Test Report

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	POWER LED
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

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

:

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(Sample Receiving Date) : 28-Mar-2024
(Testing Period) : 28-Mar-2024 to 12-Apr-2024
(Test Results) : (Please refer to following pages).

PIN CODE: E5DBCD6A

Test Report

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

(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	8.65	---	---	1000

Test Report

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

(Test Items)	(Method)	(Unit)	MDL	(Result)			(Limit)
				No.1	No.2	No.3	
(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
(Monobromobiphenyl)	IEC 62321-6: 2015 / (With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.)	mg/kg	5	n.d.	---	---	-
(Dibromobiphenyl)		mg/kg	5	n.d.	---	---	-
(Tribromobiphenyl)		mg/kg	5	n.d.	---	---	-
(Tetrabromobiphenyl)		mg/kg	5	n.d.	---	---	-
(Pentabromobiphenyl)		mg/kg	5	n.d.	---	---	-
(Hexabromobiphenyl)		mg/kg	5	n.d.	---	---	-
(Heptabromobiphenyl)		mg/kg	5	n.d.	---	---	-
(Octabromobiphenyl)		mg/kg	5	n.d.	---	---	-
(Nonabromobiphenyl)		mg/kg	5	n.d.	---	---	-
(Decabromobiphenyl)		mg/kg	5	n.d.	---	---	-
(Sum of PBBs)		mg/kg	-	n.d.	---	---	1000
(Monobromodiphenyl ether)		mg/kg	5	n.d.	---	---	-
(Dibromodiphenyl ether)		mg/kg	5	n.d.	---	---	-
(Tribromodiphenyl ether)		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.	---	---	-
(Heptabromodiphenyl ether)		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

Test Report

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

	(Method)	(Unit)	MDL				(Limit)
				No.1	No.2	No.3	
(BBP) (Butyl benzyl phthalate (BBP))		mg/kg	50	n.d.	---	---	1000
		mg/kg	50	n.d.	---	---	1000
		mg/kg	50	n.d.	---	---	1000
		mg/kg	50	n.d.	---	---	1000
		mg/kg	50	n.d.	---	---	-
		mg/kg	50	n.d.	---	---	-
	IEC 62321-8: 2017 / (With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.	---	---	-
		mg/kg	50	n.d.	---	---	-
		mg/kg	50	n.d.	---	---	-
		mg/kg	50	n.d.	---	---	-
(DMP) (Dimethyl phthalate (DMP)) (CAS No.: 131-11-3)		mg/kg	50	n.d.	---	---	-
(DIOP) (Diisooctyl phthalate (DIOP)) (CAS No.: 27554-26-3)		mg/kg	50	n.d.	---	---	-

Test Report

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

(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	317	---	---	-
(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.	---	---	-

Test Report

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

(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

Test Report

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

(Test Items)	(Method)	(Unit)	MDL	(Result)			(Limit)
				No.1	No.2	No.3	
(Be) (Beryllium (Be)) (CAS No.: 7440-41-7)	US EPA 3052: 1996 (With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.)	mg/kg	2	n.d.	---	---	-
(Cd) (Cadmium (Cd))	IEC 62321-5: 2013 (IEC 62321-5: 2013 application of modified digestion by surface etching, analysis was performed by ICP-OES.)	mg/kg	2	---	n.d.	---	100
(Pb) (Lead (Pb))		mg/kg	2	---	20.6	---	1000
(Hg) (Mercury (Hg))	IEC 62321-4: 2013+ AMD1: 2017 (IEC 62321-4: 2013+AMD1: 2017 application of modified digestion by surface etching, analysis was performed by ICP-OES.)	mg/kg	2	---	n.d.	---	1000
(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	---	---	37.6	1000
(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

