-4:2013+AMD1:2017;

Chromium (VI): IEC 62321-7-1:2015 (boiling water extraction);

Chromium (VI): IEC 62321-7-2:2017 (solvent and alkaline extraction);

PBBs/PBDEs: IEC 62321-6:2015



Test Conducted :

Remarks:

*1: List of Appropriate Acid :

Material	Acid Added for Digestion
Polymers	HNO ₃ , HCl, HF, H ₂ O ₂ , H ₃ BO ₃
Metals	HNO ₃ , HCl, HF
Electronics	HNO ₃ , HCl, H ₂ O ₂ , HBF ₄

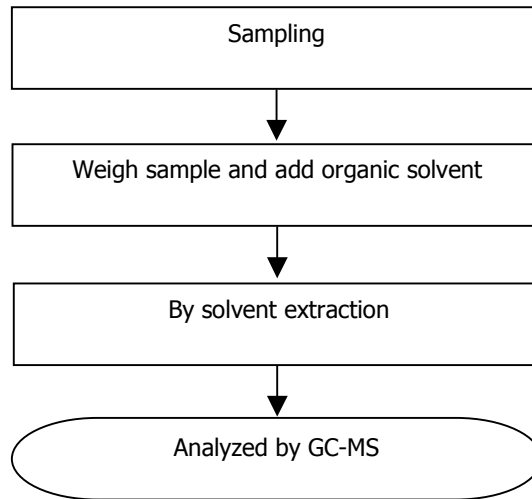
*2: If sample solution is significantly more intense than 0.13 µg/cm² equivalent comparison standard, Chromium VI would be determined as detected, the result of visual observation is positive.



Test Conducted :

Measurement Flowchart:

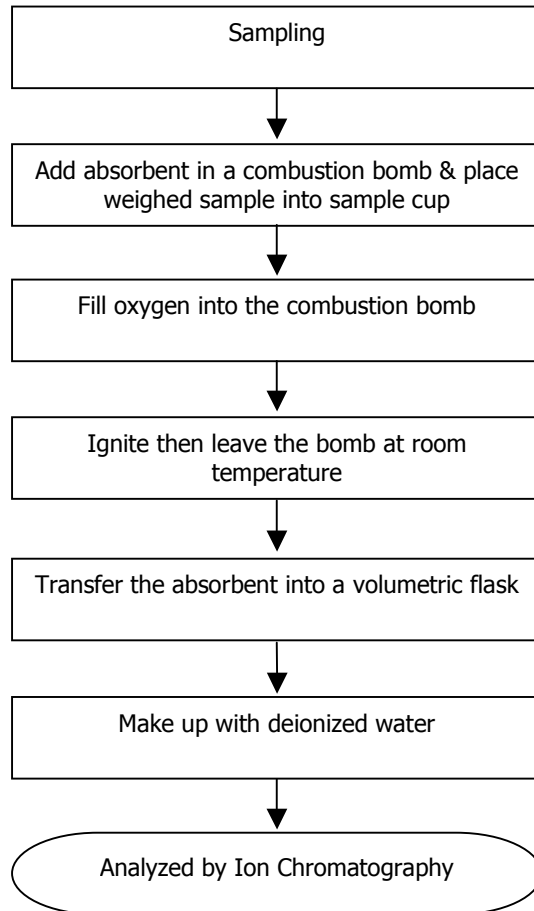
Test for Phthalates Content
Reference Method: IEC 62321-8:2017

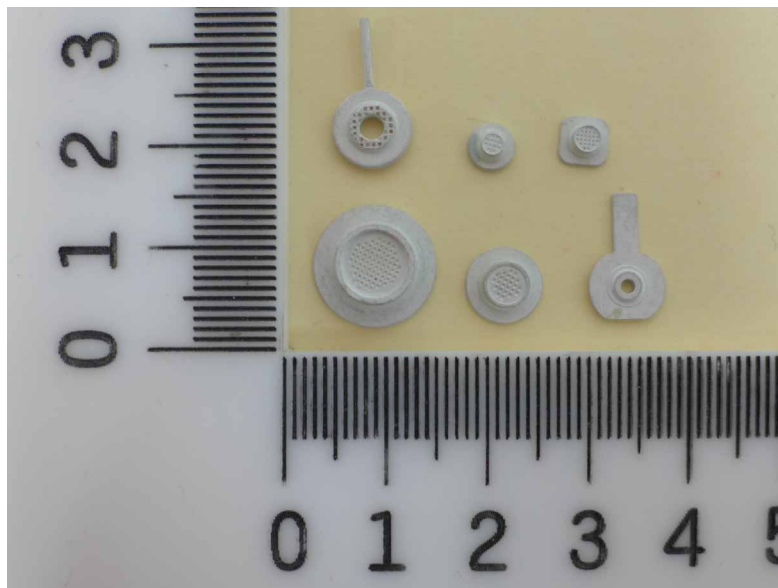


Test Conducted :

Measurement Flowchart:

Test for Halogen Content
Reference Standard : EN 14582





End of Report

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Test Report

Applicant: Trimpot Electronicas Ltda
Del Cruce a San Antonio de Belen
Autopista Canas-150 Mts Al Oeste,
Costa Rica.

Number : TWNC00666128

Date : Jan 29, 2018

Sample Description:

One (1) group of submitted samples said to be :
Sample Description : Ceramic Insulator
Style / Item No. : Ceramic for electronic components.
Date Sample Received : Jan 16, 2018
Date Test Started : Jan 16, 2018

Test Conducted :

As requested by the applicant, for details please refer to attached pages.

Authorized by:
On Behalf of Intertek Testing Services
Taiwan Limited



Matt Wang
Sr. Manager



Test Conducted :

Test Result Summary:

Test Item	Unit	Test Method	Result	RL
			White electronic component (mixed all parts)	
Heavy Metal				
Cadmium (Cd) Content	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES.	ND	2
Lead (Pb) Content	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES.	ND	2
Mercury (Hg) Content	ppm	With reference to IEC 62321-4:2013+AMD1:2017, by microwave or acid digestion and determined by ICP-OES.	ND	2
Chromium VI (Cr ⁶⁺) Content	ppm	With reference to IEC 62321-7-2: 2017, organic solvent was used to dissolve or swell sample matrix, followed by alkaline digestion and determined by UV-Vis Spectrophotometer.	ND	8
Polybrominated Biphenyls (PBBs)				
Monobrominated Biphenyls (MonoBB)	ppm	With reference to IEC 62321-6: 2015, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary.	ND	5
Dibrominated Biphenyls (DiBB)	ppm		ND	5
Tribrominated Biphenyls (TriBB)	ppm		ND	5
Tetrabrominated Biphenyls (TetraBB)	ppm		ND	5
Pentabrominated Biphenyls (PentaBB)	ppm		ND	5
Hexabrominated Biphenyls (HexaBB)	ppm		ND	5
Heptabrominated Biphenyls (HeptaBB)	ppm		ND	5
Octabrominated Biphenyls (OctaBB)	ppm		ND	5
Nonabrominated Biphenyls (NonaBB)	ppm		ND	5
Decabrominated Biphenyl (DecaBB)	ppm		ND	5



Test Conducted :

