



BUREAU
VERITAS

TEST REPORT

(시험 성적서)

Report No.

시험성적서 번호

: (8225)827-0001-001

Date Issued

발행일자

: 2025. 01. 08

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Company Name

신청기관

: Daeduck Electronics Co., Ltd

대덕전자 주식회사

Address

주소

: 335 Somanggongwon-ro, Siheung-si, Gyeonggi-do, Republic of Korea

경기도 시흥시 소망공원로 335

Sample Description

Name / Type of Product

제품명/형식

: Cu Plating

Item No. / Part No.

품번

: -

Material/Color

재질

: PCB

Manufacturer/Vendor

제품 생산자/공급자

: Daeduck Electronics Co., Ltd

대덕전자 주식회사

Date Received

시료접수일자

: 2025. 01. 02

Test Period

시험일자

: 2025. 01. 02 ~ 2025. 01. 08

Test Type

시험방법

: Wet chemical analysis for restricted substances.

Test Site

시험장소

: Fixed Test Lab (RM908~915 126, Beolmal-ro, Dongan-gu, Anyang-si)

Test Results(s)

시험결과

: For the detail, please the following page(s).

이 시험성적서의 다음 페이지 첨부

Authorized by

Bureau Veritas Korea Co., Ltd.
Consumer Product Services

JIN KIM

Lab Manager / Bureau Veritas Korea CPS



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Name / Type of Product (제품명/형식) : Cu Plating

TEST RESULT

Heavy Metals

Test Item (시험 항목)	Test Method (분석 방법)	Unit (단위)	MDL (검출 한계)	Result (시험 결과)
Lead (Pb)	With reference to International Standard IEC 62321-5: 2013, Determined by ICP-OES.	mg/kg	5	ND
Cadmium (Cd)		mg/kg	0.5	ND
Mercury (Hg)	With reference to International Standard IEC 62321-4: 2013 +AMD1:2017CVS, Determined by ICP-OES.	mg/kg	2	ND
Chromium VI (Cr VI)*	With reference to International Standard IEC 62321-7-1 2015, Determined by UV-Vis.	μg/cm ²	-	Negative
Antimony(Sb)	With reference to US EPA3052, Determined by ICP-OES.	mg/kg	2	ND
Beryllium(Be)		mg/kg	2	ND
Arsenic (As)		mg/kg	2	ND

Flame Retardants-PBBs/PBDEs

Monobromobiphenyl	With reference to International Standard IEC 62321-6: 2015, Determined by GC-MS.	mg/kg	5	ND
Dibromobiphenyl		mg/kg	5	ND
Tribromobiphenyl		mg/kg	5	ND
Tetrabromobiphenyl		mg/kg	5	ND
Pentabromobiphenyl		mg/kg	5	ND
Hexabromobiphenyl		mg/kg	5	ND
Heptabromobiphenyl		mg/kg	5	ND
Octabromobiphenyl		mg/kg	5	ND
Nonabromobiphenyl		mg/kg	5	ND
Decabromobiphenyl		mg/kg	5	ND
Monobromodiphenyl ether	With reference to International Standard IEC 62321-6: 2015, Determined by GC-MS.	mg/kg	5	ND
Dibromodiphenyl ether		mg/kg	5	ND
Tribromodiphenyl ether		mg/kg	5	ND
Tetrabromodiphenyl ether		mg/kg	5	ND
Pentabromodiphenyl ether		mg/kg	5	ND
Hexabromodiphenyl ether		mg/kg	5	ND
Heptabromodiphenyl ether		mg/kg	5	ND
Octabromodiphenyl ether		mg/kg	5	ND
Nonabromodiphenyl ether		mg/kg	5	ND
Decabromodiphenyl ether		mg/kg	5	ND

Note / Key :

mg/kg = milligram(s) per kilogram = ppm = part(s) per million

ug/cm² = Microgram per square centimeter

MDL = Method detection limit

ND = Not detected

NA = Not applicable

- * a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 ug/cm².
The sample coating is considered to contain CrVI.
- b. The sample is negative for CrVI if CrVI is N.D. (concentration less than 0.10ug/cm²).
The coating is considered a non-CrVI based coating.
- c. The result between 0.10ug/cm² and 0.13 ug/cm² is considered to be inconclusive – unavoidable coating variations may influence the determination.