Test Report

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

(Test Items)	(Method)	(Unit)	MDL	(Result)			(Limit)
				No.1	No.2	No.3	
(Hexavalent Chromium) Cr(VI) (#2)	IEC 62321-7-1: 2015 - (With reference to IEC 62321-7-1: 2015, analysis was performed by UV-VIS.)	µg/cm²	0.1	---	n.d.	n.d.	-

(Test Items)	(Method)	(Unit)	MDL	(Result)	(Limit)
				No.4	
(Be) (Beryllium (Be)) (CAS No.: 7440-41-7)	US EPA 3050B: 1996 (With reference to US EPA 3050B: 1996, analysis was performed by ICP-OES.)	mg/kg	2	n.d.	-

(Note)

1. mg/kg = ppm 0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit ( )
3. n.d. = Not Detected ( ) ; MDL / Less than MDL
4. "-" = Not Regulated ( )
5. "---" = Not Conducted ( )
6. (#2) =
   a. 0.13 µg/cm² . / The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13 µg/cm². The sample coating is considered to contain Cr(VI).
   b. n.d. (0.10 µg/cm²) . / The sample is negative for Cr(VI) if Cr(VI) is n.d. (concentration less than 0.10 µg/cm²). The coating is considered a non-Cr(VI) based coating
   c. 0.10 0.13 µg/cm² . / The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be inconclusive - unavoidable coating variations may influence the determination.
7. ILAC-G8:09/2019 (w=0)
   (Unless otherwise stated , the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (w=0) stated in ILAC-G8:09/2019. According to this rule, the judgement of conformity is based on the comparing test results with limits.)

Test Report

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

PAHs Remark

Δ (AfPS): GS PAHs

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

	1 (Category 1)	2 (Category 2)	3 (Category 3)

(Parameter)

Test Report

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

PFAS Remark
PFAS PFAS PFAS
PFAS PFAS

(Group Name)	(Substance Name)	CAS No.
	(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)	
		251099-16-8

Test Report

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

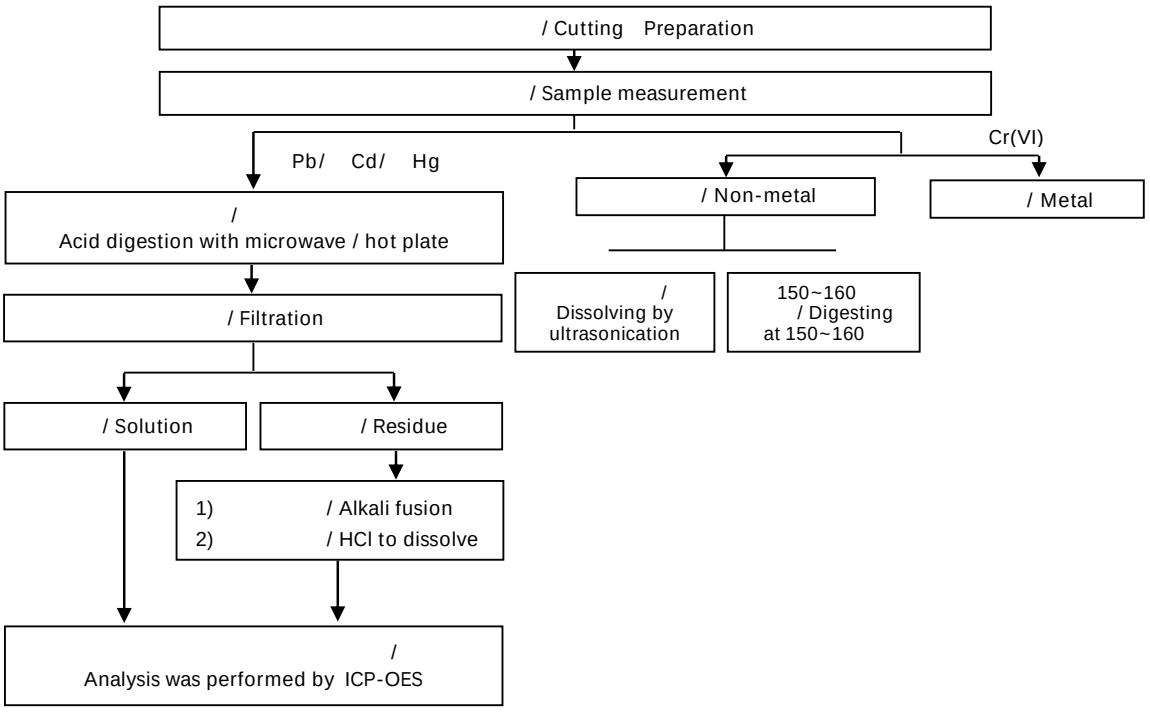
(Group Name)	(Substance Name)	CAS No.
PFOS, & (PFOS, its salts & derivatives)	(POSF) Perfluorooctane sulfonyl fluoride (POSF)	307-35-7
	(PFOS-Na) Perfluorooctanesulfonic acid, sodium salt (PFOS-Na)	4021-47-0
	Piperidine 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluorooctanesulfonate	71463-74-6
	(PFOA-Na) Sodium perfluorooctanoate (PFOA-Na)	335-95-5