Test Item	Unit	Test Method	Result	RL
			White electronic component (mixed all parts)	
Polybrominated Diphenyl Ethers (PBDEs)				
Monobrominated Diphenyl Ethers (MonoBDE)	ppm	With reference to IEC 62321-6: 2015, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary.	ND	5
Dibrominated Diphenyl Ethers (DiBDE)	ppm		ND	5
Tribrominated Diphenyl Ethers (TriBDE)	ppm		ND	5
Tetrabrominated Diphenyl Ethers (TetraBDE)	ppm		ND	5
Pentabrominated Diphenyl Ethers (PentaBDE)	ppm		ND	5
Hexabrominated Diphenyl Ethers (HexaBDE)	ppm		ND	5
Heptabrominated Diphenyl Ethers (HeptaBDE)	ppm		ND	5
Octabrominated Diphenyl Ethers (OctaBDE)	ppm		ND	5
Nonabrominated Diphenyl Ethers (NonaBDE)	ppm		ND	5
Decabrominated Diphenyl Ether (DecaBDE)	ppm		ND	5
Phthalates				
Di(2-ethylhexyl) Phthalate (DEHP)	ppm	With reference to IEC 62321-8:2017, by solvent extraction and determined by GC-MS.	ND	50
Dibutyl Phthalate (DBP)	ppm		ND	50
Benzyl Butyl Phthalate (BBP)	ppm		ND	50
Diisobutyl Phthalate (DIBP)	ppm		ND	50
Halogen Content				
Fluorine (F)	ppm	With reference to EN 14582:2016 by combustion bomb with oxygen and determined by Ion Chromatography.	ND	50
Chlorine (Cl)	ppm		ND	50
Bromine (Br)	ppm		ND	50
Iodine (I)	ppm		ND	50

Remarks: ppm = Parts per million based on weight of tested sample = mg/kg
 ND = Not detected
 RL = Reporting limit, quantitation limit of analyte in sample



Test Conducted :

Responsibility of Chemist: PelnY Hsiao/ Vita Fu

Date Sample Received : Jan 16, 2018
Test Period : Jan 16, 2018 to Jan 24, 2018

RoHS Limit

<u>Restricted Substances</u>	<u>Limits</u>
Cadmium (Cd) content	0.01% (100ppm)
Lead (Pb) content	0.1% (1000ppm)
Mercury (Hg) content	0.1% (1000ppm)
Chromium VI (Cr ⁶⁺) content	0.1% (1000ppm)
Polybrominated Biphenyls (PBBs)	0.1% (1000ppm)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000ppm)
Di(2-ethylhexyl) Phthalate (DEHP)	0.1% (1000ppm)
Dibutyl Phthalate (DBP)	0.1% (1000ppm)
Benzyl Butyl Phthalate (BBP)	0.1% (1000ppm)
Diisobutyl Phthalate (DIBP)	0.1% (1000ppm)

The limits were quoted from Annex II of 2011/65/EU and Amendment (EU) 2015/863 for homogeneous material.

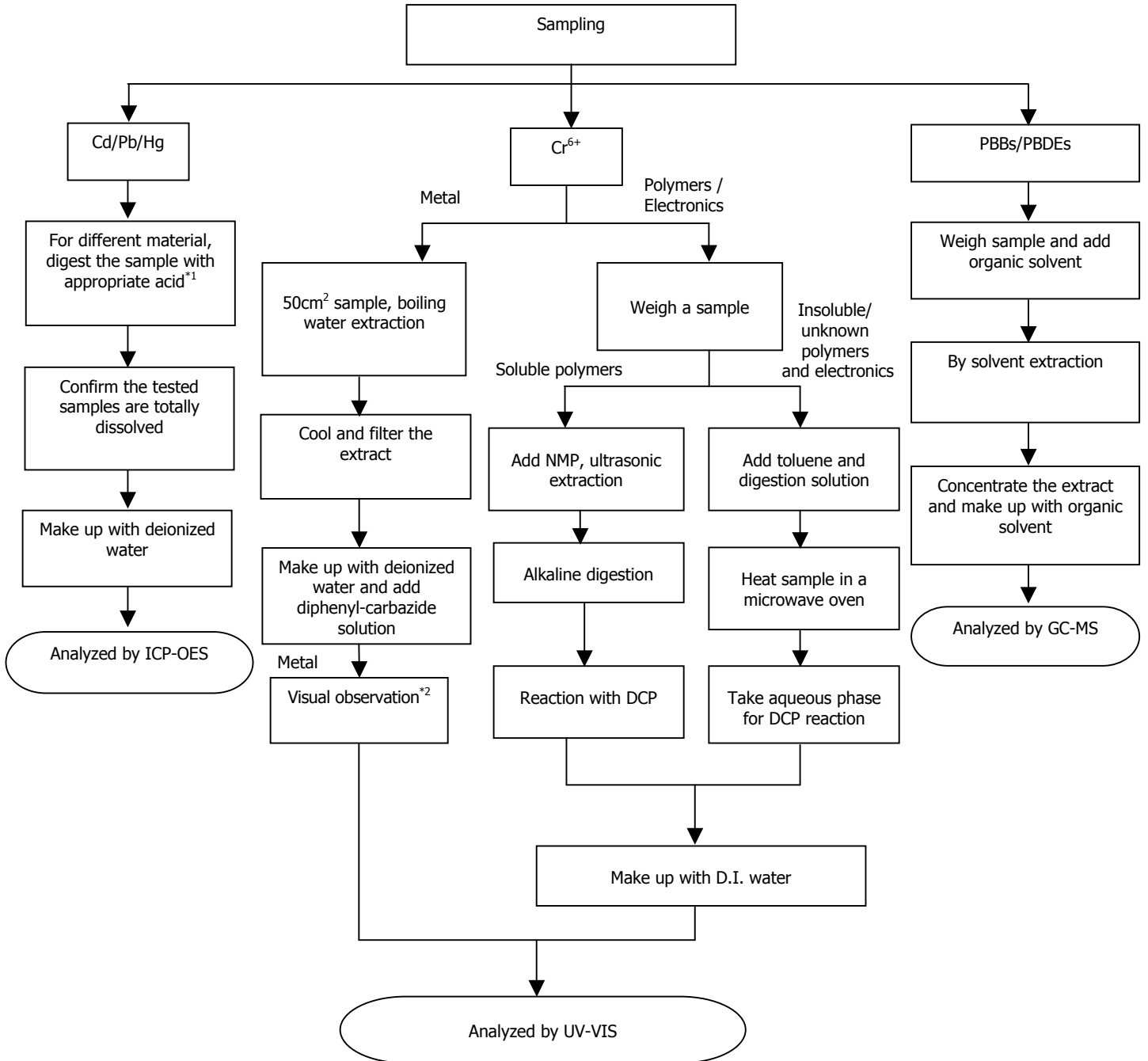


Test Conducted :

Measurement Flowchart:

Test for Cd/Pb/Hg/Chromium (VI)/PBBs/PBDEs Content

Reference Standard : Cd/Pb: IEC 62321-5:2013; Hg: IEC 62321-4:2013+AMD1:2017;
 Chromium (VI): IEC 62321-7-1:2015 (boiling water extraction);
 Chromium (VI): IEC 62321-7-2:2017 (solvent and alkaline extraction);
 PBBs/PBDEs: IEC 62321-6:2015



Test Conducted :

Remarks:

*1: List of Appropriate Acid :

Material	Acid Added for Digestion
Polymers	HNO ₃ , HCl, HF, H ₂ O ₂ , H ₃ BO ₃
Metals	HNO ₃ , HCl, HF
Electronics	HNO ₃ , HCl, H ₂ O ₂ , HBF ₄

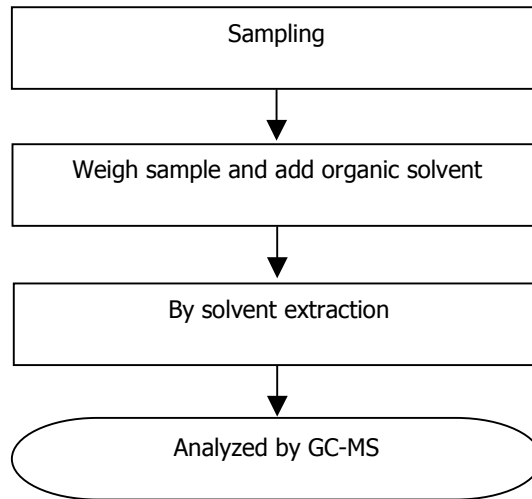
*2: If sample solution is significantly more intense than 0.13 µg/cm² equivalent comparison standard, Chromium VI would be determined as detected, the result of visual observation is positive.



