

TEST REPORT

APPLICANT : SAMSUNG ELECTRONICS
ADDRESS : 1, Samsung-ro, Giheung-gu,
Yongin-si, Gyeonggi-do, Korea

PAGE: 1 of 9

REPORT NO. RT19R-S1494-006-E1

DATE: Apr. 05, 2019

SAMPLE DESCRIPTION : The following submitted sample(s) said to be:-

NAME/TYPE OF PRODUCT : 12inch-Wp
SAMPLE ID NO. : RT19R-S1494-006
MANUFACTURER/VENDOR : SAMSUNG ELECTRONICS

SAMPLE RECEIVED : Apr. 02, 2019
TESTING DATE : Apr. 02, 2019 ~ Apr. 05, 2019

TEST METHOD(S) : Please see the following page(s).
TEST RESULT(S) : Please see the following page(s).

- * Note 1 : The test results presented in this report refer only to the object tested.
- * Note 2 : This report shall not be reproduced except in full without the written approval of the testing laboratory.
- * Note 3 : This report is not related to the scope of Korea laboratory accreditation scheme.

Approved by,



Jade Jang / Lab. Technical Manager

Authorized by,



Bo Park / Lab. General Manager



Authenticity check

Intertek Testing Services Korea Ltd.
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Ulsan Lab. Address : 34, Yongam-gil, Chongryang-myeon, Ulju-gun, Ulsan 44989 Korea



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TEST REPORT

REPORT NO. RT19R-S1494-006-E1

SAMPLE ID NO. : RT19R-S1494-006

SAMPLE DESCRIPTION : 12inch-Wp

TEST ITEM	UNIT	TEST METHOD	MDL	RESULT
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5 Edition 1.0 : 2013, by acid digestion and determined by ICP-OES	0.5	N.D.
Lead (Pb)	mg/kg		5	N.D.
Mercury (Hg)	mg/kg	With reference to IEC 62321-4 Edition 1.0 : 2013, by acid digestion and determined by ICP-OES	2	N.D.
Hexavalent Chromium (Cr ⁶⁺)	mg/kg	With reference to IEC 62321-7-2 Edition 1.0 : 2017, by alkaline/toluene digestion and determined by UV-VIS Spectrophotometer	8	N.D.
Polybrominated Biphenyl (PBBs)				
Monobromobiphenyl	mg/kg	With reference to IEC 62321-6 Edition 1.0 : 2015, by solvent extraction and determined by GC/MS	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.
Polybrominated Diphenyl Ether (PBDEs)				
Monobromodiphenyl ether	mg/kg	With reference to IEC 62321-6 Edition 1.0 : 2015, by solvent extraction and determined by GC/MS	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.

Tested by : Jooyeon Lee, Seulgi Park, Miseon Lee

Notes : mg/kg = ppm = parts per million
 < = Less than
 N.D. = Not detected (<MDL)
 MDL = Method detection limit

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SAMPLE ID NO. : RT19R-S1494-006

SAMPLE DESCRIPTION : 12inch-Wp

TEST ITEM	UNIT	TEST METHOD	MDL	RESULT
Bromine (Br)	mg/kg	With reference to EN 14582, by oxygen combustion with bomb and determined by IC	30	N.D.
Chlorine (Cl)	mg/kg	With reference to EN 14582, by oxygen combustion with bomb and determined by IC	30	N.D.
Beryllium (Be)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	2	N.D.
Cobalt (Co)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	2	N.D.
Indium (In)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	2	N.D.
Nickel (Ni)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	2	16
Phosphorus (P)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	2	N.D.
Antimony (Sb)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	2	N.D.
Tetrabromobisphenol-A (TBBP-A)	mg/kg	With reference to US EPA 3540C, by solvent extraction and determined by LC/MS/MS	5	N.D.
Medium-chain chlorinated paraffin (MCCP)	mg/kg	With reference to US EPA 3540C, by solvent extraction and determined by LC/MS/MS and/or GC/ECD	100	N.D.

Tested by : Hyojoo Kim, Jooyeon Lee, Miseon Lee

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DATE: Apr. 05, 2019

REPORT NO. RT19R-S1494-006-E1

SAMPLE ID NO. : RT19R-S1494-006

SAMPLE DESCRIPTION : 12inch-Wp

TEST ITEM	CAS NO.	UNIT	TEST METHOD	MDL	RESULT
Dibutyl phthalate (DBP)	84-74-2	mg/kg	With reference to IEC 62321-8 Edition 1.0 : 2017, by solvent extraction and determined by GC/MS	50	N.D.
Di(2-ethylhexyl) phthalate (DEHP)	117-81-7	mg/kg		50	N.D.
Benzyl butyl phthalate (BBP)	85-68-7	mg/kg		50	N.D.
Diisobutyl phthalate (DIBP)	84-69-5	mg/kg		50	N.D.