Test Report

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

/ 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



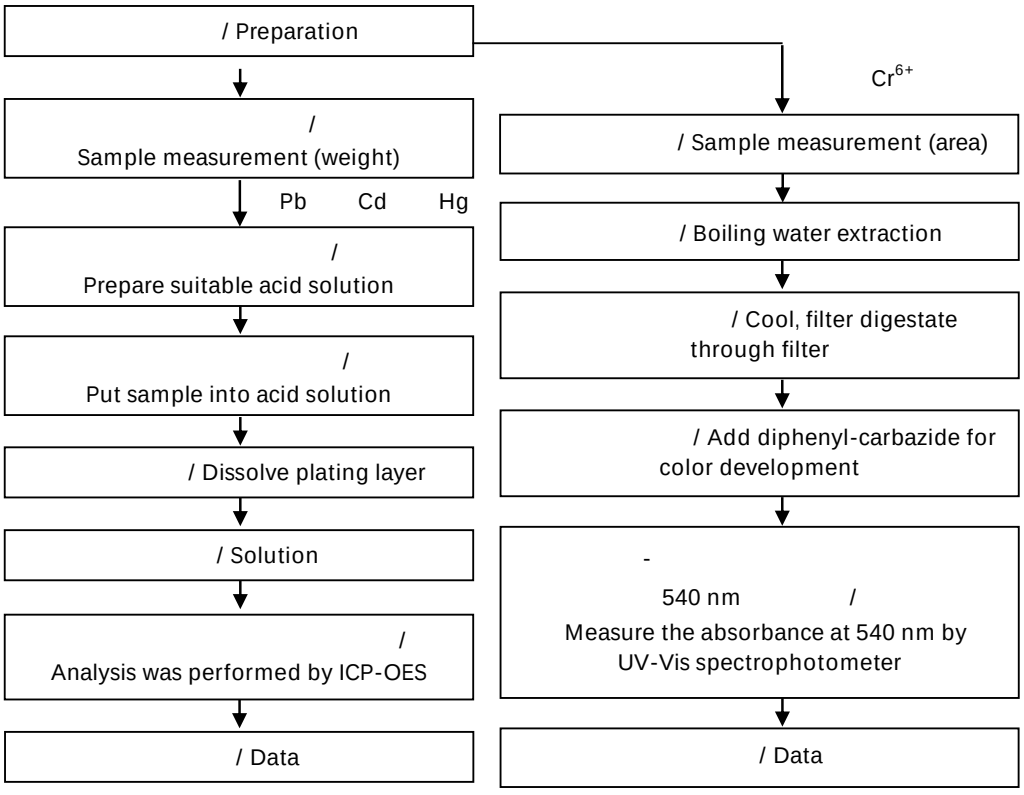
Test Report

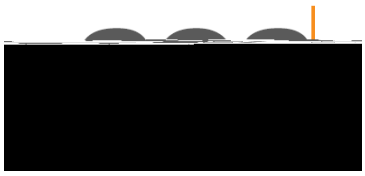
(EVERLIGHT ELECTRONICS CO., LTD.)
6-8 (NO. 6-8, ZHONGHUA RD., SHULIN DIST., NEW TAIPEI CITY 23860, TAIWAN)