Test Conducted :

Measurement Flowchart:

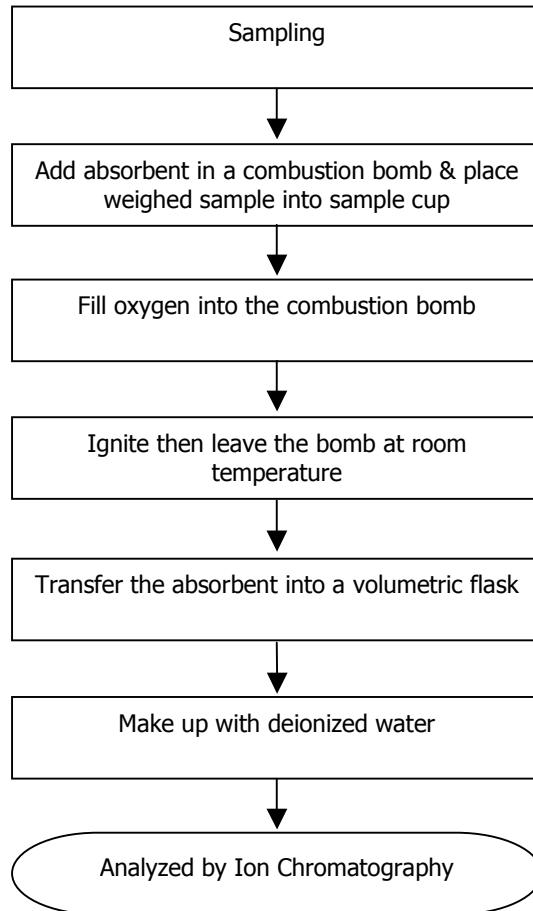
Test for Phthalates Content
Reference Method: IEC 62321-8:2017

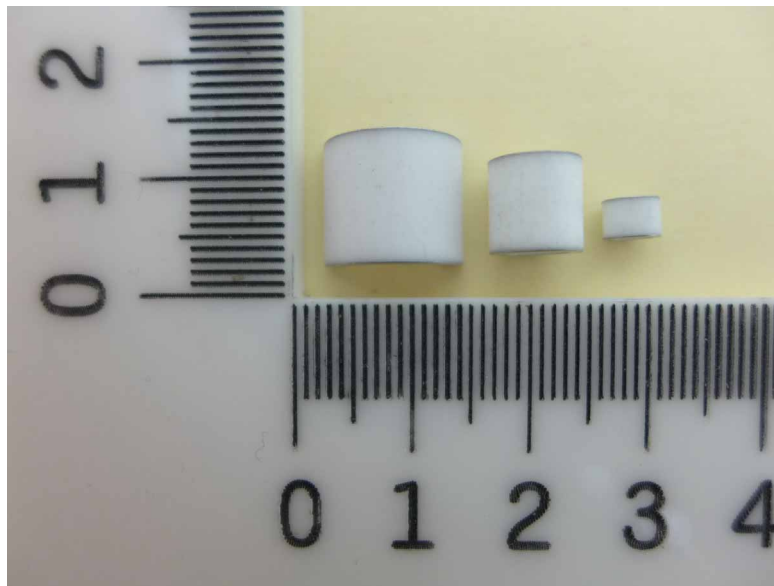
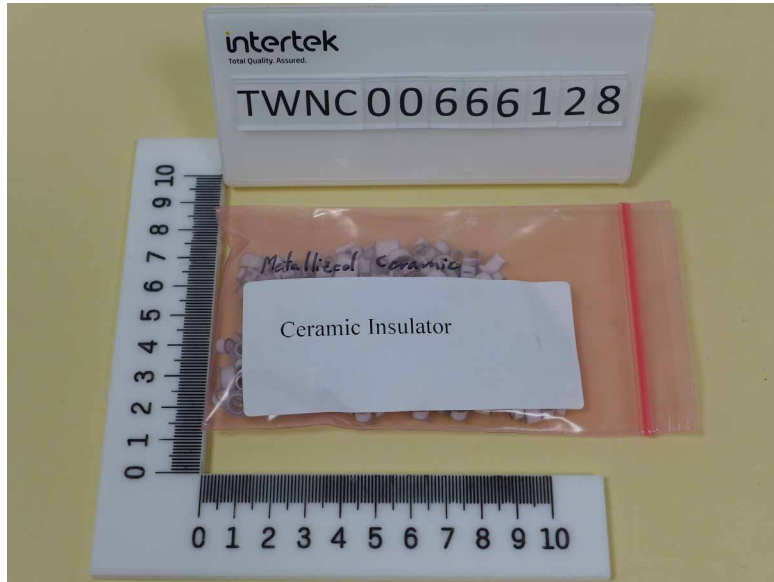


Test Conducted :

Measurement Flowchart:

Test for Halogen Content
Reference Standard : EN 14582





End of Report

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Test Report

Applicant: Trimpot Electronicas Ltda
Del Cruce a San Antonio de Belen
Autopista Canas-150 Mts Al Oeste,
Costa Rica.

Number : TWNC00666126

Date : Jan 29, 2018

Sample Description:

One (1) group of submitted samples said to be:
Sample Description : Tin Plated Copper Electrodes
Style / Item No. : Copper Electrodes
Date Sample Received : Jan 16, 2018
Date Test Started : Jan 16, 2018

Test Conducted:

As requested by the applicant, for details please refer to attached pages.

Authorized by:
On Behalf of Intertek Testing Services
Taiwan Limited



Matt Wang
Sr. Manager



Test Conducted :

Test Result Summary:

Test Item	Unit	Test Method	Result	RL
			Silvery metal	
Heavy Metal				
Cadmium (Cd) Content	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES.	ND	2
Lead (Pb) Content	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES.	ND	2
Mercury (Hg) Content	ppm	With reference to IEC 62321-4:2013+AMD1:2017, by microwave or acid digestion and determined by ICP-OES.	ND	2
Chromium VI (Cr ⁶⁺) Content @	µg/ cm ²	With reference to IEC 62321-7-1: 2015, by boiling water extraction and determined by UV-Vis Spectrophotometer or visual observation.	Negative	0.10
Polybrominated Biphenyls (PBBs)				
Monobrominated Biphenyls (MonoBB)	ppm	With reference to IEC 62321-6: 2015, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary.	ND	5
Dibrominated Biphenyls (DiBB)	ppm		ND	5
Tribrominated Biphenyls (TriBB)	ppm		ND	5
Tetrabrominated Biphenyls (TetraBB)	ppm		ND	5
Pentabrominated Biphenyls (PentaBB)	ppm		ND	5
Hexabrominated Biphenyls (HexaBB)	ppm		ND	5
Heptabrominated Biphenyls (HeptaBB)	ppm		ND	5
Octabrominated Biphenyls (OctaBB)	ppm		ND	5
Nonabrominated Biphenyls (NonaBB)	ppm		ND	5
Decabrominated Biphenyl (DecaBB)	ppm		ND	5



Test Conducted :

