



# TEST REPORT

Applicant : UPC CO., LTD. (YOO POONG INK CO., LTD.)  
Address : 469-4, Deokdo-ri, Gwangjeok-myeon,  
Yangju-si, Gyeonggi-do, Korea

Page: 1 of 7

Report No. RT16R-S2470-002-E

Date: Jun. 01, 2016

Sample Description : The following submitted sample(s) said to be:-  
  
Name/Type of Product : PVC (Cable) INK WHITE UP(주)  
Sample ID No. : RT16R-S2470-002  
Manufacturer/Vendor : UPC CO., LTD. (YOO POONG INK CO., LTD.)  
  
Sample received : May 26, 2016  
Testing Date : May 26, 2016 ~ Jun. 01, 2016  
  
Test Type : RoHS wet chemical analysis  
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 relate only to the object tested.  
\* Note 2 : This report shall not be reproduced except in full without the written approval of the testing laboratory.

Approved by,

Authorized by,



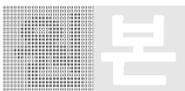
Authenticity check

Jade Jang / Lab. Technical Manager

Bo Park / Lab. General Manager

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Report No. RT16R-S2470-002-E

Sample ID No. : RT16R-S2470-002  
Sample Description : PVC (Cable) INK WHITE UP(주)

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> ) (For non-metal)	mg/kg	With reference to IEC 62321 Edition 1.0 : 2008, by alkaline digestion and determined by UV-VIS Spectrophotometer	1	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.

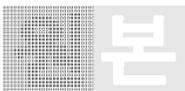
Tested by : Chanoh Kim, Hyojoo Kim, Sujung Lee

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

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# TEST REPORT

Report No. RT16R-S2470-002-E

Sample ID No. : RT16R-S2470-002  
Sample Description : PVC (Cable) INK WHITE UP(주)

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	63100

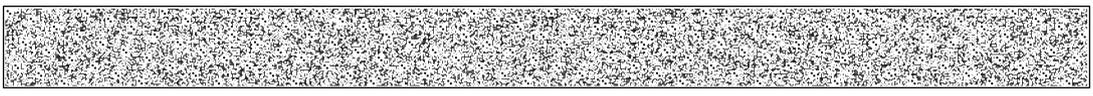
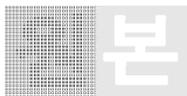
Tested by : Dahye Lim

Notes : mg/kg = ppm = parts per million  
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MDL = Method detection limit

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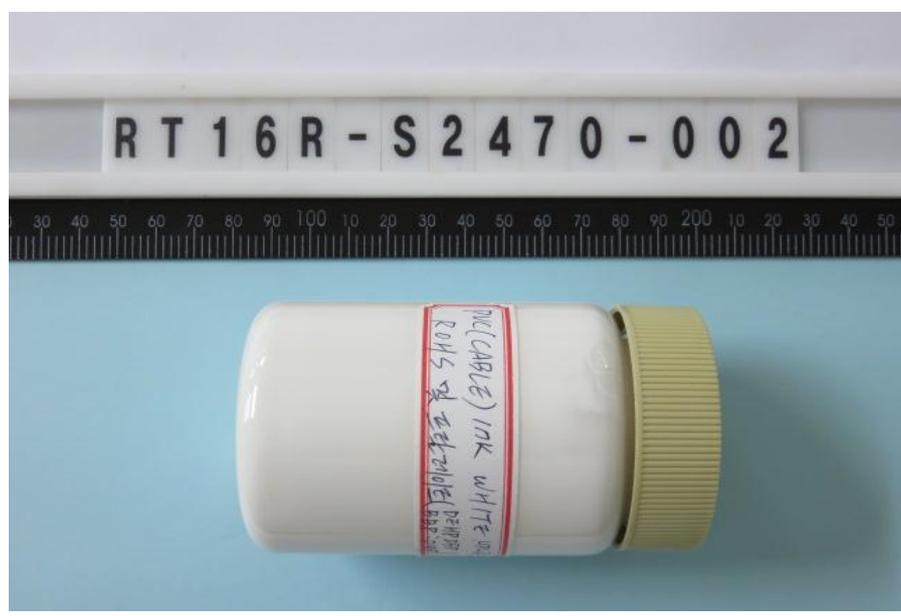
Sample ID No. : RT16R-S2470-002  
Sample Description : PVC (Cable) INK WHITE UP(주)

Test Item	CAS No.	Unit	Test Method	MDL	Result
Dibutyl phthalate (DBP)	84-74-2	mg/kg	With reference to IEC 62321-8 (111/321/CD), 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 : Sujung Lee

Notes : mg/kg = ppm = parts per million  
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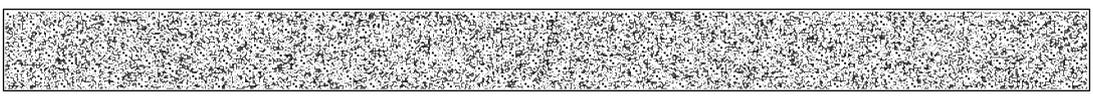
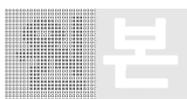
\* View of sample as received:-