/ 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





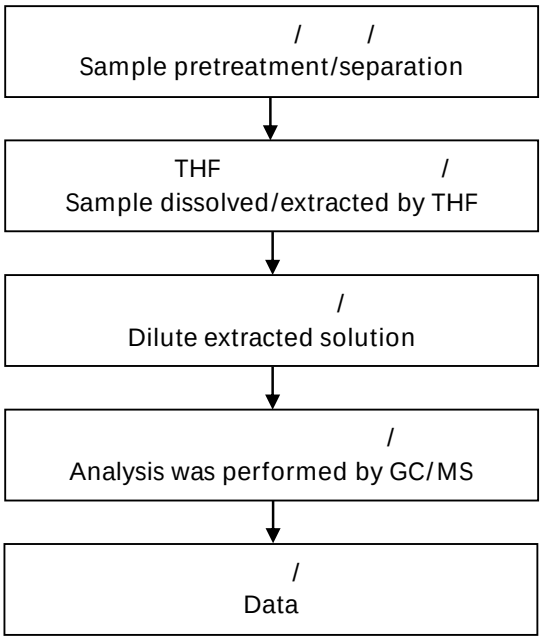
Test Report

Test Report

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

/ Analytical flow chart - Phthalate

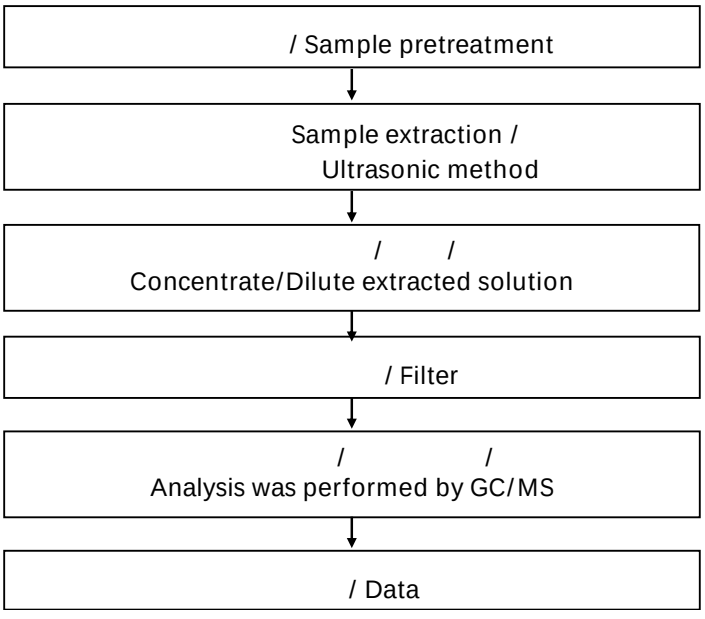
/Test method: IEC 62321-8



Test Report

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

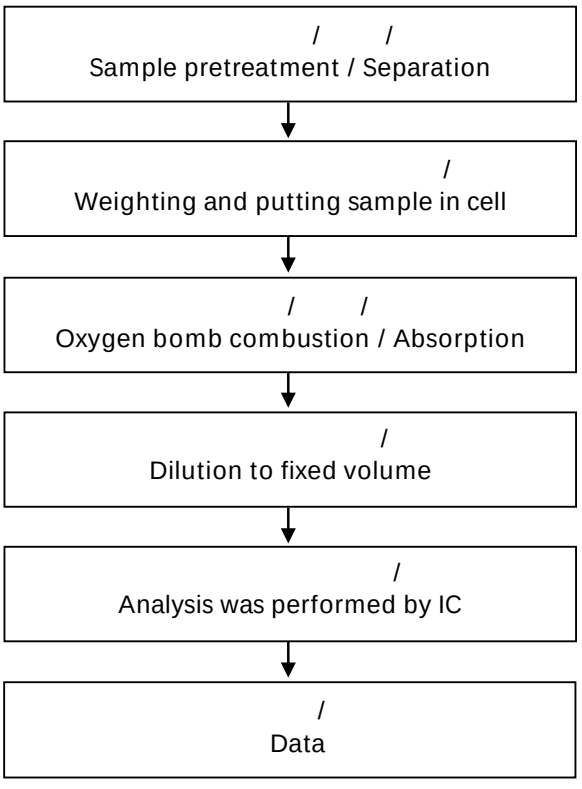
/ Analytical flow chart - HBCDD