Test Item	Unit	Test Method	Result	RL
			Silvery metal	
Polybrominated Diphenyl Ethers (PBDEs)				
Monobrominated Diphenyl Ethers (MonoBDE)	ppm	With reference to IEC 62321-6: 2015, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary.	ND	5
Dibrominated Diphenyl Ethers (DiBDE)	ppm		ND	5
Tribrominated Diphenyl Ethers (TriBDE)	ppm		ND	5
Tetrabrominated Diphenyl Ethers (TetraBDE)	ppm		ND	5
Pentabrominated Diphenyl Ethers (PentaBDE)	ppm		ND	5
Hexabrominated Diphenyl Ethers (HexaBDE)	ppm		ND	5
Heptabrominated Diphenyl Ethers (HeptaBDE)	ppm		ND	5
Octabrominated Diphenyl Ethers (OctaBDE)	ppm		ND	5
Nonabrominated Diphenyl Ethers (NonaBDE)	ppm		ND	5
Decabrominated Diphenyl Ether (DecaBDE)	ppm		ND	5
Phthalates				
Di(2-ethylhexyl) Phthalate (DEHP)	ppm	With reference to IEC 62321-8:2017, by solvent extraction and determined by GC-MS.	ND	50
Dibutyl Phthalate (DBP)	ppm		ND	50
Benzyl Butyl Phthalate (BBP)	ppm		ND	50
Diisobutyl Phthalate (DIBP)	ppm		ND	50
Halogen Content				
Fluorine (F)	ppm	With reference to EN 14582:2016 by combustion bomb with oxygen and determined by Ion Chromatography.	ND	50
Chlorine (Cl)	ppm		ND	50
Bromine (Br)	ppm		ND	50
Iodine (I)	ppm		ND	50

Remarks: ppm = Parts per million based on weight of tested sample = mg/kg
 ND = Not detected
 RL = Reporting limit, quantitation limit of analyte in sample



Test Conducted :

@ The explanation of Chromium VI (Cr⁶⁺) analysis results

Colorimetric result	Qualitative Result	Explanation
< 0.10 µg/cm ²	Negative	The result of sample is negative for Cr(VI). The sample coating is considered a non-Cr(VI) based coating.
≥ 0.10 µg/cm ² and ≤ 0.13 µg/cm ²	Inconclusive	The result of sample is considered to be inconclusive. If addition samples are available, recommend to add trials and get the average result for the final determination.
> 0.13 µg/cm ²	Positive	The result of sample is positive for Cr(VI). The sample coating is considered to contain Cr(VI). A result expresses as Positive, while not an actual value, which indicates a visual observation was used.

Responsibility of Chemist: Pelny Hsiao/ Vita Fu

Date Sample Received : Jan 16, 2018
 Test Period : Jan 16, 2018 to Jan 24, 2018

RoHS Limit

Restricted Substances	Limits
Cadmium (Cd) content	0.01% (100ppm)
Lead (Pb) content	0.1% (1000ppm)
Mercury (Hg) content	0.1% (1000ppm)
Chromium VI (Cr ⁶⁺) content	0.1% (1000ppm)
Polybrominated Biphenyls (PBBs)	0.1% (1000ppm)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000ppm)
Di(2-ethylhexyl) Phthalate (DEHP)	0.1% (1000ppm)
Dibutyl Phthalate (DBP)	0.1% (1000ppm)
Benzyl Butyl Phthalate (BBP)	0.1% (1000ppm)
Diisobutyl Phthalate (DIBP)	0.1% (1000ppm)

The limits were quoted from Annex II of 2011/65/EU and Amendment (EU) 2015/863 for homogeneous material.



Test Conducted :

Measurement Flowchart:

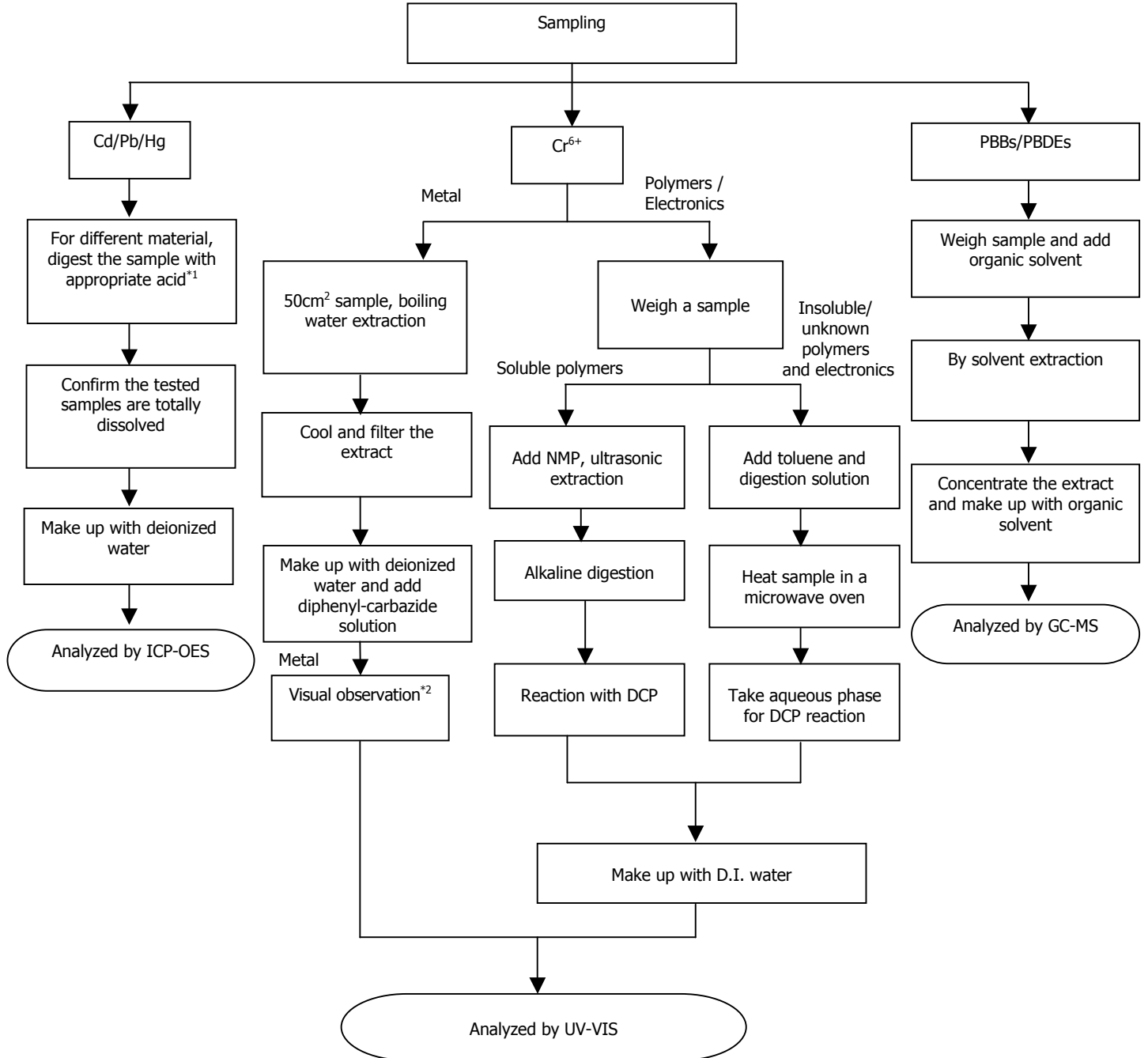
Test for Cd/Pb/Hg/Chromium (VI)/PBBs/PBDEs Content

Reference Standard : Cd/Pb: IEC 62321-5:2013; Hg: IEC 62321-4:2013+AMD1:2017;

Chromium (VI): IEC 62321-7-1:2015 (boiling water extraction);

Chromium (VI): IEC 62321-7-2:2017 (solvent and alkaline extraction);

PBBs/PBDEs: IEC 62321-6:2015



Test Conducted :

Remarks:

*1: List of Appropriate Acid :