Tested by : Miseon Lee

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* View of sample as received;-



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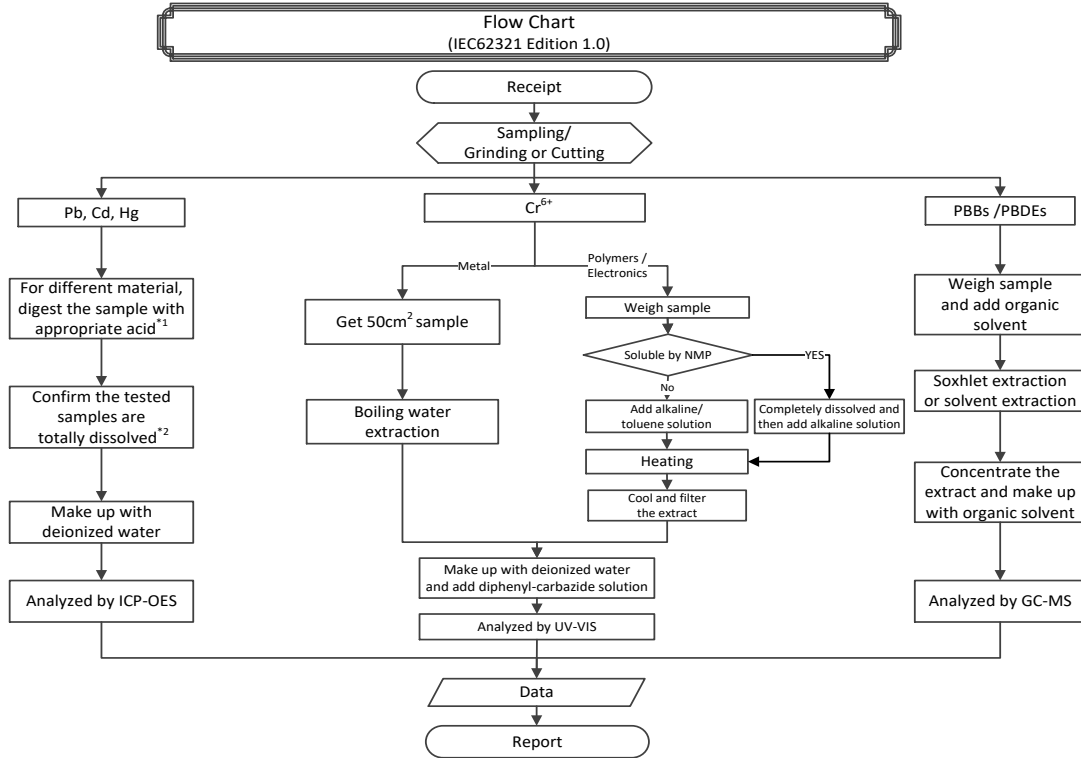
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SAMPLE ID NO. : RT19R-S1494-006

SAMPLE DESCRIPTION : 12inch-Wp



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 : The samples were dissolved totally by pre-conditioning method according to above flow chart.



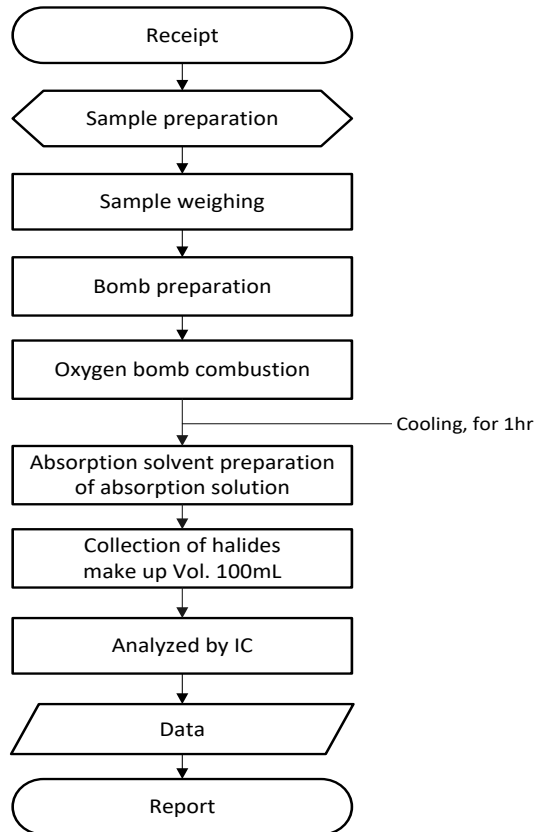
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Flow Chart (EN14582)