Test Report

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

/ Analytical flow chart - Halogen



Test Report

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

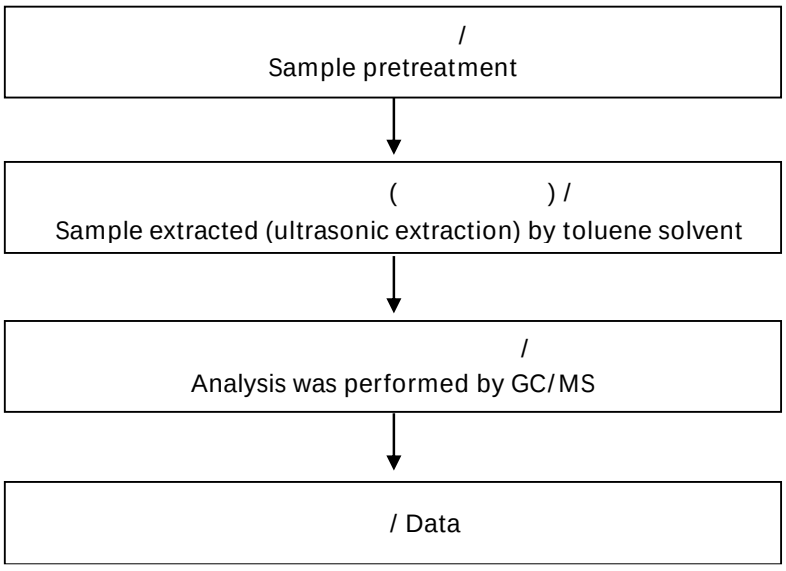
(/ /) / Analytical flow chart – PFAS (including PFOA/PFOS/its related compound, etc.)

Test Report

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

/

Analytical flow chart - PAHs (Polycyclic Aromatic Hydrocarbons)

