(No.): ETR24301206 (Date): 15-Mar-2024 (Page): 1 of 23

Test Report

(EVERLIGHT ELECTRONICS CO., LTD.)
6-8 (NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN)

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

BASIC INFORMATION	
Type of Product	PHOTO COUPLER
Supplier Company Name	EVERLIGHT
Address	NO.6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN
Tel / Fax / Email	TEL:886-2685-6688
	FAX:886-2685-6699
	E-MAIL: lindawang@everlight.com
Contact Person	LI LING WANG
EVERLIGHT REPORT NO	PHOTO COUPLER SOP (SMD) SERIES EL04XX-G, EL05XX-G, EL06XX-G, EL07XX-G ,EL08XL, EL10XX-G, EL11XX-G, EL121N-G, EL2XX,ELD2XX, EL35XN-G, EL3HX-G, ELD3HX-G, ELQ3HX-G, EL45X-G, ELM3XX, ELM4XX, ELM4XXL,ELM4XXH-G, ELM6XX, ELM6XXH-G, ELM7XX-G, ELM30XX-G, ELM4XXA, ELM4XXAX-G , ELM6XXA, ELM8XXA, ELS4XX-G, ELS5XX-G, ELS5XXH-G, ELS6XX-G, ELS6XXH-G, ELS31XX-G, EV35XNU-G, EL35XNU-G, EV3HXU-G, EL3HXU-G, EV101U-G, EL101U-G, EL101XH-G, EV35XNH-G, EL35XNH-G , EV3HXH-G, EL3HXH-G ,EV101XH-G, EL57XX-G, EL57XXH-G, ELC35XN, ELC3HX, ELC101X, ELM31XX-G, EL27XX-G, EL6XXX-G, ELMXK-G, ELXK-G, ELMLXK-G, ELXHK-G SERIES Sampling Product : EL3H7(C)(TA)(EE-R)-VG -SGS-15-Mar-2024
PRODUCT INFORMATION	
Product/component Sample description	Isolation unit
Quantity (numbers or weight)	0.0535 g
EVERLIGHT P/N	PHOTO COUPLER SOP (SMD) SERIES EL04XX-G, EL05XX-G, EL06XX-G, EL07XX-G ,EL08XL, EL10XX-G, EL11XX-G, EL121N-G, EL2XX,ELD2XX, EL35XN-G, EL3HX-G, ELD3HX-G, ELQ3HX-G, EL45X-G, ELM3XX, ELM4XX, ELM4XXL,ELM4XXH-G, ELM6XX, ELM6XXH-G, ELM7XX-G, ELM30XX-G, ELM4XXA, ELM4XXAX-G , ELM6XXA, ELM8XXA, ELS4XX-G, ELS5XX-G, ELS5XXH-G, ELS6XX-G, ELS6XXH-G, ELS31XX-G, EV35XNU-G, EL35XNU-G, EV3HXU-G, EL3HXU-G, EV101U-G, EL101U-G, EL101XH-G, EV35XNH-G, EL35XNH-G , EV3HXH-G, EL3HXH-G ,EV101XH-G, EL57XX-G, EL57XXH-G, ELC35XN, ELC3HX, ELC101X, ELM31XX-G, EL27XX-G, EL6XXX-G, ELMXK-G, ELXK-G, ELMLXK-G, ELXHK-G SERIES Sampling Product : EL3H7(C)(TA)(EE-R)-VG
Product Lot No	1H-012327-VG
Country of Origin	China
TEST INFORMATION	
Sample preparation	CUTTING
Test Method	RoHS: IEC 62321, Halogen: BS EN 14582
MDL	Cd, Pb, Hg: 2 mg/kg, PBBs/PBDEs: 5 mg/kg, Halogen: 50 mg/kg

(Sample Submitted By) : (EVERLIGHT ELECTRONICS CO., LTD.)

(Sample Receiving Date) : 06-Mar-2024
(Testing Period) : 06-Mar-2024 to 15-Mar-2024
(Test Results) : (Please refer to following pages).

[redacted]

CHECK REPORT
PIN CODE: 4BDF2316

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(Test Requested) : (1) RoHS 2011/65/EU Annex II (EU) 2015/863 , DBP, BBP, DEHP, DIBP (As specified by client, with reference to RoHS 2011/65/EU Annex II and amending Directive (EU) 2015/863 to determine Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP contents in the submitted sample(s).)

(2) PAHs (As specified by client, to test PAHs and other item(s).)

(Conclusion) : (1) , DBP, BBP, DEHP, DIBP RoHS 2011/65/EU Annex II (EU) 2015/863 (Based on the performed tests on submitted sample(s), the test results of Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.)

