

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 9

REPORT NO. RT20R-S0622-002-E DATE: Mar. 06, 2020

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

NAME/TYPE OF PRODUCT : Resistor

SAMPLE ID NO. : RT20R-S0622-002 ITEM NO. : PPBR/PPSR(OVER $50^{\text{K}\Omega}$)

MANUFACTURER/VENDOR : PILKOR Electronics Division. (of COWELL Fashion Co., Ltd.)

NAME OF BUYER : Sony, Samsung, LG

SAMPLE RECEIVED : Feb. 10, 2020

TESTING DATE : Feb. 10, 2020 ~ Mar. 06, 2020

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

Approved by,

Authorized by,

Authenticity chec

Jade Jang / Lab. Technical Manager

Bo Park / Lab. General Manager

Intertek Testing Services Korea Ltd.



^{*} 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: The item no. is assigned by client and indicated according to their requirement and guarantee letter.



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REPORT NO. RT20R-S0622-002-E DATE: Mar. 06, 2020

SAMPLE ID NO. : RT20R-S0622-002

SAMPLE DESCRIPTION : Resistor

| TEST ITEM | UNIT | TEST METHOD | MDL | RESULT |
|---|--------|---|-----|--------|
| Cadmium (Cd) | mg/kg | With reference to IEC 62321-5 Edition 1.0 : 2013, | 0.5 | N.D. |
| Lead (Pb) | mg/kg | by acid digestion and determined by ICP-OES | 5 | 408 |
| 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) | 1 | | | ı |
| Monobromobiphenyl | mg/kg | | 5 | N.D. |
| Dibromobiphenyl | mg/kg | | 5 | N.D. |
| Tribromobiphenyl | mg/kg | | 5 | N.D. |
| Tetrabromobiphenyl | mg/kg | With reference to | 5 | N.D. |
| Pentabromobiphenyl | mg/kg | IEC 62321-6 Edition 1.0 : 2015, | 5 | N.D. |
| Hexabromobiphenyl | mg/kg | by solvent extraction and | 5 | N.D. |
| Heptabromobiphenyl | mg/kg | determined by GC/MS | 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 | | 5 | N.D. |
| Dibromodiphenyl ether | mg/kg |] | 5 | N.D. |
| Tribromodiphenyl ether | mg/kg |] | 5 | N.D. |
| Tetrabromodiphenyl ether | mg/kg | With reference to | 5 | N.D. |
| Pentabromodiphenyl ether | mg/kg | IEC 62321-6 Edition 1.0 : 2015, | 5 | N.D. |
| Hexabromodiphenyl ether | mg/kg | by solvent extraction and | 5 | N.D. |
| Heptabromodiphenyl ether | mg/kg | determined by GC/MS | 5 | N.D. |
| Octabromodiphenyl ether | mg/kg | | | N.D. |
| Nonabromodiphenyl ether | mg/kg | | | 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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REPORT NO. RT20R-S0622-002-E DATE: Mar. 06, 2020

SAMPLE ID NO. : RT20R-S0622-002

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 (CI) | 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

Notes: mg/kg = ppm = parts per million

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REPORT NO. RT20R-S0622-002-E DATE: Mar. 06, 2020

SAMPLE ID NO. : RT20R-S0622-002

SAMPLE DESCRIPTION : Resistor

| TEST ITEM | CAS NO. | UNIT | TEST METHOD | MDL | RESULT |
|--------------------------------------|--------------------------|-------|---|-----|--------|
| Phthalates | | | | | |
| Dibutyl phthalate (DBP) | 84-74-2 | mg/kg | | 50 | N.D. |
| Di(2-ethylhexyl) phthalate (DEHP) | 117-81-7 | mg/kg | | 50 | N.D. |
| Di-n-octyl phthalate (DNOP) | 117-84-0 | mg/kg | | 50 | N.D. |
| Diisononyl phthalate (DINP) | 28553-12-0 68515-48-0 | mg/kg | With reference to IEC 62321-8 Edition 1.0 : 2017, | 100 | N.D. |
| Diisodecyl phthalate (DIDP) | 26761-40-0 68515-49-1 | mg/kg | by solvent extraction and determined by GC/MS | 100 | 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. |
| Di-n-hexyl phthalate (DNHP) | 84-75-3 | mg/kg | | 50 | N.D. |

