Test Report No. F690101/LF-CTSAYGU16-02761

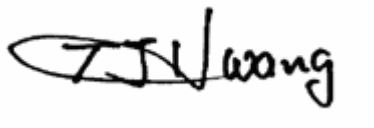
Issued Date : 2016. 04. 04

POONGSAN CORPORATION
94 Sanam-ro,Onsan-eup
Ulju-gun,Ulsan
Korea

The following sample(s) was/were submitted and identified by/on behalf of the client as:-

SGS File No.	:	AYGU16-02761
Product Name	:	C2680
Item No./Part No.	:	Brass
Received Date	:	2016. 03. 30
Test Period	:	2016. 03. 30 to 2016. 04. 04
Test Results	:	For further details, please refer to following page(s)

SGS Korea Co., Ltd.
/ Gimhae Laboratory



Thomas Hwang / Lab Manager

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at www.sgs.com/terms_e-document.htm <http://www.sgs.com/terms_e-document.htm>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s).

SGS Korea Co.,Ltd.
205, GBMC, 88 Somang-gil, Juchon-myeon, Gimhae-si, Gyeongnam, Korea 50969
t +82 (0)55 310 8801 f +82 (0)55 310 8809 http://www.sgsgroup.kr

Member of the SGS Group (Société Générale de Surveillance)

Sample No. : AYGU16-02761.001
Sample Description : C2680
Item No./Part No. : Brass
Materials : N/A

Heavy Metals

Test Items	Unit	Test Method	MDL	Results
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5:2013(Determination of Cadmium by ICP-OES)	0.5	N.D.
Lead (Pb)	mg/kg	With reference to IEC 62321-5:2013(Determination of Lead by ICP-OES)	5	15.0
Mercury (Hg)	mg/kg	With reference to IEC 62321-4:2013(Determination of Mercury by ICP-OES)	2	N.D.
Hexavalent Chromium (Cr VI) *	μg/cm²	With reference to IEC 62321-7-1:2015 (Determination of CrVI by UV-Vis)	0.1	N.D.
Beryllium (Be)	mg/kg	With reference to EPA 3052(1996), US EPA 6010B(1996), ICP	1	N.D.
Antimony (Sb)	mg/kg	With reference to EPA 3052(1996), US EPA 6010B(1996), ICP	10	N.D.

Flame Retardants-PBBs/PBDEs

Test Items	Unit	Test Method	MDL	Results
Monobromobiphenyl	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Dibromobiphenyl	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Tribromobiphenyl	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Tetrabromobiphenyl	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Pentabromobiphenyl	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Hexabromobiphenyl	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Heptabromobiphenyl	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Octabromobiphenyl	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Nonabromobiphenyl	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Decabromobiphenyl	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Monobromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at www.sgs.com/terms_e-document.htm <http://www.sgs.com/terms_e-document.htm>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s).

SGS Korea Co.,Ltd. 205, GBMC, 88 Somang-gil, Juchon-myeon, Gimhae-si, Gyeongnam, Korea 50969
t +82 (0)55 310 8801 f +82 (0)55 310 8809 http://www.sgsgroup.kr

Member of the SGS Group (Société Générale de Surveillance)

Sample No. : AYGU16-02761.001
Sample Description : C2680
Item No./Part No. : Brass
Materials : N/A

Flame Retardants-PBBs/PBDEs

Test Items	Unit	Test Method	MDL	Results
Dibromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Tribromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Tetrabromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Pentabromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Hexabromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Heptabromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Octabromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Nonabromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Decabromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.

Halogen Contents

Test Items	Unit	Test Method	MDL	Results
Bromine(Br)	mg/kg	EN 14582:2007 , IC	30	N.D.
Chlorine(Cl)	mg/kg	EN 14582:2007 , IC	30	N.D.