(2) (AfPS) GS PAHs 3 (Based upon the performed tests on the submitted sample(s), the test results of PAHs (15 items) comply with the limits of PAHs requirement (Category 3) Other consumer products as set by German Committee on Product Safety (AfPS) GS PAHs.)

(Test Part Description)

No.1 : (BODY)
No.2 : (PLATING LAYER OF SILVER COLORED METAL PIN)
No.3 : (BASE MATERIAL OF SILVER COLORED METAL PIN)
No.4 : ( ) (SILVER COLORED METAL PIN (INCLUDING THE PLATING LAYER))

(Test Results)

(Test Items)	(Method)	(Unit)	MDL	(Result)			(Limit)
				No.1	No.2	No.3	
(Cd) (Cadmium (Cd))	IEC 62321-5: 2013 (With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.)	mg/kg	2	n.d.	---	---	100
(Pb) (Lead (Pb))		mg/kg	2	n.d.	---	---	1000

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	(Method)	(Unit)	MDL	No.1	No.2	No.3	(Limit)
(Hg) (Mercury (Hg))	IEC 62321-4: 2013+ AMD1: 2017 (With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES.)	mg/kg	2	n.d.	---	---	1000
Cr(VI) (Hexavalent Chromium Cr(VI))	IEC 62321-7-2: 2017 - (With reference to IEC 62321-7-2: 2017, analysis was performed by UV-VIS.)	mg/kg	8	n.d.	---	---	1000
		mg/kg	5	n.d.	---	---	-
(Dibromobiphenyl)		mg/kg	5	n.d.	---	---	-
(Tribromobiphenyl)		mg/kg	5	n.d.	---	---	-
		mg/kg	5	n.d.	---	---	-
(Pentabromobiphenyl)		mg/kg	5	n.d.	---	---	-
(Hexabromobiphenyl)		mg/kg	5	n.d.	---	---	-
		mg/kg	5	n.d.	---	---	-
		mg/kg	5	n.d.	---	---	-
		mg/kg	5	n.d.	---	---	-
		mg/kg	5	n.d.	---	---	-
		mg/kg	-	n.d.	---	---	1000
(Monobromodiphenyl ether)		mg/kg	5	n.d.	---	---	-
(Dibromodiphenyl ether)		mg/kg	5	n.d.	---	---	-
		mg/kg	5	n.d.	---	---	-
(Tetrabromodiphenyl ether)		mg/kg	5	n.d.	---	---	-
(Pentabromodiphenyl ether)		mg/kg	5	n.d.	---	---	-
(Hexabromodiphenyl ether)		mg/kg	5	n.d.	---	---	-
		mg/kg	5	n.d.	---	---	-
(Octabromodiphenyl ether)		mg/kg	5	n.d.	---	---	-
(Nonabromodiphenyl ether)		mg/kg	5	n.d.	---	---	-
(Decabromodiphenyl ether)		mg/kg	5	n.d.	---	---	-
(Sum of PBDEs)		mg/kg	-	n.d.	---	---	1000

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(Test Items)	(Method)	(Unit)	MDL	(Result) No.1	No.2	No.3	(Limit)
		mg/kg	50	n.d.	---	---	1000
(DBP) (Dibutyl phthalate (DBP))		mg/kg	50	n.d.	---	---	1000
(2-) (DEHP) (Di-(2-ethylhexyl) phthalate (DEHP))		mg/kg	50	n.d.	---	---	1000
(DIBP) (Diisobutyl phthalate (DIBP))		mg/kg	50	n.d.	---	---	1000
(DIDP) (Diisodecyl phthalate (DIDP)) (CAS No.: 26761-40-0, 68515-49-1)		mg/kg	50	n.d.	---	---	-
(DINP) (Diisononyl phthalate (DINP)) (CAS No.: 28553-12-0, 68515-48-0)		mg/kg	50	n.d.	---	---	-
(DNOP) (Di-n-octyl phthalate (DNOP)) (CAS No.: 117-84-0)	IEC 62321-8: 2017 / (With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.	---	---	-
(DNPP) (Di-n-pentyl phthalate (DNPP)) (CAS No.: 131-18-0)		mg/kg	50	n.d.	---	---	-
(DNHP) (Di-n-hexyl phthalate (DNHP)) (CAS No.: 84-75-3)		mg/kg	50	n.d.	---	---	-
(2-) (DMEP) (Bis(2-methoxyethyl) phthalate (DMEP)) (CAS No.: 117-82-8)		mg/kg	50	n.d.	---	---	-
(DMP) (Dimethyl		mg/kg	50	n.d.	---	---	-
		mg/kg	50	n.d.	---	---	-