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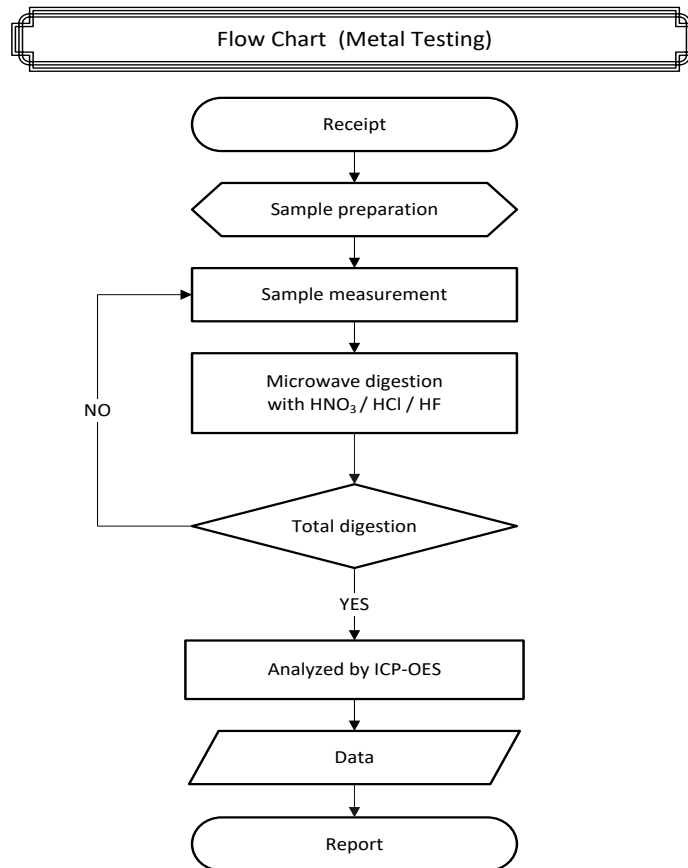
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SAMPLE DESCRIPTION : 12inch-Wp



** Remarks : The samples were dissolved totally by pre-conditioning method according to above flow chart.



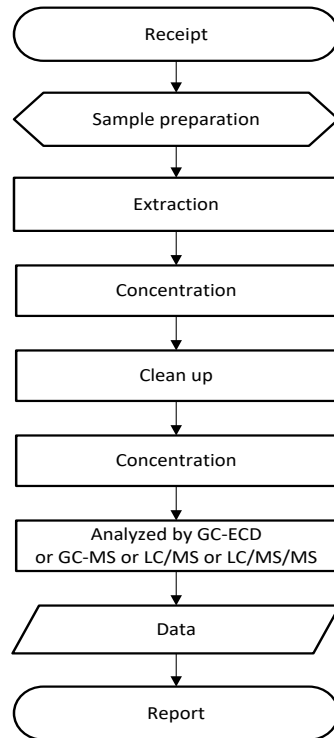
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Flow Chart (EPA 3540C)



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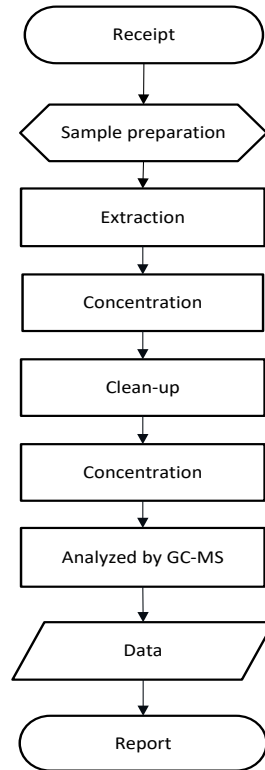
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SAMPLE ID NO. : RT19R-S1494-006

SAMPLE DESCRIPTION : 12inch-Wp

Flow Chart (Phthalates)



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

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