Tested by : Miseon Lee

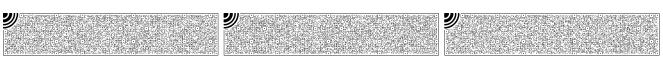
Notes: mg/kg = ppm = parts per million

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DATE: Mar. 06, 2020

REPORT NO. RT20R-S0622-002-E

SAMPLE DESCRIPTION: Resistor

SAMPLE ID NO. : RT20R-S0622-002

* View of sample as received;-



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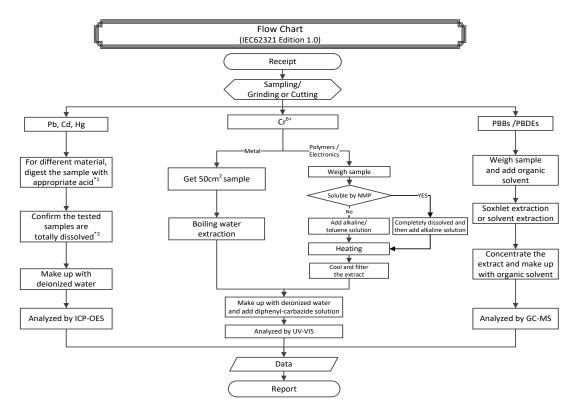
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DATE: Mar. 06, 2020

SAMPLE ID NO. : RT20R-S0622-002

SAMPLE DESCRIPTION: Resistor



Remarks:
*1: List of appropriate acid:

| - : | 1. List of appropriate acid: | | | | | |
|-----|------------------------------|--|--|--|--|--|
| | Material | Acid added for digestion | | | | |
| | Polymers | HNO₃, HCl, HF, H ₂ O ₂ , H3BO₃ | | | | |
| | Metals | HNO₃, 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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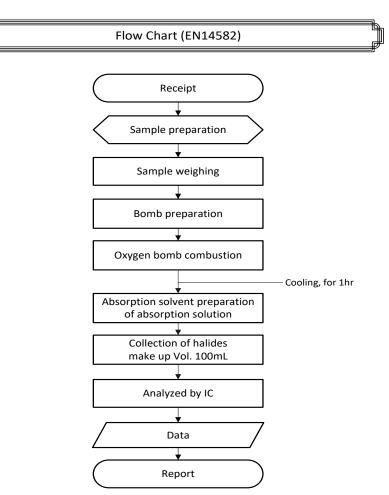
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DATE: Mar. 06, 2020

REPORT NO. RT20R-S0622-002-E

SAMPLE ID NO. : RT20R-S0622-002

SAMPLE DESCRIPTION: Resistor



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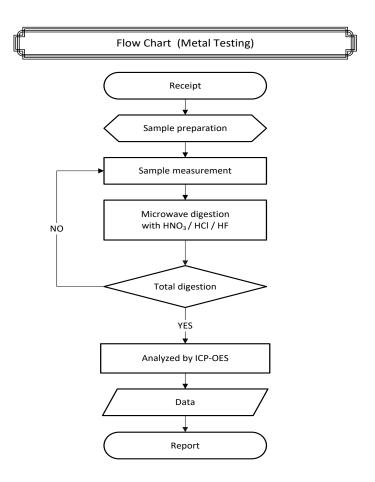
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REPORT NO. RT20R-S0622-002-E

DATE: Mar. 06, 2020

SAMPLE ID NO. : RT20R-S0622-002

SAMPLE DESCRIPTION: Resistor



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

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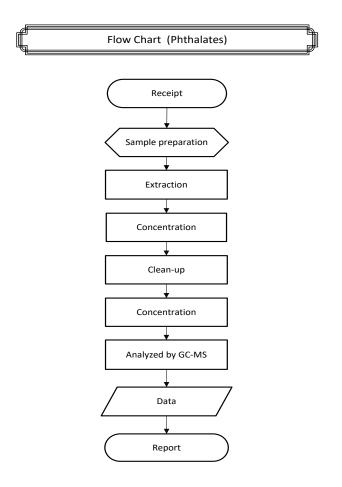


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REPORT NO. RT20R-S0622-002-E DATE: Mar. 06, 2020

SAMPLE ID NO. : RT20R-S0622-002

SAMPLE DESCRIPTION: Resistor



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** End of Report ****

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