Material	Acid Added for Digestion
Polymers	HNO ₃ , HCl, HF, H ₂ O ₂ , H ₃ BO ₃
Metals	HNO ₃ , HCl, HF
Electronics	HNO ₃ , HCl, H ₂ O ₂ , HBF ₄

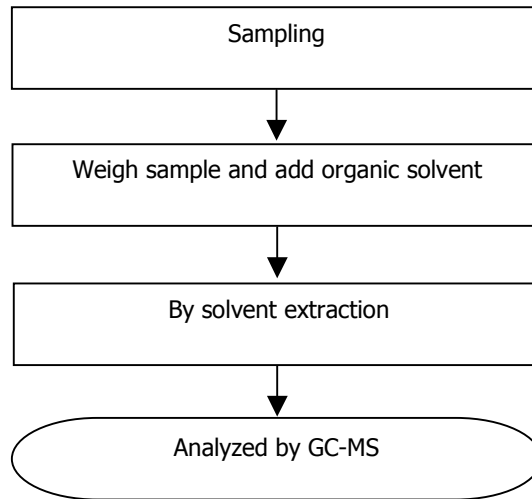
*2: If sample solution is significantly more intense than 0.13 µg/cm² equivalent comparison standard, Chromium VI would be determined as detected, the result of visual observation is positive.



Test Conducted :

Measurement Flowchart:

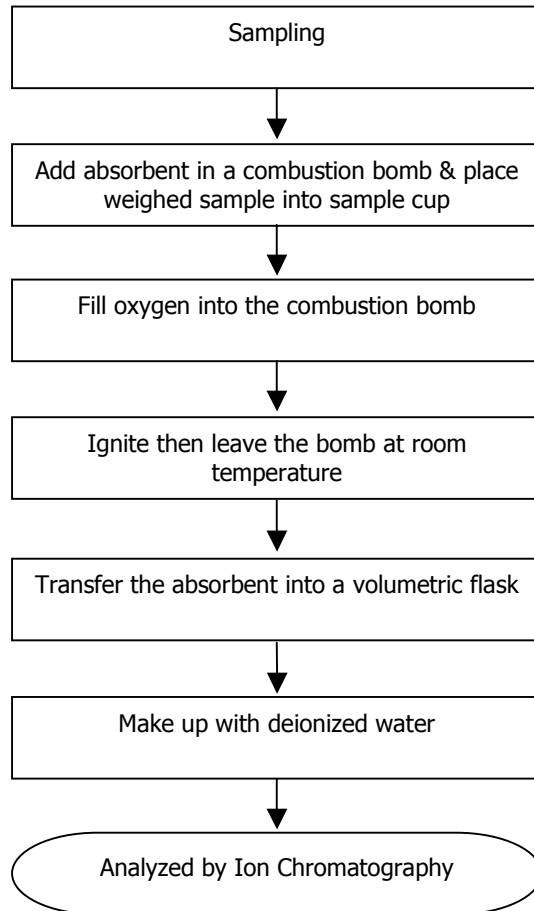
Test for Phthalates Content
Reference Method: IEC 62321-8:2017



Test Conducted :

Measurement Flowchart:

Test for Halogen Content
Reference Standard : EN 14582





End of Report

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Test Report

Applicant: Trimpot Electronics Ltda
Del Cruce a San Antonio de Belen
Autopista Canas-150 Mts Al Oeste,
Costa Rica.

Number : TWNC00666127

Date : Jan 29, 2018

Sample Description:

One (1) group of submitted samples said to be:

Sample Description : CuSil Washer

Style / Item No. : Washer

Date Sample Received : Jan 16, 2018

Date Test Started : Jan 16, 2018

Test Conducted:

As requested by the applicant, for details please refer to attached pages.

Authorized by:
On Behalf of Intertek Testing Services
Taiwan Limited



A handwritten signature in black ink, appearing to read "Matt Wang".

Matt Wang
Sr. Manager



Test Conducted :

Test Result Summary:

Test Item	Unit	Test Method	Result	RL
			Silvery metal	
Heavy Metal				
Cadmium (Cd) Content	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES.	ND	2
Lead (Pb) Content	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES.	ND	2
Mercury (Hg) Content	ppm	With reference to IEC 62321-4:2013+AMD1:2017, by microwave or acid digestion and determined by ICP-OES.	ND	2
Chromium VI (Cr ⁶⁺) Content @	µg/ cm ²	With reference to IEC 62321-7-1: 2015, by boiling water extraction and determined by UV-Vis Spectrophotometer or visual observation.	Negative	0.10
Polybrominated Biphenyls (PBBs)				
Monobrominated Biphenyls (MonoBB)	ppm	With reference to IEC 62321-6: 2015, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary.	ND	5
Dibrominated Biphenyls (DiBB)	ppm		ND	5
Tribrominated Biphenyls (TriBB)	ppm		ND	5
Tetrabrominated Biphenyls (TetraBB)	ppm		ND	5
Pentabrominated Biphenyls (PentaBB)	ppm		ND	5
Hexabrominated Biphenyls (HexaBB)	ppm		ND	5
Heptabrominated Biphenyls (HeptaBB)	ppm		ND	5
Octabrominated Biphenyls (OctaBB)	ppm		ND	5
Nonabrominated Biphenyls (NonaBB)	ppm		ND	5
Decabrominated Biphenyl (DecaBB)	ppm		ND	5



Test Conducted :

Test Item	Unit	Test Method	Result	RL
			Silvery metal	
Polybrominated Diphenyl Ethers (PBDEs)				
Monobrominated Diphenyl Ethers (MonoBDE)	ppm	With reference to IEC 62321-6: 2015, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary.	ND	5
Dibrominated Diphenyl Ethers (DiBDE)	ppm		ND	5
Tribrominated Diphenyl Ethers (TriBDE)	ppm		ND	5
Tetrabrominated Diphenyl Ethers (TetraBDE)	ppm		ND	5
Pentabrominated Diphenyl Ethers (PentaBDE)	ppm		ND	5
Hexabrominated Diphenyl Ethers (HexaBDE)	ppm		ND	5
Heptabrominated Diphenyl Ethers (HeptaBDE)	ppm		ND	5
Octabrominated Diphenyl Ethers (OctaBDE)	ppm		ND	5
Nonabrominated Diphenyl Ethers (NonaBDE)	ppm		ND	5
Decabrominated Diphenyl Ether (DecaBDE)	ppm		ND	5
Phthalates				
Di(2-ethylhexyl) Phthalate (DEHP)	ppm	With reference to IEC 62321-8:2017, by solvent extraction and determined by GC-MS.	ND	50
Dibutyl Phthalate (DBP)	ppm		ND	50
Benzyl Butyl Phthalate (BBP)	ppm		ND	50
Diisobutyl Phthalate (DIBP)	ppm		ND	50
Halogen Content				
Fluorine (F)	ppm	With reference to EN 14582:2016 by combustion bomb with oxygen and determined by Ion Chromatography.	ND	50
Chlorine (Cl)	ppm		ND	50
Bromine (Br)	ppm		ND	50
Iodine (I)	ppm		ND	50

Remarks: ppm = Parts per million based on weight of tested sample = mg/kg
 ND = Not detected
 RL = Reporting limit, quantitation limit of analyte in sample



Test Conducted :

@ The explanation of Chromium VI (Cr⁶⁺) analysis results

Colorimetric result	Qualitative Result	Explanation
< 0.10 µg/cm ²	Negative	The result of sample is negative for Cr(VI). The sample coating is considered a non-Cr(VI) based coating.
≥ 0.10 µg/cm ² and ≤ 0.13 µg/cm ²	Inconclusive	The result of sample is considered to be inconclusive. If addition samples are available, recommend to add trials and get the average result for the final determination.
> 0.13 µg/cm ²	Positive	The result of sample is positive for Cr(VI). The sample coating is considered to contain Cr(VI). A result expresses as Positive, while not an actual value, which indicates a visual observation was used.