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(Test Items)	(Method)	(Unit)	MDL	(Result)			(Limit)
				No.1	No.2	No.3	
(DNNP) (Di-n-nonyl phthalate (DNNP)) (CAS No.: 84-76-4)	IEC 62321-8: 2017 / (With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.	---	---	-
(HBCDD) (α- HBCDD, β- HBCDD, γ- HBCDD) (Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α- HBCDD, β- HBCDD, γ- HBCDD)) (CAS No.: 25637-99-4, 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	IEC 62321: 2008 / (With reference to IEC 62321: 2008, analysis was performed by GC/MS.)	mg/kg	5	n.d.	---	---	-
(F) (Fluorine (F)) (CAS No.: 14762-94-8)	BS EN 14582: 2016 (With reference to BS EN 14582: 2016, analysis was performed by IC.)	mg/kg	50	n.d.	---	---	-
(Cl) (Chlorine (Cl)) (CAS No.: 22537-15-1)		mg/kg	50	86.3	---	---	-
(Br) (Bromine (Br)) (CAS No.: 10097-32-2)		mg/kg	50	n.d.	---	---	-
(I) (Iodine (I)) (CAS No.: 14362-44-8)		mg/kg	50	n.d.	---	---	-
(PFOS and its salts) (CAS No.: 1763-23-1 and its salts)	CEN/TS 15968: 2010 (With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	---	---	-
(PFOA and its salts) (CAS No.: 335-67-1 and its salts)	CEN/TS 15968: 2010 (With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	---	---	-

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(Test Items)	(Method)	(Unit)	MDL	(Result)			(Limit)
				No.1	No.2	No.3	
(Polycyclic Aromatic Hydrocarbons) (PAHs)							
(a) (Benzo[a]pyrene) (CAS No.: 50-32-8)	AfPS GS 2019:01 PAK / (With reference to AfPS GS 2019:01 PAK, analysis was performed by GC/MS.)	mg/kg	0.2	n.d.	---	---	Δ
(e) (Benzo[e]pyrene) (CAS No.: 192-97-2)		mg/kg	0.2	n.d.	---	---	Δ
(Benzo[a]anthracene) (CAS No.: 56-55-3)		mg/kg	0.2	n.d.	---	---	Δ
(b) (Benzo[b]fluoranthene) (CAS No.: 205-99-2)		mg/kg	0.2	n.d.	---	---	Δ
(j) (Benzo[j]fluoranthene) (CAS No.: 205-82-3)		mg/kg	0.2	n.d.	---	---	Δ
(k) (Benzo[k]fluoranthene) (CAS No.: 207-08-9)		mg/kg	0.2	n.d.	---	---	Δ
(Chrysene) (CAS No.: 218-01-9)		mg/kg	0.2	n.d.	---	---	Δ
(Dibenzo[a,h]anthracene) (CAS No.: 53-70-3)		mg/kg	0.2	n.d.	---	---	Δ
(Benzo[g,h,i]perylene) (CAS No.: 191-24-2)		mg/kg	0.2	n.d.	---	---	Δ
(Indeno[1,2,3-c,d]pyrene) (CAS No.: 193-39-5)		mg/kg	0.2	n.d.	---	---	Δ
(Anthracene) (CAS No.: 120-12-7)		mg/kg	0.2	n.d.	---	---	Δ
(Fluoranthene) (CAS No.: 206-44-0)		mg/kg	0.2	n.d.	---	---	Δ
(Phenanthrene) (CAS No.: 85-01-8)		mg/kg	0.2	n.d.	---	---	Δ
(Pyrene) (CAS No.: 129-00-0)		mg/kg	0.2	n.d.	---	---	Δ
(Naphthalene) (CAS No.: 91-20-3)		mg/kg	0.2	n.d.	---	---	Δ
15 (Sum of 15 PAHs)		mg/kg	-	n.d.	---	---	Δ

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	(Method)	(Unit)	MDL	(Limit)	No.1	No.2	No.3
	US EPA 3052: 1996 (With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.)	mg/kg					

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PAHs Remark

Δ (AfPS): GS PAHs

AfPS (German commission for Product Safety): GS PAHs requirements

(Parameter)	1 (Category 1)	2 (Category 2)		3 (Category 3)	
	(30) 2009/48/EC 3 (Materials intended to be placed in the mouth, or materials in toys (Directive 2009/48/EC) or articles for children up to 3 years of age with intended long-term skin contact (> 30 seconds))	1 30 ( ) (Materials that are not in Category 1, with intended or foreseeable long-term skin contact (> 30 seconds) or short-term repetitive contact with the skin)		1 2 30 ( )(Materials not covered by Category 1 or 2, with intended or foreseeable short-term skin contact (30 seconds))	
		a. 14 (Use by children under 14)	b. (Other consumer products)	a. 14 (Use by children under 14)	b. (Other consumer products)
Naphthalene	< 1	< 2		< 10	

