

# TEST REPORT

Applicant : SAMHWA NON-FERROUS METAL  
Address : 159, Ojanggol-gil, Gunbuk-myeon, Haman-gun,  
Gyeongsangnam-do, Korea

Page: 1 of 6

Report No. RT16R-U1268-001-E-R2

Date: Jul. 12, 2016

Sample Description : The following submitted sample(s) said to be:-

Name/Type of Product : PF142 BAR  
Name of Material : Sn99.3% Cu0.7%  
Sample ID No. : RT16R-U1268-001  
Item No. : PF142 BAR  
Manufacturer/Vendor : SAMHWA NON-FERROUS METAL

Sample received : Jul. 01, 2016  
Testing Date : Jul. 01, 2016 ~ Jul. 06, 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.
- \* Note 3 : The item no. is assigned by client and indicated according to their requirement and guarantee letter.

Approved by,



E.Y.Lee / Lab. Technical Manager

Authorized by,



H.W.Yoo / Lab. General Manager



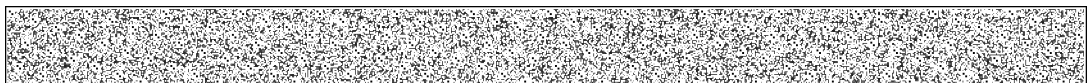
Authenticity check

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## TEST REPORT

Report No. RT16R-U1268-001-E-R2

Sample ID No. : RT16R-U1268-001

Sample Description : PF142 BAR

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	152
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 metal)	μg/cm <sup>2</sup>	With reference to IEC 62321-7-1 Edition 1.0 : 2015, by boiling water extraction and determined by UV-VIS Spectrophotometer	0.10	Negative

Tested by : SH Kim, JH Jin

Notes : mg/kg = ppm = parts per million  
 μg/cm<sup>2</sup> = microgram per square centimeter  
 < = Less than  
 N.D. = Not detected ( <MDL )  
 MDL = Method detection limit

Remarks : Interpretation of Cr<sup>6+</sup> results

Qualitative result	Concentration of Cr <sup>6+</sup> (μg/cm <sup>2</sup> )	Meaning
Negative	< 0.10	The sample coating is considered a non-Cr <sup>6+</sup> based coating.
Inconclusive	0.10 ≤ and ≤ 0.13	Unavoidable coating variation may influence the determination.
Positive	> 0.13	The sample coating is considered to contain Cr <sup>6+</sup> .

1. The qualitative results should be determination by the average result of three test results.  
(If concentration of Cr<sup>6+</sup> is over 0.10 μg/cm<sup>2</sup>)
2. The above results will be carried out by visual comparison only with the standard.

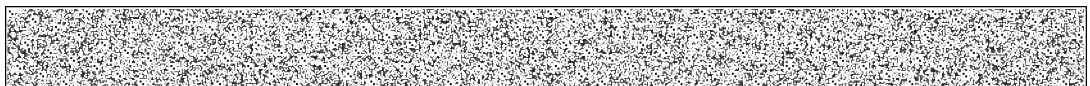
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Report No. RT16R-U1268-001-E-R2

Sample ID No. : RT16R-U1268-001

Sample Description : PF142 BAR

Test Item	Unit	Test Method	MDL	Result
<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 : MB Song

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

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Sample ID No. : RT16R-U1268-001

Sample Description : PF142 BAR

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.