Responsibility of Chemist: Pelny Hsiao/ Vita Fu

Date Sample Received : Jan 16, 2018
 Test Period : Jan 16, 2018 to Jan 24, 2018

RoHS Limit

Restricted Substances	Limits
Cadmium (Cd) content	0.01% (100ppm)
Lead (Pb) content	0.1% (1000ppm)
Mercury (Hg) content	0.1% (1000ppm)
Chromium VI (Cr ⁶⁺) content	0.1% (1000ppm)
Polybrominated Biphenyls (PBBs)	0.1% (1000ppm)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000ppm)
Di(2-ethylhexyl) Phthalate (DEHP)	0.1% (1000ppm)
Dibutyl Phthalate (DBP)	0.1% (1000ppm)
Benzyl Butyl Phthalate (BBP)	0.1% (1000ppm)
Diisobutyl Phthalate (DIBP)	0.1% (1000ppm)

The limits were quoted from Annex II of 2011/65/EU and Amendment (EU) 2015/863 for homogeneous material.



Test Conducted :

Measurement Flowchart:

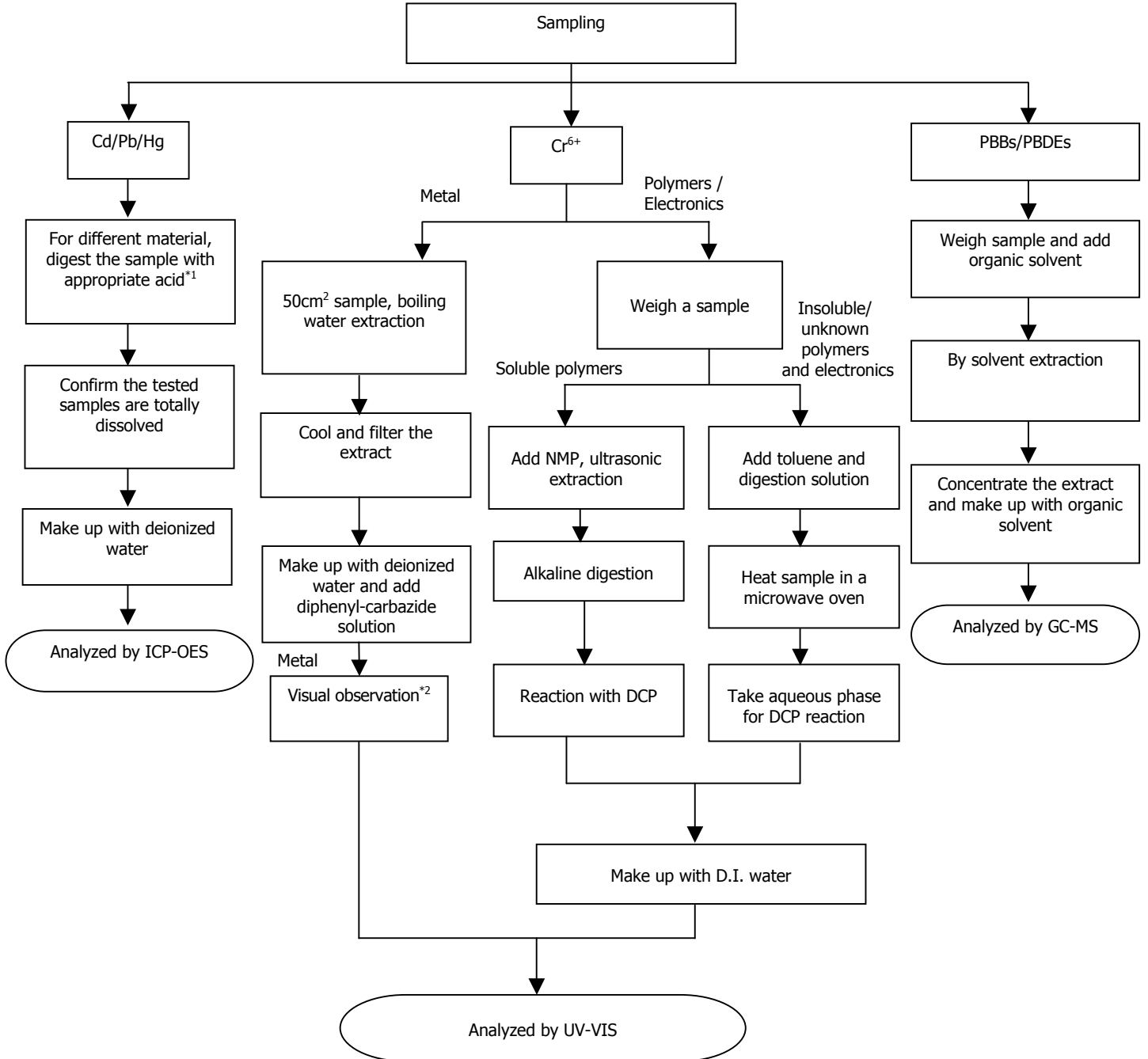
Test for Cd/Pb/Hg/Chromium (VI)/PBBs/PBDEs Content

Reference Standard : Cd/Pb: IEC 62321-5:2013; Hg: IEC 62321-4:2013+AMD1:2017;

Chromium (VI): IEC 62321-7-1:2015 (boiling water extraction);

Chromium (VI): IEC 62321-7-2:2017 (solvent and alkaline extraction);

PBBs/PBDEs: IEC 62321-6:2015



Test Conducted :

Remarks:

*1: List of Appropriate Acid :

Material	Acid Added for Digestion
Polymers	HNO ₃ , HCl, HF, H ₂ O ₂ , H ₃ BO ₃
Metals	HNO ₃ , HCl, HF
Electronics	HNO ₃ , HCl, H ₂ O ₂ , HBF ₄

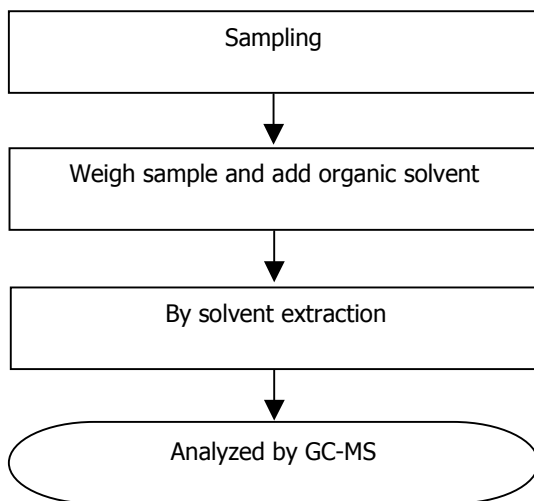
*2: If sample solution is significantly more intense than 0.13 µg/cm² equivalent comparison standard, Chromium VI would be determined as detected, the result of visual observation is positive.