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PFAS Remark

PFAS PFAS PFAS
PFAS PFAS
(PFAS PFAS)

(The quantitative technology of PFAS is to analyze the specific structure of PFAS substances. However, PFAS acid and its salts with the same carbon number group have the same specific structure that can be identified. The tested results of the analyzed specific structure cannot be distinguished to identify the contribution from PFAS acid or its salts. Therefore, the tested results display the sum of concentrations of PFAS acids and its salts with the same carbon number group. The concentration of PFAS substances in the below table have been included in the tested results, please refer to the table for relevant information: (The listed PFAS substances are examples only, it do not include all PFAS salts with the same carbon number group.))

(Group Name)	(Substance Name)	CAS No.
PFOS, & (PFOS, its salts & derivatives)	(Perfluorooctane sulfonates) (PFOS)	1763-23-1
	(PFOS-K) Potassium perfluorooctanesulfonate (PFOS-K)	2795-39-3
	(PFOS-Li) Perfluorooctanesulfonic acid, lithium salt (PFOS-Li)	29457-72-5
	(PFOS-NH_4) Perfluorooctanesulfonic acid, ammonium salt (PFOS-NH_4)	29081-56-9
	(PFOS-$NH(OH)_2$) Perfluorooctane sulfonate diethanolamine salt (PFOS-$NH(OH)_2$)	70225-14-8
	(PFOS-$N(C_2H_5)_4$) Perfluorooctanesulfonic acid,tetraethylammonium salt (PFOS-$N(C_2H_5)_4$)	56773-42-3
	(PFOS-DDA) N-decyl-N,N-dimethyldecan-1-aminium 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluorooctane-1-sulfonate (PFOS-DDA)	251099-16-8

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(Group Name)	(Substance Name)	CAS No.
PFOS, & (PFOS, its salts & derivatives)	(POSF) Perfluorooctane sulfonyl fluoride (POSF)	307-35-7
	(PFOS-Mg) Perfluorooctanesulfonic acid, magnesium salt (PFOS-Mg)	91036-71-4
	(PFOS-Na) Perfluorooctanesulfonic acid, sodium salt (PFOS-Na)	4021-47-0
	Piperidine 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluorooctanesulfonate	71463-74-6
PFOA, & (PFOA, its salts & derivatives)	(Perfluorooctanoic acid) (PFOA)	335-67-1
	(PFOA-Na) Sodium perfluorooctanoate (PFOA-Na)	335-95-5
	(PFOA-K) Potassium perfluorooctanoate (PFOA-K)	2395-00-8
	(PFOA-Ag) Silver perfluorooctanote (PFOA-Ag)	335-93-3
	(PFOA-F) Perfluorooctanoyl fluoride (PFOA-F)	335-66-0
	(APFO) Ammonium pentadecafluorooctanoate (APFO)	3825-26-1
	(PFOA-Li) Lithium perfluorooctanoate (PFOA-Li)	17125-58-5