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Name / Type of Product (제품명/형식) : Cu Plating

TEST RESULT

Phthalates Content

Test Item (시험 항목)	Test Method (분석 방법)	Unit (단위)	MDL (검출 한계)	Result (시험 결과)
Dibutyl phthalate (DBP)	With reference to IEC 62321-8: 2017, Determined by GC-MS & LC-MS.	mg/kg	50	ND
Bis(2-ethylhexyl) phthalate (DEHP)		mg/kg	50	ND
Diisobutyl phthalate (DIBP)		mg/kg	50	ND
Benzyl butyl phthalate (BBP)		mg/kg	50	ND

Note / Key :

mg/kg = milligram(s) per kilogram = ppm = part(s) per million

MDL = Method detection limit

ND = Not detected

NA = Not applicable

List of Phthalates [European Parliament and Council Directive 2011/65/EU] :

No.	Name of Analyte(s)	CAS-No.
1	Dibutyl phthalate (DBP)	84-74-2
2	Bis(2-ethylhexyl) phthalate (DEHP)	117-81-7
3	Diisobutyl phthalate (DIBP)	84-69-5
4	Benzyl butyl phthalate (BBP)	85-68-7



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Name / Type of Product (제품명/형식) : Cu Plating

TEST RESULT

Halogen Content

Test Item (시험 항목)	Test Method (분석 방법)	Unit (단위)	MDL (검출 한계)	Result (시험 결과)
Bromine (Br)	With reference to EN14582:2016, Determined by IC.	mg/kg	30	ND
Chlorine (Cl)		mg/kg	30	ND
Fluorine (F)		mg/kg	30	ND
Iodine (I)		mg/kg	30	ND

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Name / Type of Product (제품명/형식) : Cu Plating

TEST RESULT

Other(s)

Test Item (시험 항목)	Test Method (분석 방법)	Unit (단위)	MDL (검출 한계)	Result (시험 결과)
Perfluorooctane sulfonate (PFOS)	With reference to EPA 3550C, Determined by LC-MS&LC-MS-MS	mg/kg	0.01	ND
Perfluorooctanoic acid (PFOA)		mg/kg	0.01	ND

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TEST RESULT

Other(s)

Test Item (시험 항목)	Test Method (분석 방법)	Unit (단위)	MDL (검출 한계)	Result (시험 결과)
Polychlorinated biphenyls (PCBs)	With reference to EPA 8082 by GC-MS	mg/kg	1	ND

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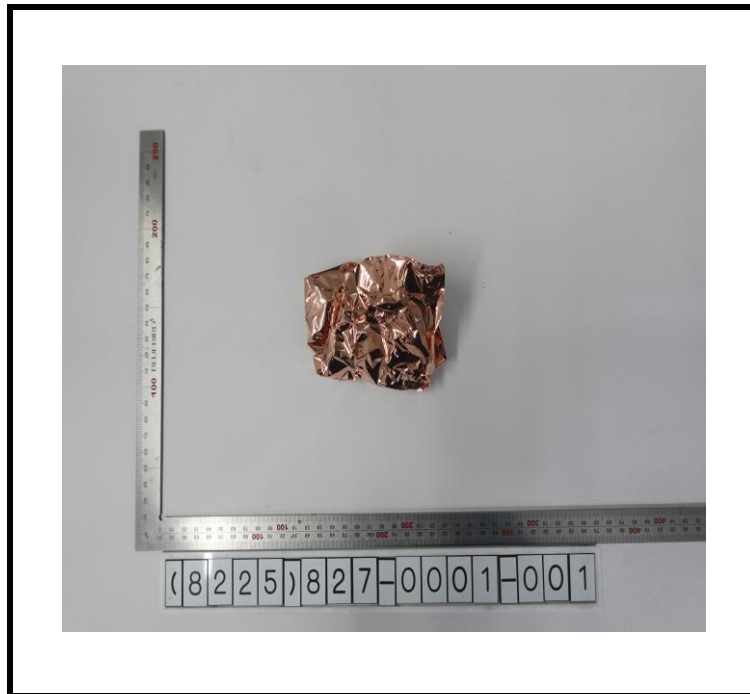
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Name / Type of Product (제품명/형식) : Cu Plating

Photo of the Submitted Sample

(시료 접수 시 시료 상태)