Test Conducted :

Measurement Flowchart:

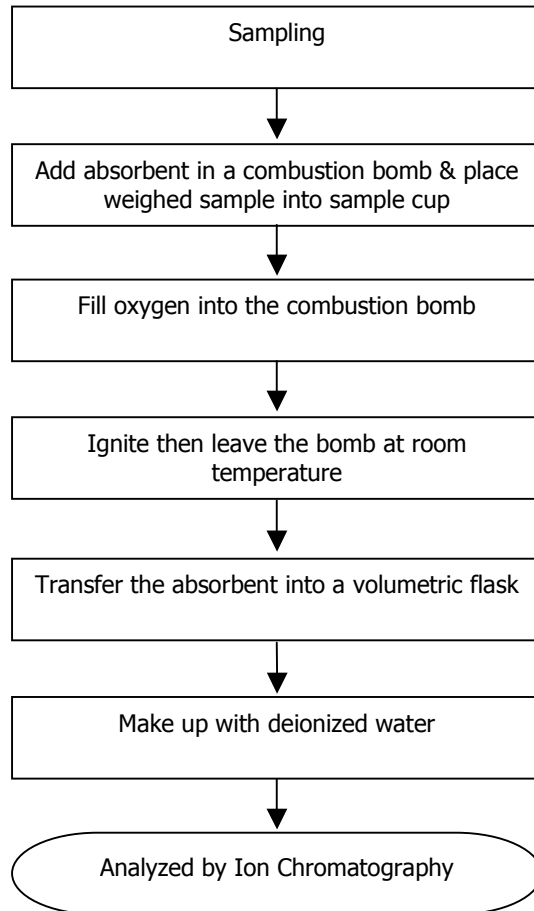
Test for Phthalates Content
Reference Method: IEC 62321-8:2017

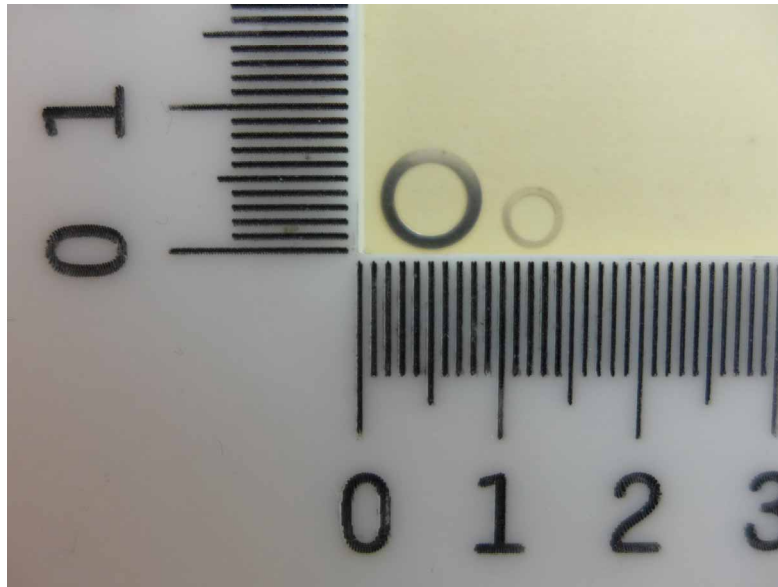


Test Conducted :

Measurement Flowchart:

Test for Halogen Content
Reference Standard : EN 14582





End of Report

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Test Report

Applicant: Trimpot Electronicas Ltda
Del Cruce a San Antonio de Belen
Autopista Canas-150 Mts Al Oeste,
Costa Rica.

Number : TWNC00666119

Date : Jan 29, 2018

Sample Description:

One (1) group of submitted samples said to be :

Sample Description : Green Ink

Style / Item No. : Ink

Date Sample Received : Jan 16, 2018

Date Test Started : Jan 16, 2018

Test Conducted :

As requested by the applicant, for details please refer to attached pages.

Authorized by:
On Behalf of Intertek Testing Services
Taiwan Limited



A handwritten signature in black ink, appearing to read "Matt Wang".

Matt Wang
Sr. Manager



Test Conducted :

Test Result Summary:

Test Item	Unit	Test Method	Result	RL
			Submitted samples	
Heavy Metal				
Cadmium (Cd) Content	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES.	ND	2
Lead (Pb) Content	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES.	ND	2
Mercury (Hg) Content	ppm	With reference to IEC 62321-4:2013+AMD1:2017, by microwave or acid digestion and determined by ICP-OES.	ND	2
Chromium VI (Cr ⁶⁺) Content	ppm	With reference to IEC 62321-7-2: 2017, organic solvent was used to dissolve or swell sample matrix, followed by alkaline digestion and determined by UV-Vis Spectrophotometer.	ND	8
Polybrominated Biphenyls (PBBs)				
Monobrominated Biphenyls (MonoBB)	ppm	With reference to IEC 62321-6: 2015, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary.	ND	5
Dibrominated Biphenyls (DiBB)	ppm		ND	5
Tribrominated Biphenyls (TriBB)	ppm		ND	5
Tetrabrominated Biphenyls (TetraBB)	ppm		ND	5
Pentabrominated Biphenyls (PentaBB)	ppm		ND	5
Hexabrominated Biphenyls (HexaBB)	ppm		ND	5
Heptabrominated Biphenyls (HeptaBB)	ppm		ND	5
Octabrominated Biphenyls (OctaBB)	ppm		ND	5
Nonabrominated Biphenyls (NonaBB)	ppm		ND	5
Decabrominated Biphenyl (DecaBB)	ppm		ND	5



Test Conducted :

Test Item	Unit	Test Method	Result	RL
			Submitted samples	
Polybrominated Diphenyl Ethers (PBDEs)				
Monobrominated Diphenyl Ethers (MonoBDE)	ppm	With reference to IEC 62321-6: 2015, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary.	ND	5
Dibrominated Diphenyl Ethers (DiBDE)	ppm		ND	5
Tribrominated Diphenyl Ethers (TriBDE)	ppm		ND	5
Tetrabrominated Diphenyl Ethers (TetraBDE)	ppm		ND	5
Pentabrominated Diphenyl Ethers (PentaBDE)	ppm		ND	5
Hexabrominated Diphenyl Ethers (HexaBDE)	ppm		ND	5
Heptabrominated Diphenyl Ethers (HeptaBDE)	ppm		ND	5
Octabrominated Diphenyl Ethers (OctaBDE)	ppm		ND	5
Nonabrominated Diphenyl Ethers (NonaBDE)	ppm		ND	5
Decabrominated Diphenyl Ether (DecaBDE)	ppm		ND	5
Phthalates				
Di(2-ethylhexyl) Phthalate (DEHP)	ppm	With reference to IEC 62321-8:2017, by solvent extraction and determined by GC-MS.	ND	50
Dibutyl Phthalate (DBP)	ppm		ND	50
Benzyl Butyl Phthalate (BBP)	ppm		ND	50
Diisobutyl Phthalate (DIBP)	ppm		ND	50
Halogen Content				
Fluorine (F)	ppm	With reference to EN 14582:2016 by combustion bomb with oxygen and determined by Ion Chromatography.	ND	50
Chlorine (Cl)	ppm		38137	50
Bromine (Br)	ppm		35948	50
Iodine (I)	ppm		ND	50

Remarks: ppm = Parts per million based on wet weight of tested sample = mg/kg
 ND = Not detected
 RL = Reporting limit, quantitation limit of analyte in sample

Responsibility of Chemist: Pely Hsiao/ Vita Fu

Date Sample Received : Jan 16, 2018
 Test Period : Jan 16, 2018 to Jan 24, 2018



Test Conducted :

RoHS Limit

<u>Restricted Substances</u>	<u>Limits</u>
Cadmium (Cd) content	0.01% (100ppm)
Lead (Pb) content	0.1% (1000ppm)
Mercury (Hg) content	0.1% (1000ppm)
Chromium VI (Cr ⁶⁺) content	0.1% (1000ppm)
Polybrominated Biphenyls (PBBs)	0.1% (1000ppm)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000ppm)
Di(2-ethylhexyl) Phthalate (DEHP)	0.1% (1000ppm)
Dibutyl Phthalate (DBP)	0.1% (1000ppm)
Benzyl Butyl Phthalate (BBP)	0.1% (1000ppm)
Diisobutyl Phthalate (DIBP)	0.1% (1000ppm)

The limits were quoted from Annex II of 2011/65/EU and Amendment (EU) 2015/863 for homogeneous material.