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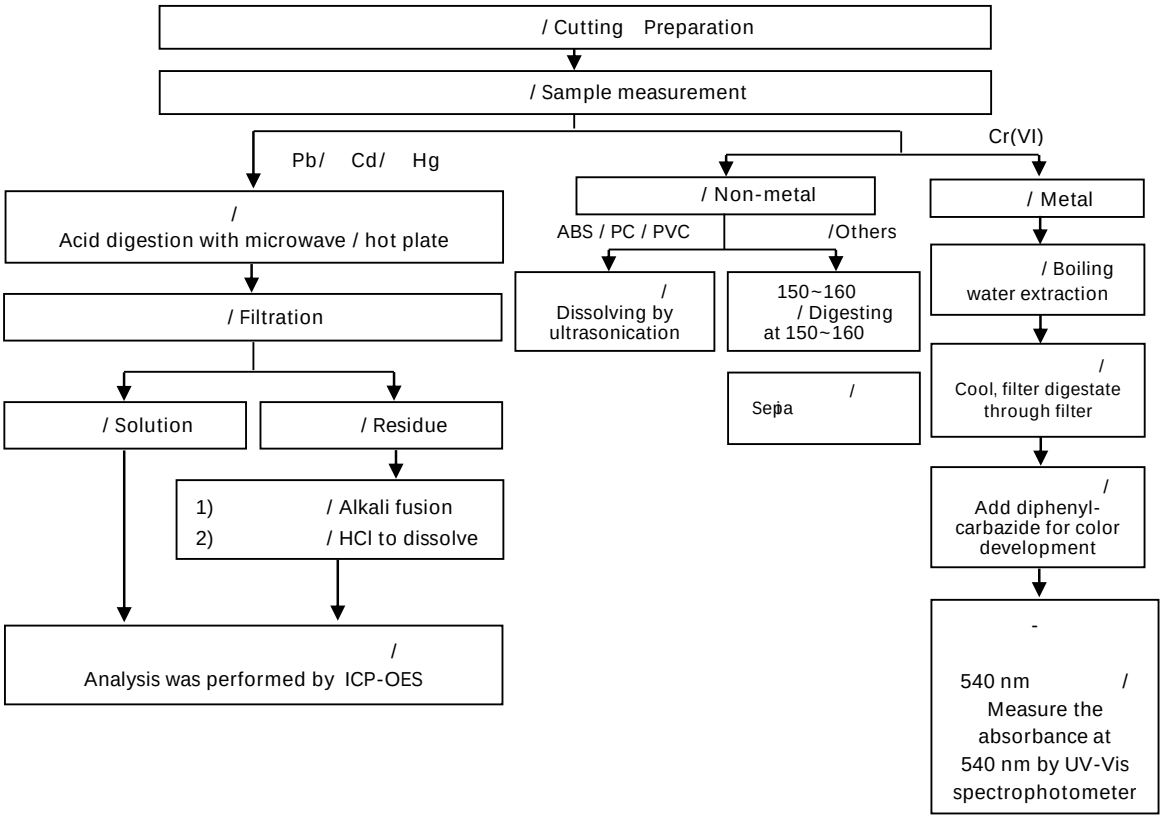
/ Analytical flow chart of heavy metal

These samples were dissolved totally by pre-conditioning method according to below flow chart.
Cr^{6+} test method excluded



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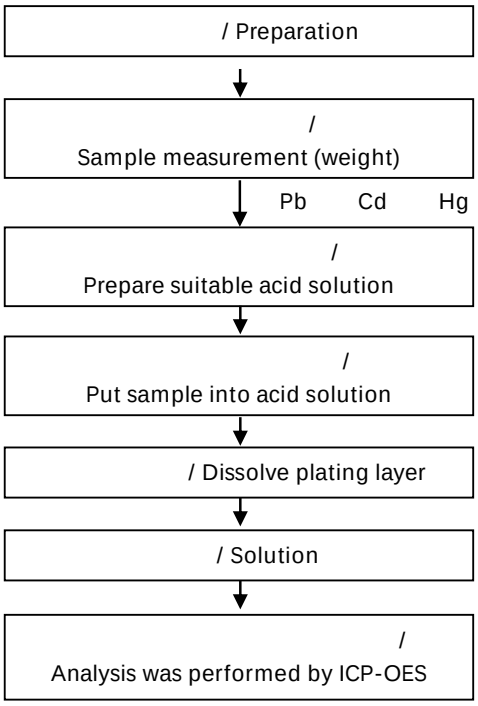
/ Flow chart of stripping method for metal analysis

/ The plating layer of samples were dissolved totally by pre-conditioning method according to below flow chart.

Cr^{6+} test method excluded



Cr^{6+}

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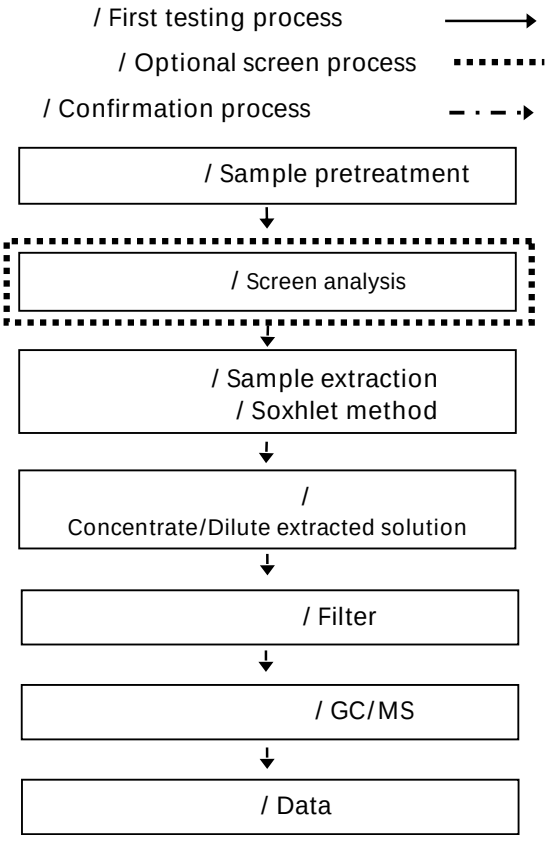
/ / Analytical flow chart - PBBs/PBDEs