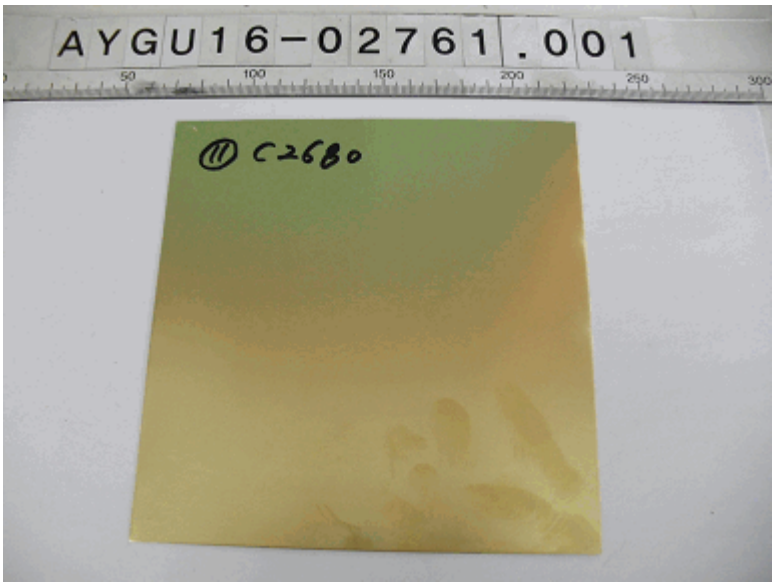
NOTE:
(1) N.D. = Not detected.(<MDL)
(2) mg/kg = ppm
(3) MDL = Method Detection Limit
(4) - = No regulation
(5) Negative = Undetectable / Positive = Detectable
(6) ** = Qualitative analysis (No Unit)
(7) * = a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 ug/cm2. The sample coating is considered to contain CrVI.
b. The sample is negative for CrVI if CrVI is n.d. (concentration less than 0.10 ug/cm2). The coating is considered a non-CrVI based coating.
c. The result between 0.10 ug/cm2 and 0.13 ug/cm2 is considered to be inconclusive - unavoidable coating variations may influence the determination.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at www.sgs.com/terms_e-document.htm <http://www.sgs.com/terms_e-document.htm>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s).

SGS Korea Co.,Ltd.
205, GBMC, 88 Somang-gil, Juchon-myeon, Gimhae-si, Gyeongnam, Korea 50969
t +82 (0)55 310 8801 f +82 (0)55 310 8809 http://www.sgsgroup.kr

Member of the SGS Group (Société Générale de Surveillance)

Picture of Sample as Received:

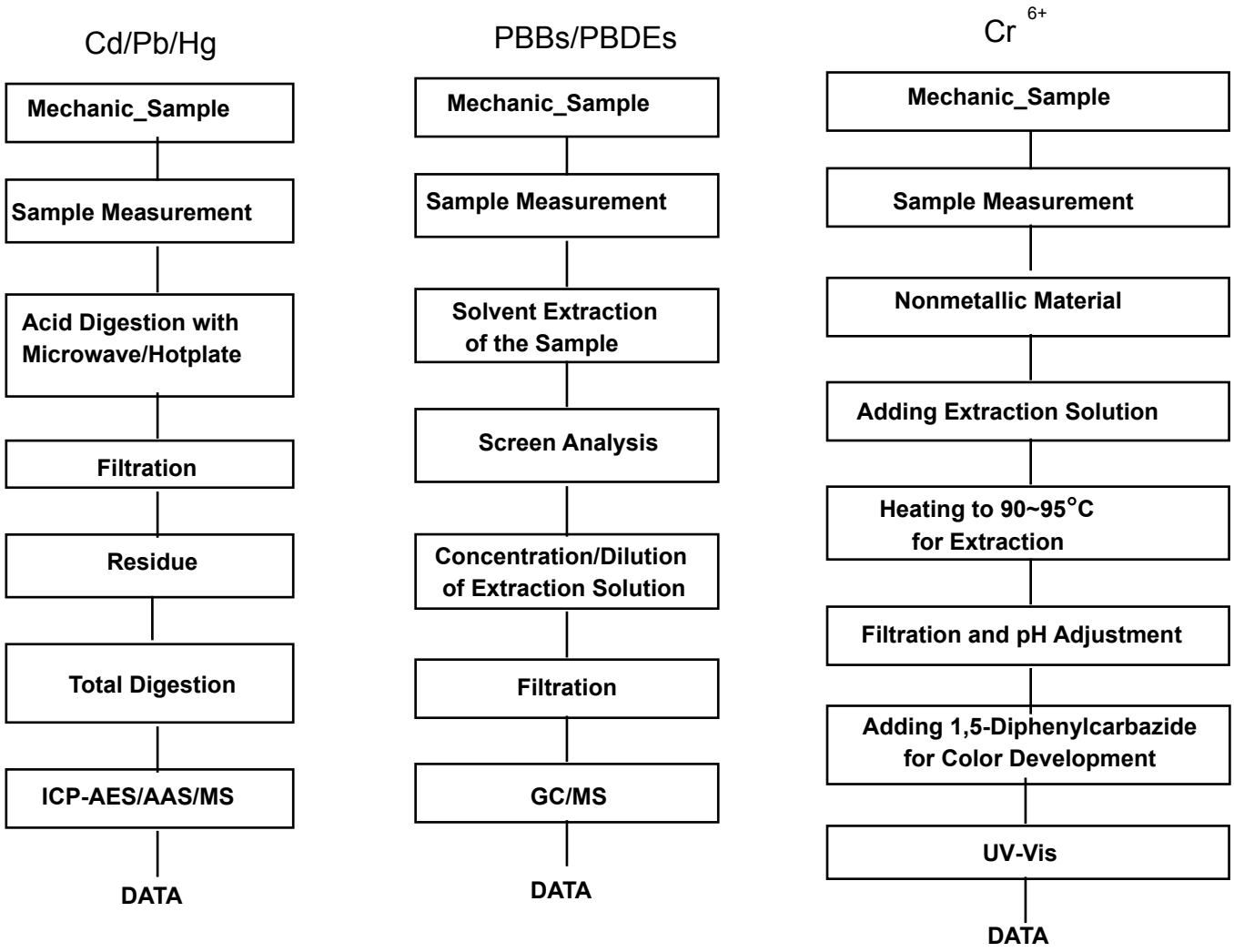


This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at www.sgs.com/terms_e-document.htm <http://www.sgs.com/terms_e-document.htm>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s).

SGS Korea Co.,Ltd.
205, GBMC, 88 Somang-gil, Juchon-myeon, Gimhae-si, Gyeongnam, Korea 50969
t +82 (0)55 310 8801 f +82 (0)55 310 8809 http://www.sgsgroup.kr

Member of the SGS Group (Société Générale de Surveillance)

Testing Flow Chart for RoHS:Cd/Pb/Hg/Cr^{6+} /PBBs&PBDEs Testing



The samples were dissolved totally by pre-conditioning method according to above flow chart for Cd,Pb,Hg.