Test Conducted :

Measurement Flowchart:

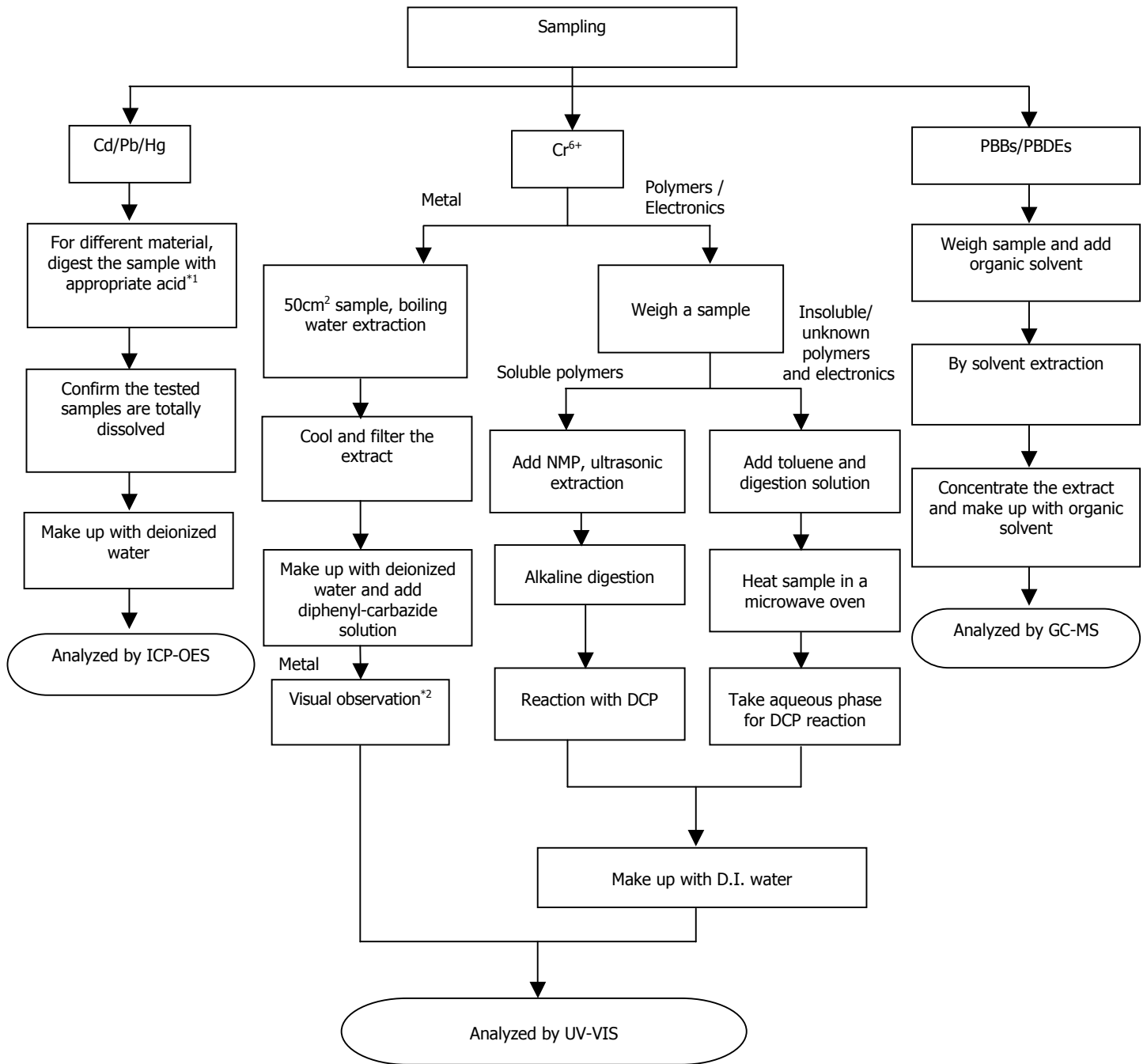
Test for Cd/Pb/Hg/Chromium (VI)/PBBs/PBDEs Content

Reference Standard : Cd/Pb: IEC 62321-5:2013; Hg: IEC 62321-4:2013+AMD1:2017;

Chromium (VI): IEC 62321-7-1:2015 (boiling water extraction);

Chromium (VI): IEC 62321-7-2:2017 (solvent and alkaline extraction);

PBBs/PBDEs: IEC 62321-6:2015



Test Conducted :

Remarks:

*1: List of Appropriate Acid :

Material	Acid Added for Digestion
Polymers	HNO ₃ , HCl, HF, H ₂ O ₂ , H ₃ BO ₃
Metals	HNO ₃ , HCl, HF
Electronics	HNO ₃ , HCl, H ₂ O ₂ , HBF ₄

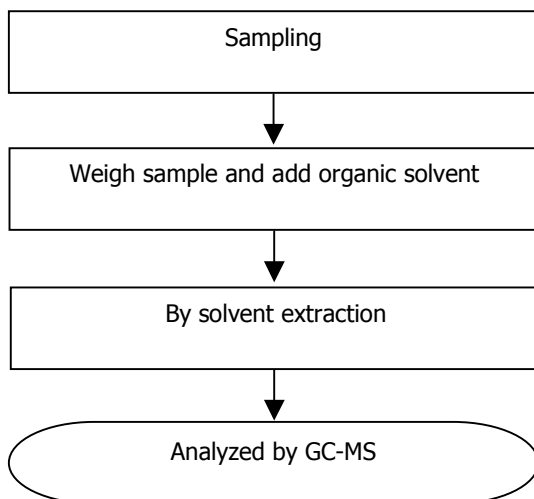
*2: If sample solution is significantly more intense than 0.13 µg/cm² equivalent comparison standard, Chromium VI would be determined as detected, the result of visual observation is positive.



Test Conducted :

Measurement Flowchart:

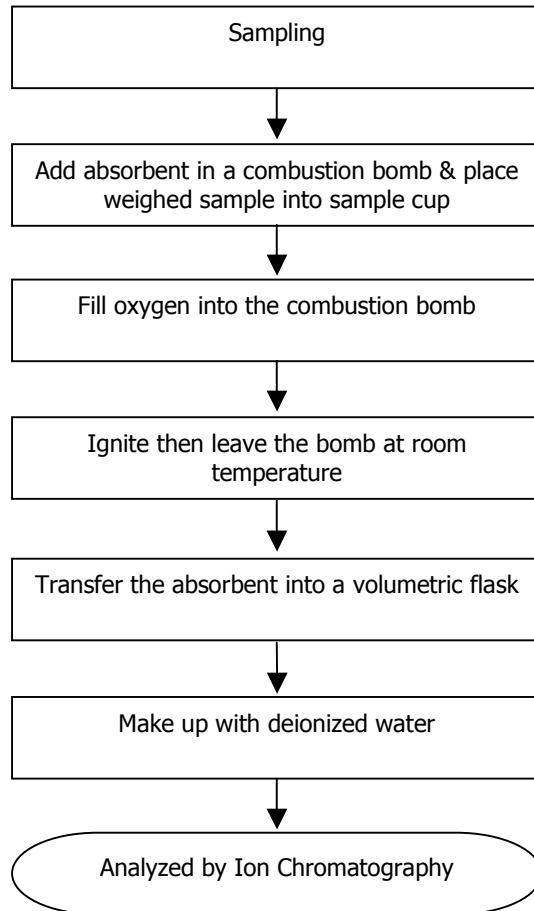
Test for Phthalates Content
Reference Method: IEC 62321-8:2017



Test Conducted :

Measurement Flowchart:

Test for Halogen Content
Reference Standard : EN 14582





End of Report

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