Tested by : SH Kim

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



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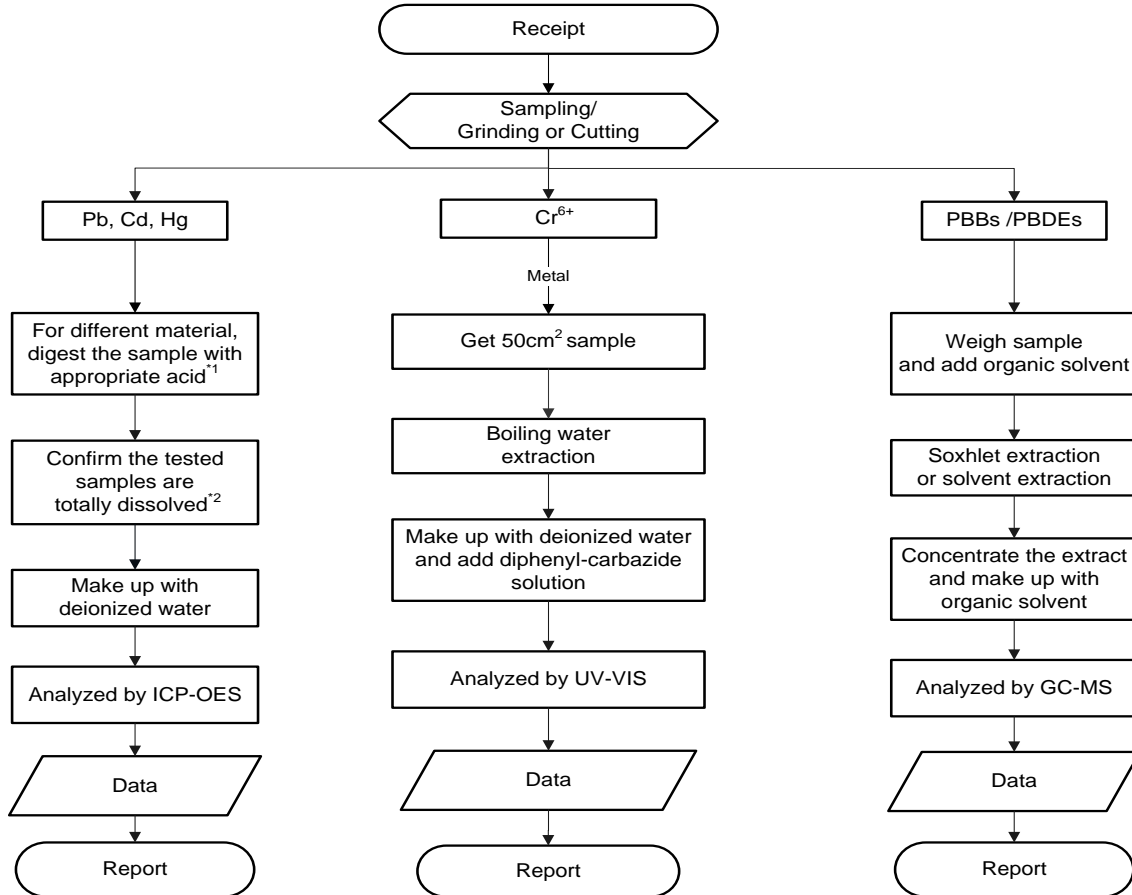
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Sample ID No. : RT16R-U1268-001

Sample Description : PF142 BAR

Flow Chart  
(IEC 62321 Edition 1.0)



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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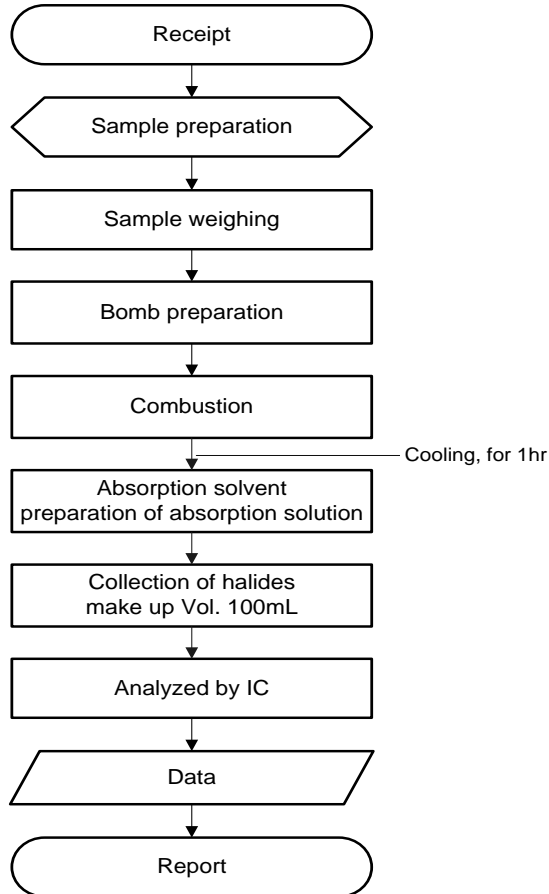
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Sample Description : PF142 BAR

## Flow Chart (Halogen)



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

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