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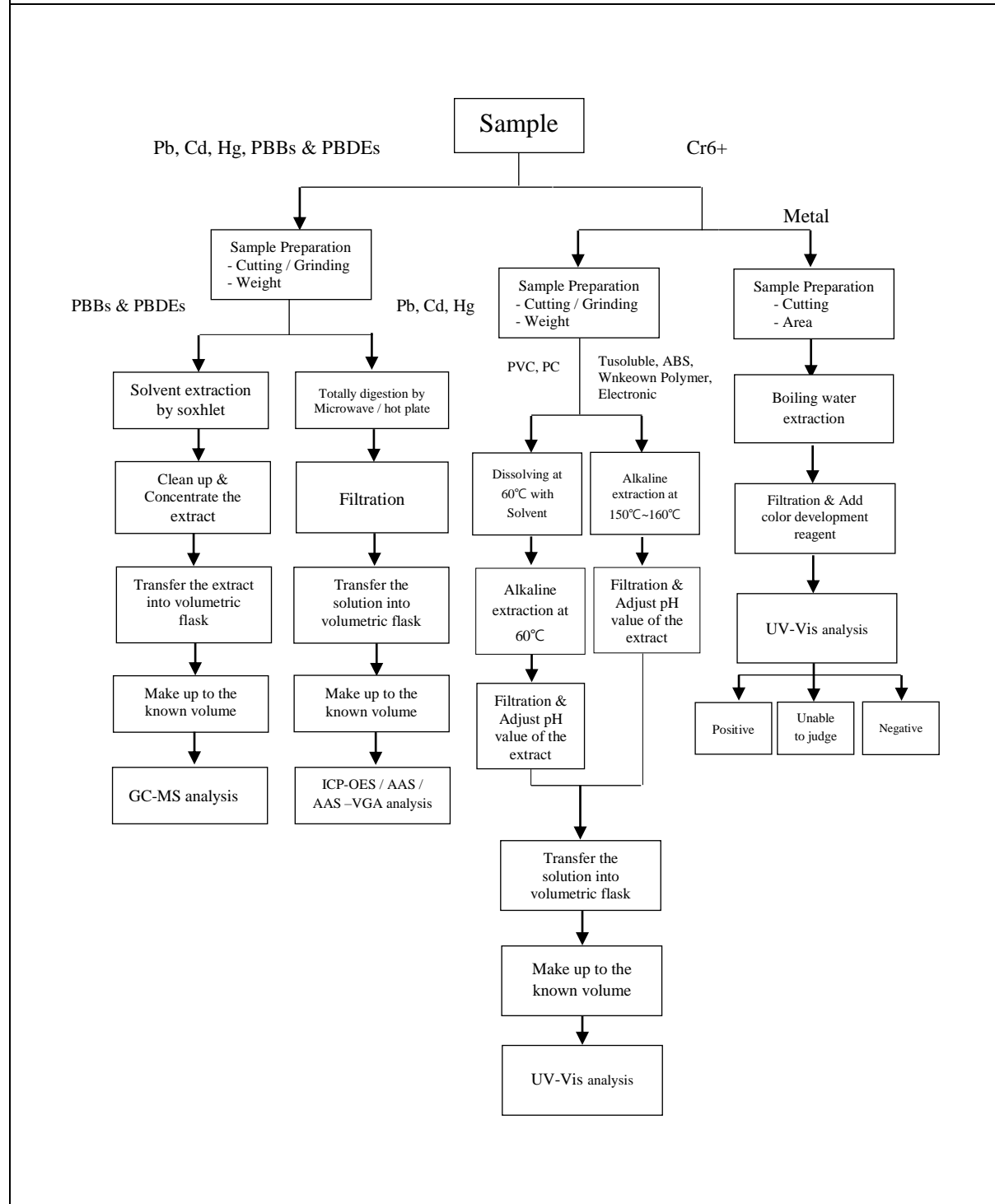
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Name / Type of Product (제품명/형식) : Cu Plating

Test Flowchart of Heavy Metals and Flame Retardants Content [European Parliament and Council Directive 2011/65/EU] :





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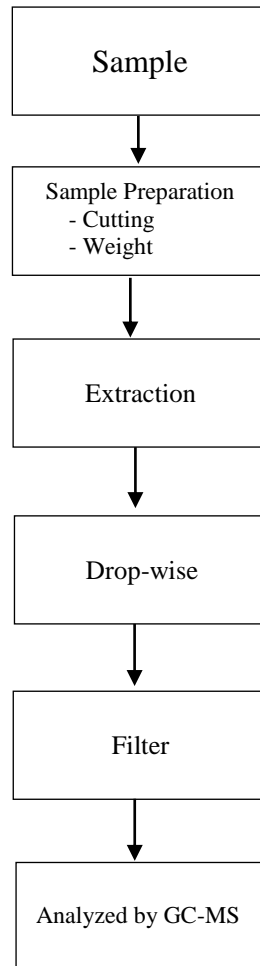
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Name / Type of Product (제품명/형식) : Cu Plating