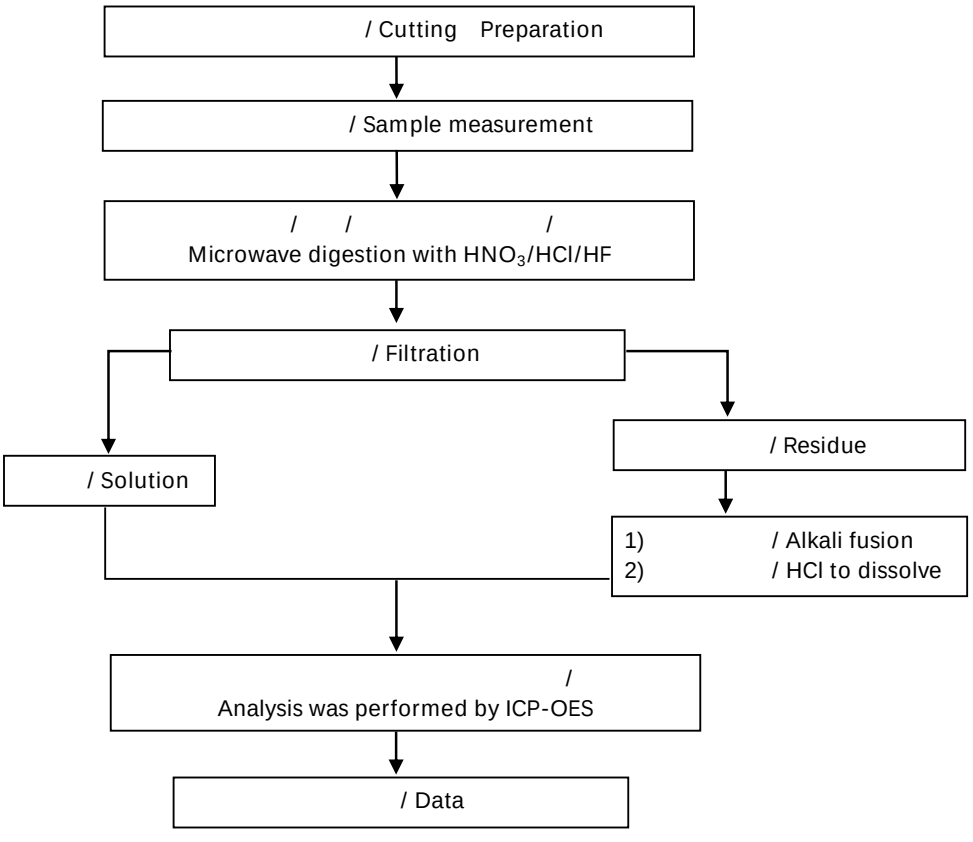


Test Report

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

( ) / 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.

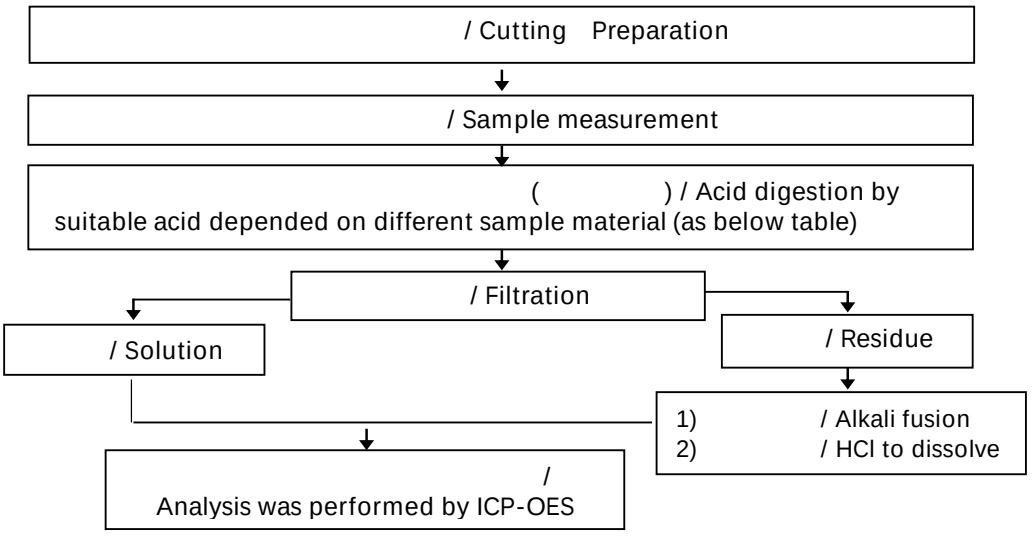
Test Report

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

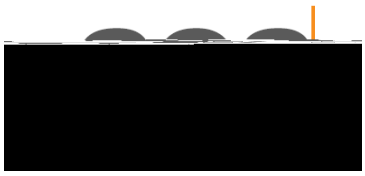
ICP-OES

(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



Test Report

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

ETR24305709 NO.3

** (End of Report) **