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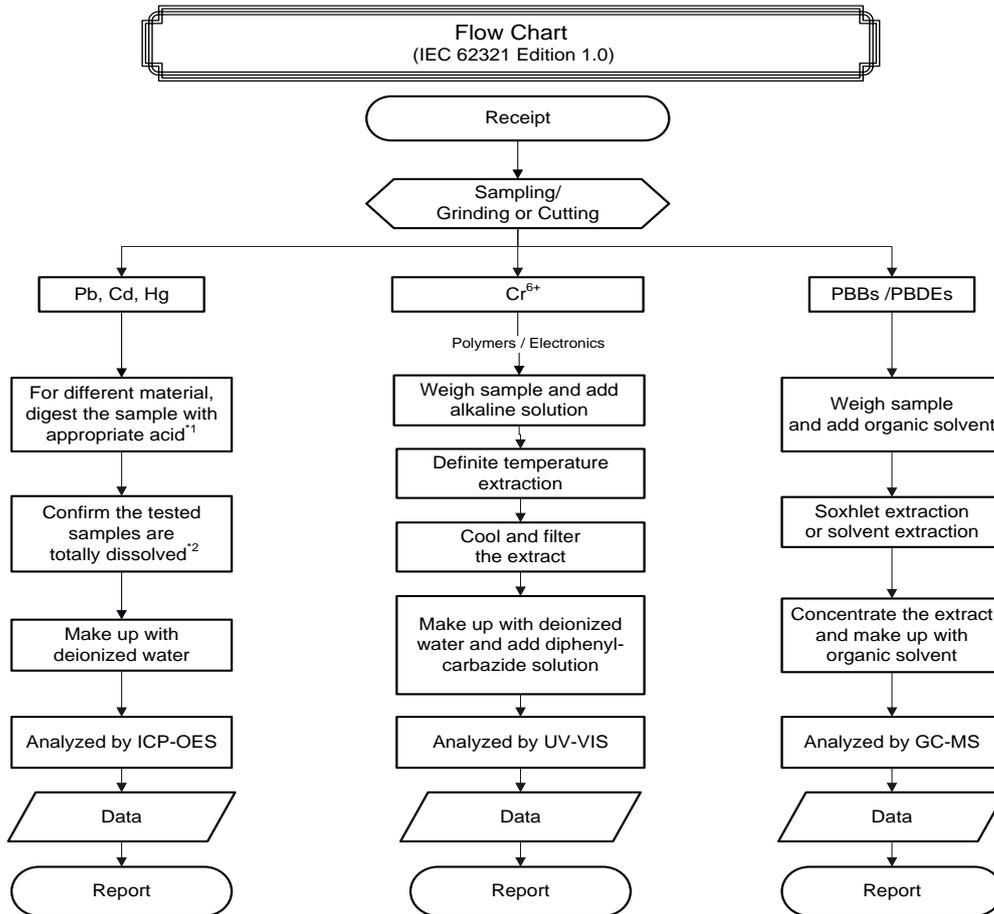


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Sample ID No. : RT16R-S2470-002  
Sample Description : PVC (Cable) INK WHITE UP(주)



Remarks :

\*1 : List of appropriate acid :

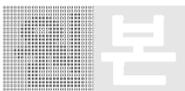
Material	Acid added for digestion
Polymers	HNO <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub> , H <sub>3</sub> BO <sub>3</sub>
Metals	HNO <sub>3</sub> , HCl, HF
Electronics	HNO <sub>3</sub> , HCl, H <sub>2</sub> O <sub>2</sub> , HBF <sub>4</sub>

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

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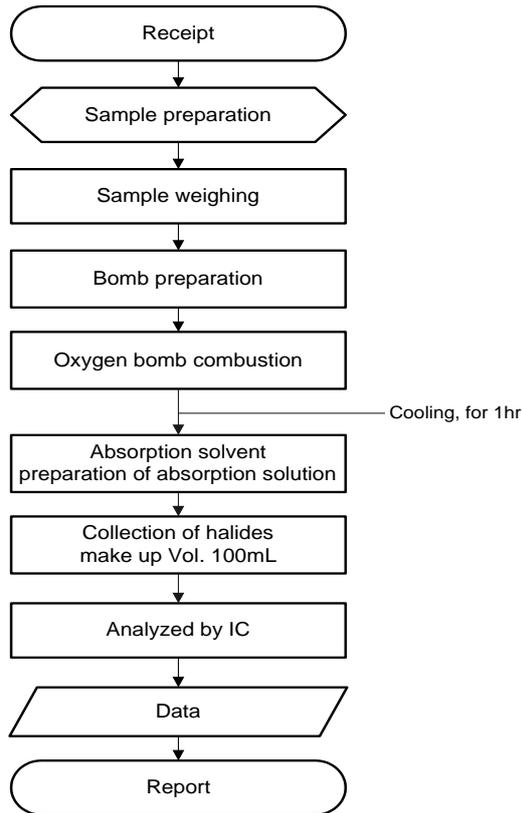
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Sample Description : PVC (Cable) INK WHITE UP(주)

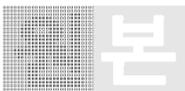
## Flow Chart (Halogen)



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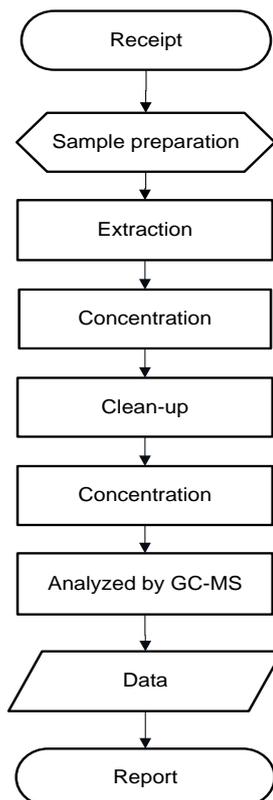
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Sample Description : PVC (Cable) INK WHITE UP(주)

## Flow Chart (Phthalates)



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

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