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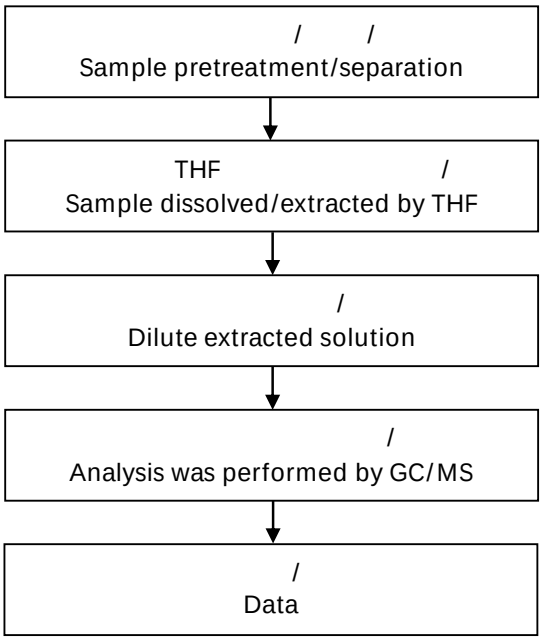
/ Analytical flow chart - Phthalate

/Test method: IEC 62321-8



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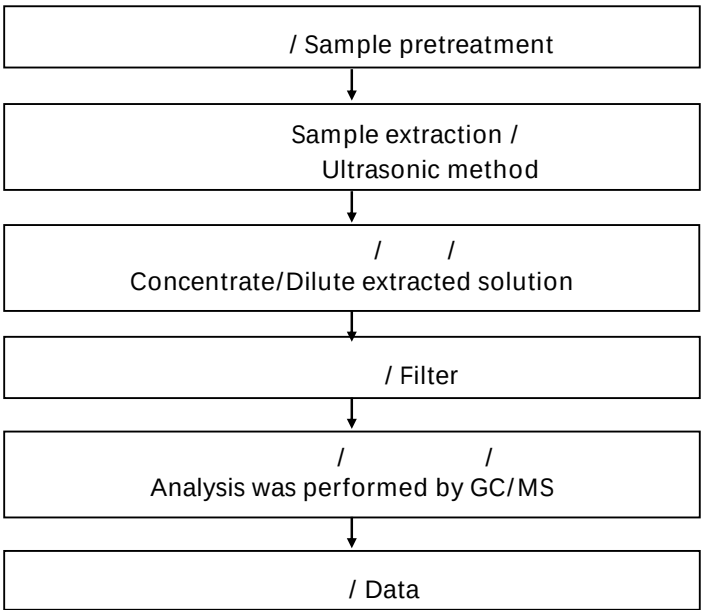
/ Analytical flow chart - HBCDD



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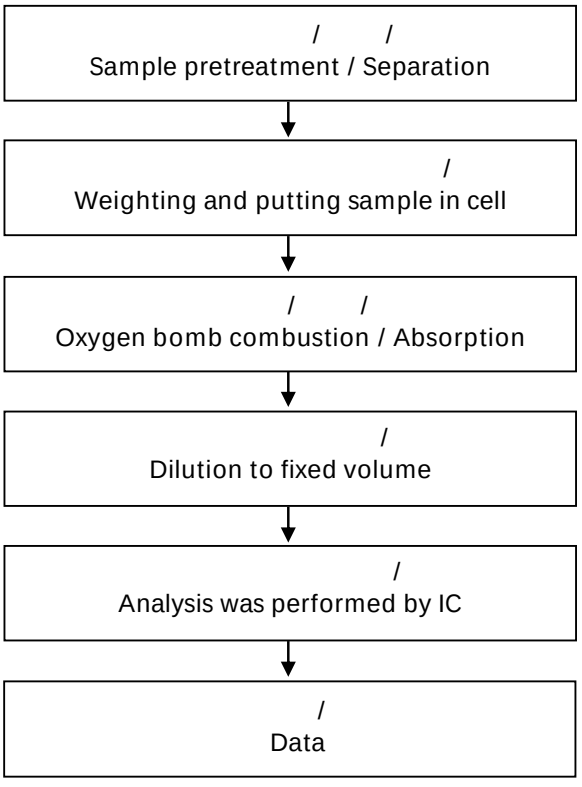
/ Analytical flow chart - Halogen