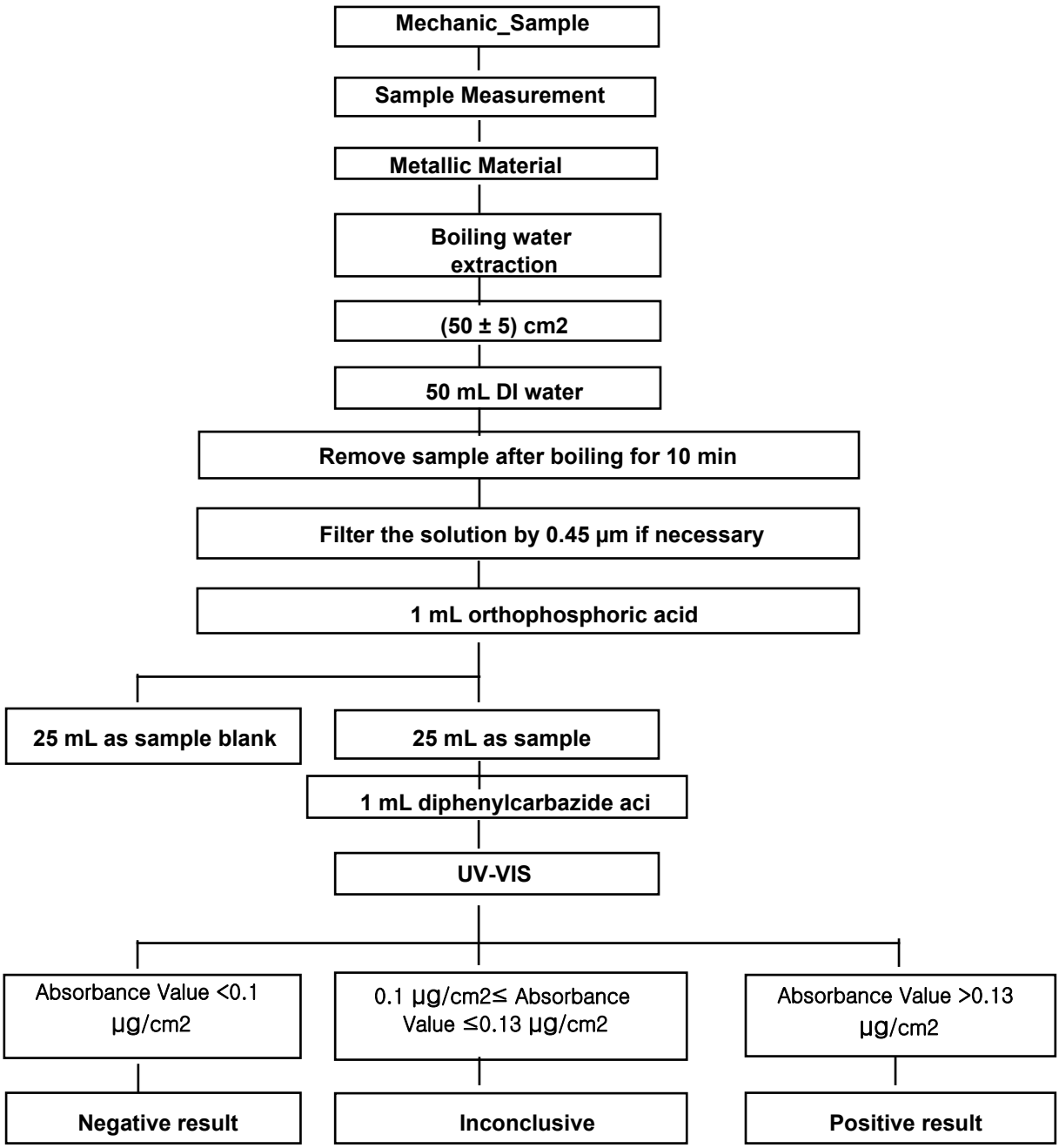
Section Chief : Sharpless Park

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at www.sgs.com/terms_e-document.htm <http://www.sgs.com/terms_e-document.htm>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s).

SGS Korea Co.,Ltd. 205, GBMC, 88 Somang-gil, Juchon-myeon, Gimhae-si, Gyeongnam, Korea 50969
t +82 (0)55 310 8801 f +82 (0)55 310 8809 http://www.sgsgroup.kr

Member of the SGS Group (Société Générale de Surveillance)

Cr^{6+}



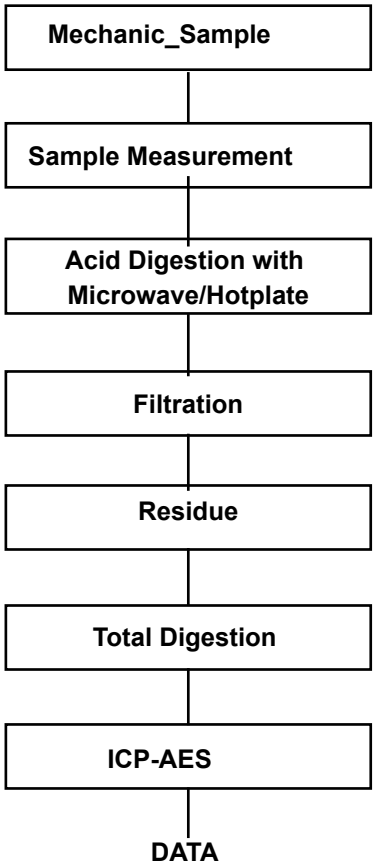
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at www.sgs.com/terms_e-document.htm <http://www.sgs.com/terms_e-document.htm>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s).