Test Flowchart of Phthalates Content





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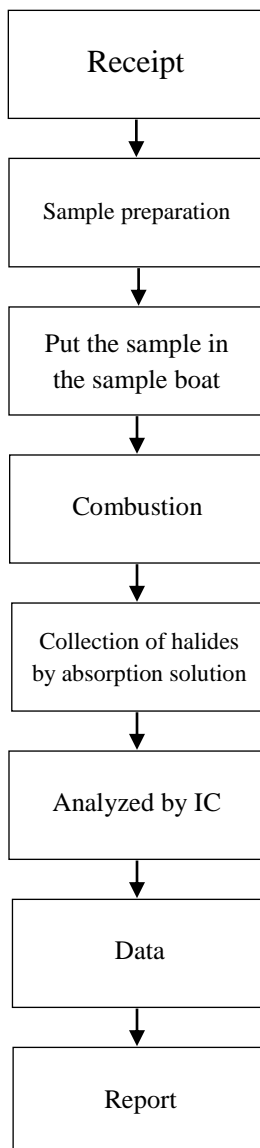
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Name / Type of Product (제품명/형식) : Cu Plating

Test Flowchart of Halogen Content





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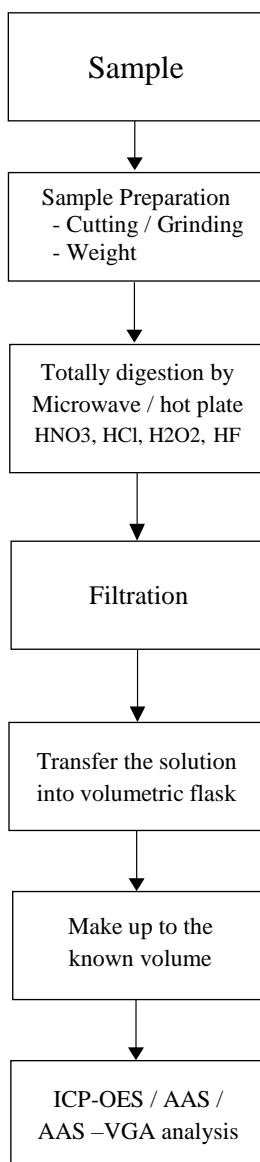
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Name / Type of Product (제품명/형식) : Cu Plating

Test Flowchart of Element Content





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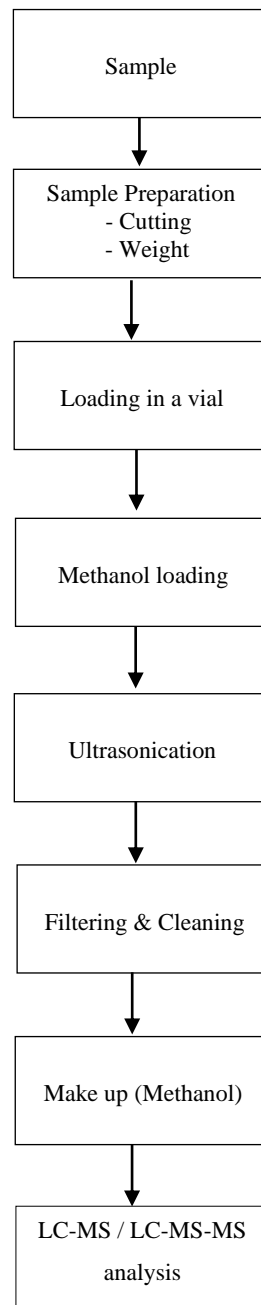
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Test Flowchart of PFOA & PFOS Content





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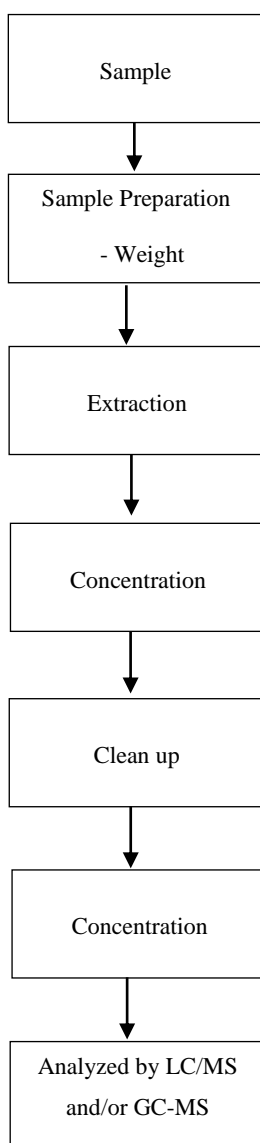
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Name / Type of Product (제품명/형식) : Cu Plating

Test Flowchart of PCBs Content



- End of Report -