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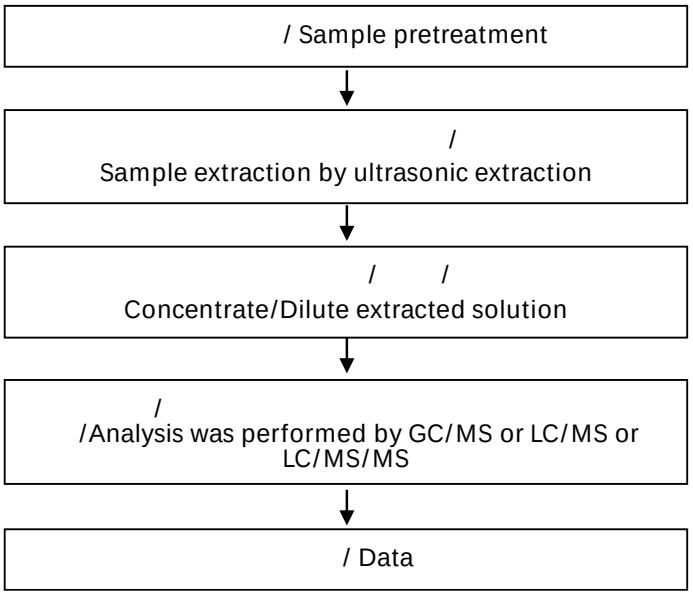
(/ /) / Analytical flow chart – PFAS (including PFOA/PFOS/its related compound, etc.)



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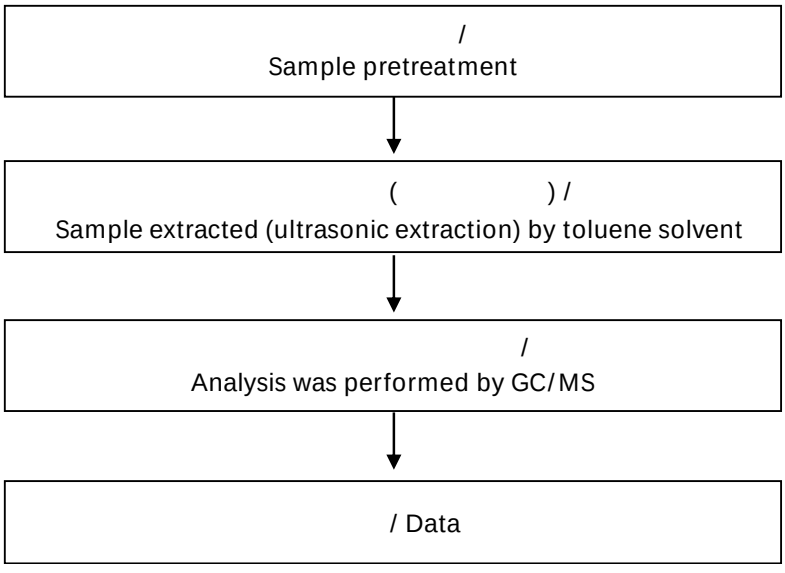
/

Analytical flow chart - PAHs (Polycyclic Aromatic Hydrocarbons)



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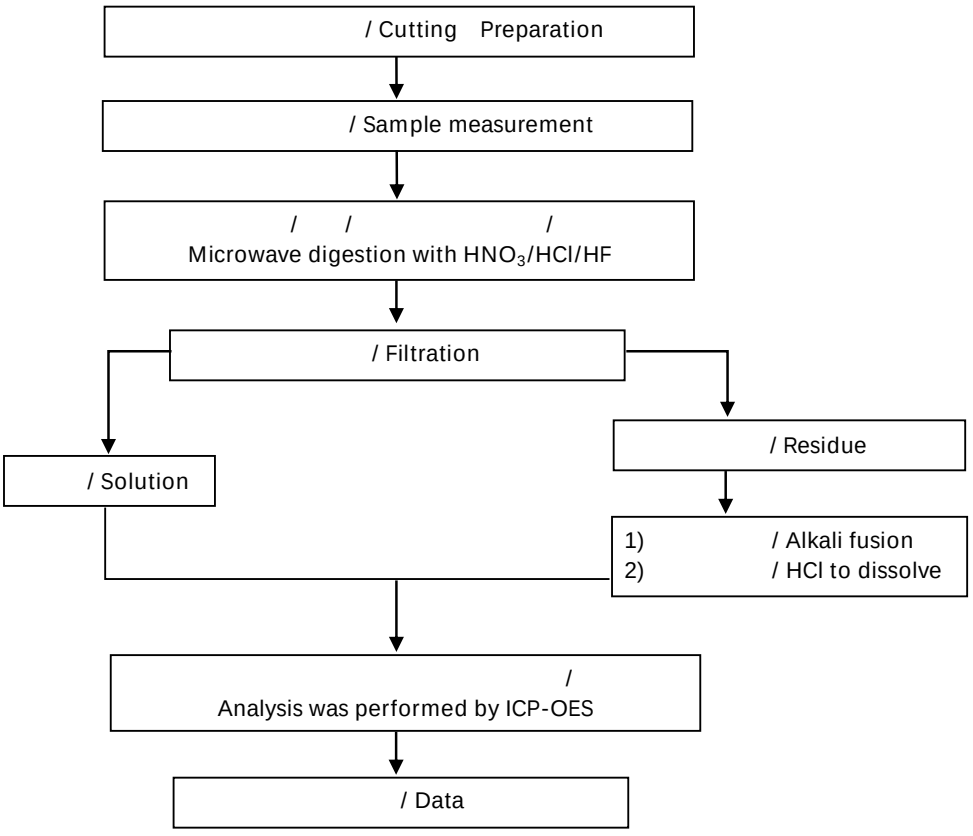
( ) / Analytical flow chart of elements (Heavy metal included)

