

## TEST REPORT

APPLICANT : PILKOR Electronics Division. (of COWELL Fashion Co., Ltd.)  
ADDRESS : 270, Sinwon-ro(Woncheon-dong), Yeongtong-gu,  
Suwon-si, Gyeonggi-do, Korea

PAGE: 1 of 8

REPORT NO. RT19R-S0366-E

DATE: Feb. 22, 2019

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

NAME/TYPE OF PRODUCT : Resistor  
SAMPLE ID NO. : RT19R-S0366  
ITEM NO. : PMSR/PPRR/PSFR  
MANUFACTURER/VENDOR : PILKOR Electronics Division. (of COWELL Fashion Co., Ltd.)  
NAME OF BUYER : Sony, Samsung, LG

SAMPLE RECEIVED : Jan. 22, 2019  
TESTING DATE : Jan. 22, 2019 ~ Feb. 22, 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.
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- \* Note 3 : This report is not related to the scope of Korea laboratory accreditation scheme.
- \* Note 4 : The item no. is assigned by client and indicated according to their requirement and guarantee letter.

Approved by,



Jade Jang / Lab. Technical Manager

Authorized by,



Bo Park / Lab. General Manager



Authenticity check

Intertek Testing Services Korea Ltd.  
Seoul Office: Tel : 02-6090-9550 Fax : 02-3409-0025 Web Site : [intertek.co.kr](http://intertek.co.kr)  
Seoul Lab. Address : 7, Ahasan-ro 5-gil, Seongdong-gu, Seoul, 04793 Korea  
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## TEST REPORT

REPORT NO. RT19R-S0366-E

SAMPLE ID NO. : RT19R-S0366

SAMPLE DESCRIPTION : Resistor

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 <sup>6+</sup> )	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.
<b>Polybrominated Biphenyl (PBBs)</b>				
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.
<b>Polybrominated Diphenyl Ether (PBDEs)</b>				
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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## TEST REPORT

PAGE: 3 of 8  
DATE: Feb. 22, 2019

REPORT NO. RT19R-S0366-E

SAMPLE ID NO. : RT19R-S0366

SAMPLE DESCRIPTION : Resistor

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.
Antimony (Sb)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	2	N.D.

Tested by : Hyojoo kim, Jooyeon Lee

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PAGE: 4 of 8  
DATE: Feb. 22, 2019

REPORT NO. RT19R-S0366-E

SAMPLE ID NO. : RT19R-S0366

SAMPLE DESCRIPTION : Resistor

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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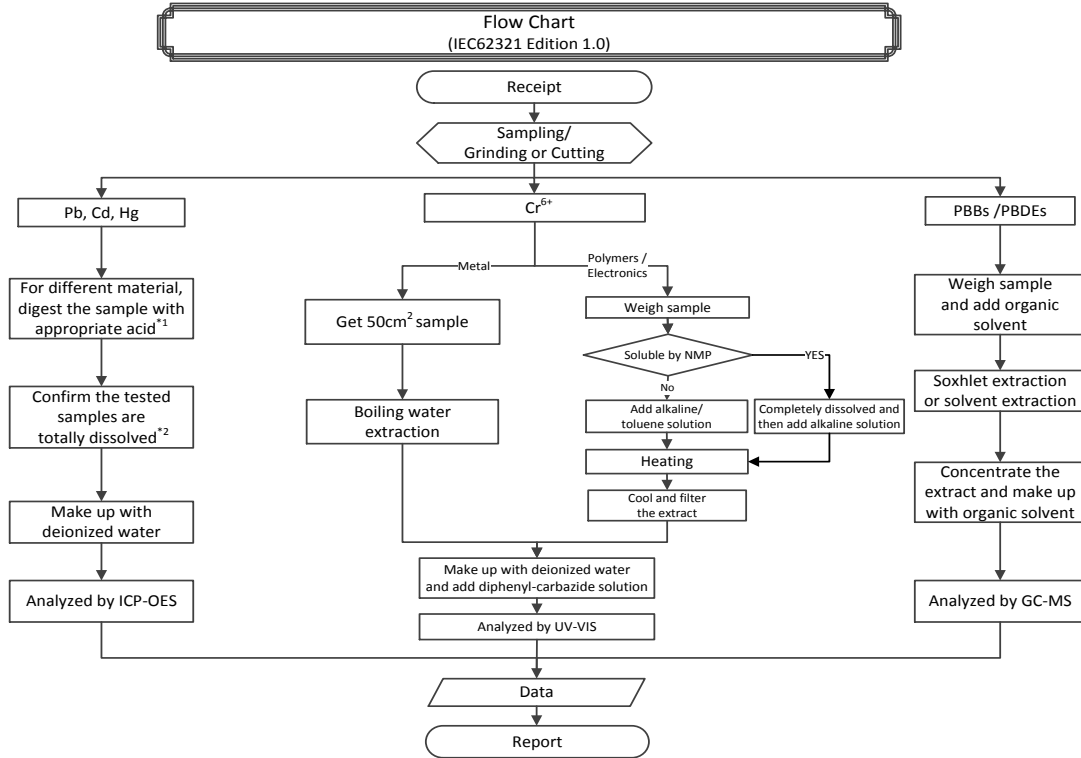
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# TEST REPORT

REPORT NO. RT19R-S0366-E

SAMPLE ID NO. : RT19R-S0366

SAMPLE DESCRIPTION : Resistor



**Remarks :**

\*1 : List of appropriate acid :

Material	Acid added for digestion
Polymers	HNO <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub> , H <sub>3</sub> BO <sub>3</sub>
Metals	HNO <sub>3</sub> , HCl, HF
Electronics	HNO <sub>3</sub> , HCl, H <sub>2</sub> O <sub>2</sub> , HBF <sub>4</sub>

\*2 : The samples were dissolved totally by pre-conditioning method according to above flow chart.



## TEST REPORT

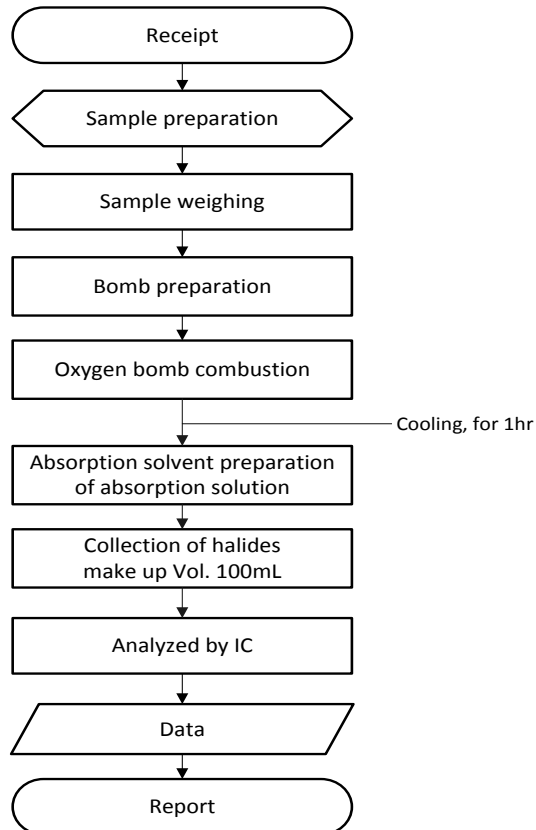
PAGE: 6 of 8  
DATE: Feb. 22, 2019

REPORT NO. RT19R-S0366-E

SAMPLE ID NO. : RT19R-S0366

SAMPLE DESCRIPTION : Resistor

### Flow Chart (EN14582)



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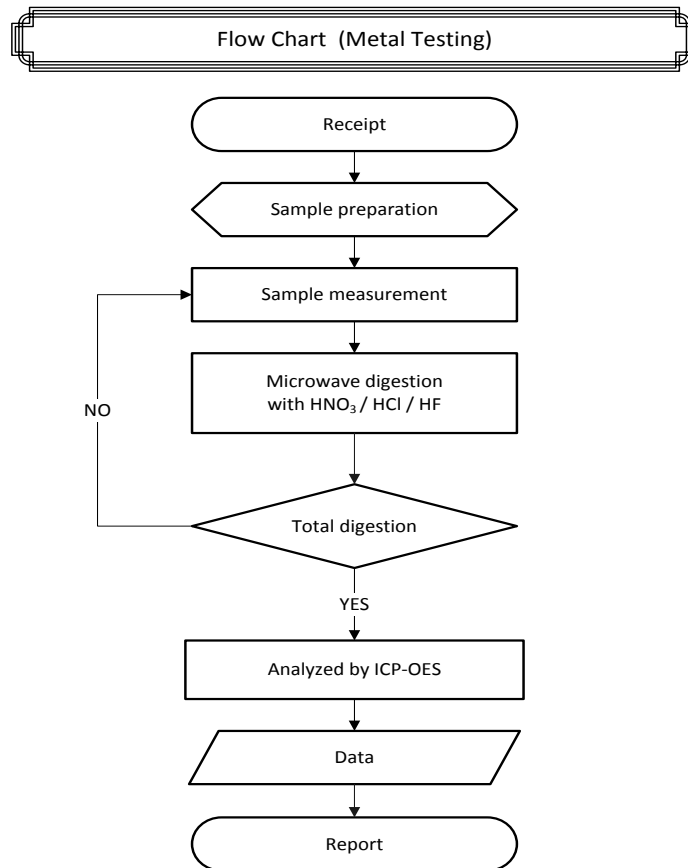
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SAMPLE ID NO. : RT19R-S0366

SAMPLE DESCRIPTION : Resistor



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



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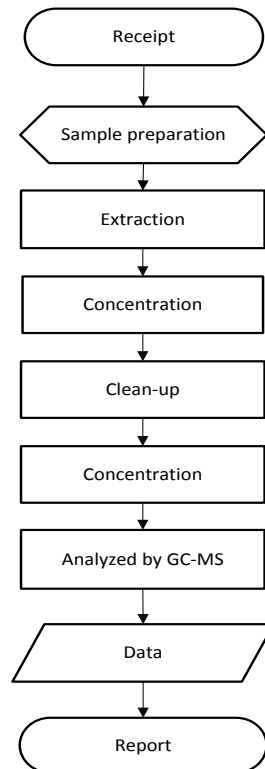
PAGE: 8 of 8  
DATE: Feb. 22, 2019

REPORT NO. RT19R-S0366-E

SAMPLE ID NO. : RT19R-S0366

SAMPLE DESCRIPTION : Resistor

### Flow Chart (Phthalates)



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

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