These samples were dissolved totally by pre-conditioning method according to below flow chart.

/Reference method US EPA 3051A US EPA 3052



* US EPA 3051A / US EPA 3051A method does not add HF.

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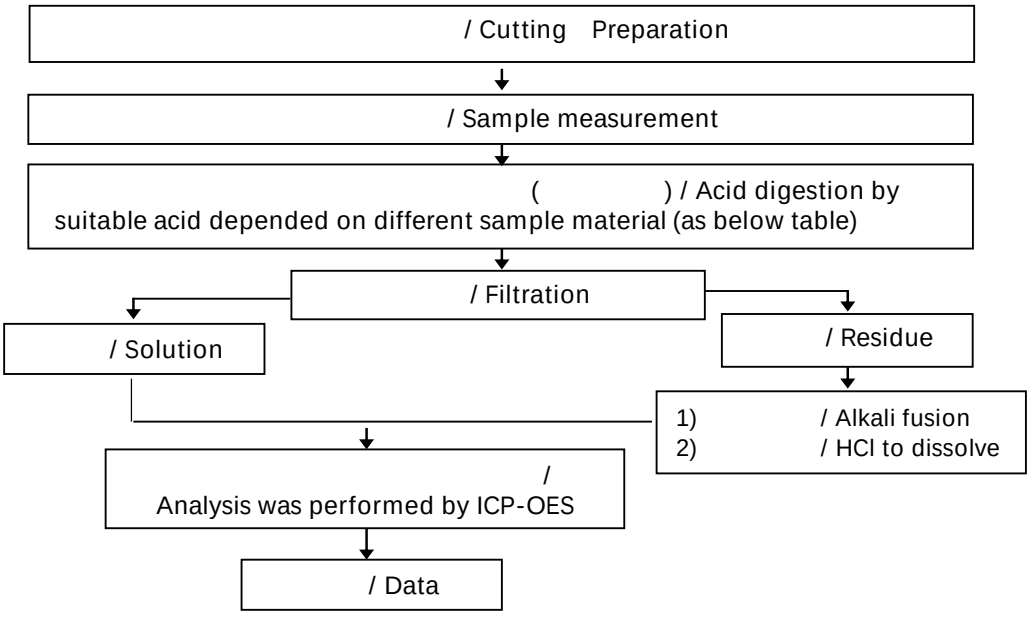
ICP-OES

(Flow chart of digestion for the elements analysis performed by ICP-OES)

/ These samples were dissolved totally by pre-conditioning method according to below flow chart.



, , , / Steel, copper, aluminum, solder	, , , , / Aqua regia, HNO_3, HCl, HF, H_2O_2
/ Glass	, / HNO_3,HF
, , , / Gold, platinum, palladium, ceramic	/ Aqua regia
/ Silver	/ HNO_3
/ Plastic	, , , / H_2SO_4, H_2O_2, HNO_3, HCl
/ Others	/ Added appropriate reagent to total digestion

Test Report

(EVERLIGHT ELECTRONICS CO., LTD.)
6-8 (NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN)

* / . *
(The tested sample / part is marked by an arrow if it's shown on the photo.)

ETR24301206_NO.1

Test Report

(EVERLIGHT ELECTRONICS CO., LTD.)
6-8 (NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN)

ETR24301206 NO.4

** (End of Report) **