SGS Korea Co.,Ltd.
205, GBMC, 88 Somang-gil, Juchon-myeon, Gimhae-si, Gyeongnam, Korea 50969
t +82 (0)55 310 8801 f +82 (0)55 310 8809 http://www.sgsgroup.kr

Member of the SGS Group (Société Générale de Surveillance)

Flow Chart for Inorganic Elements Testing

Inorganic Elements



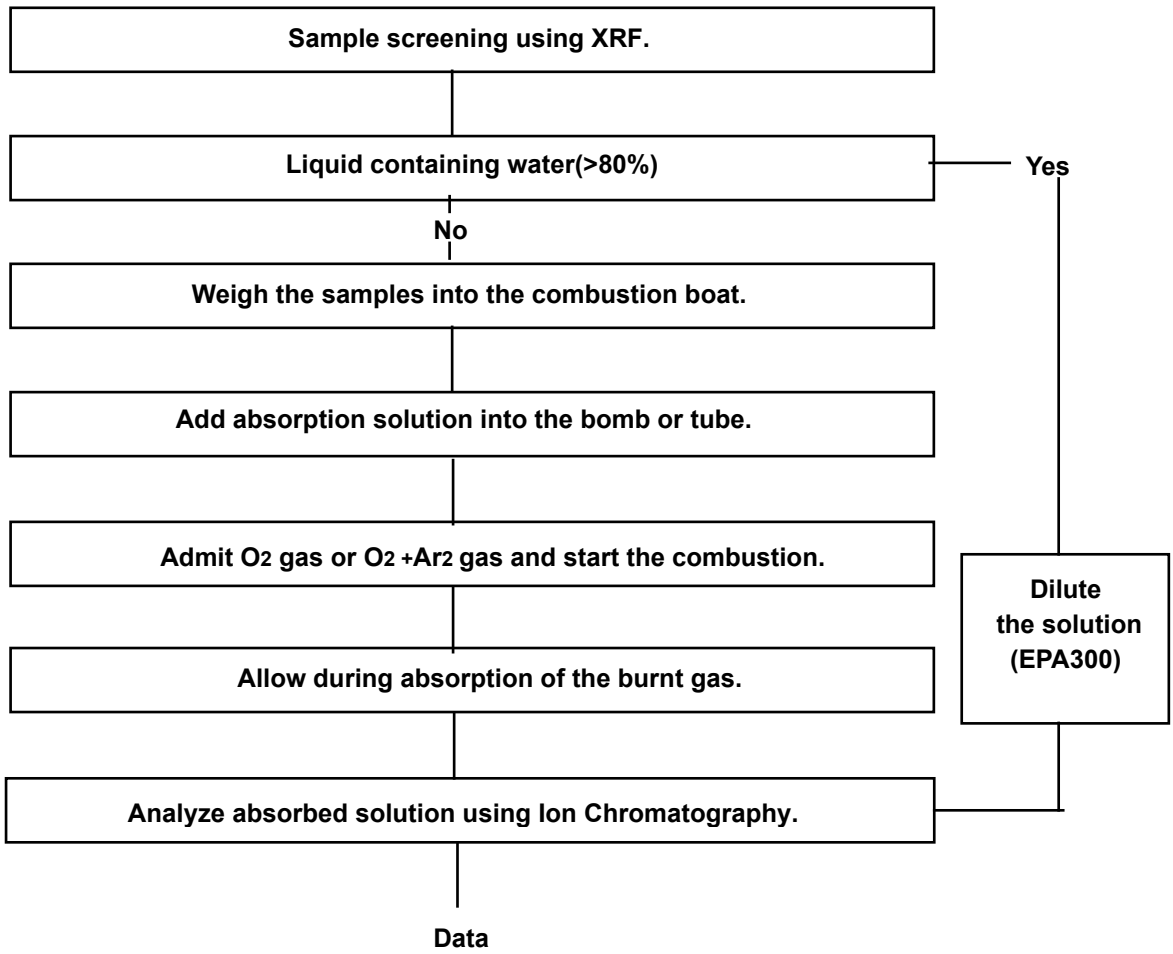
Major Inorganic Heavy Metals	Antimony(Sb) , Beryllium(Be) , Phosphorus(P) , Arsenic(As) etc.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at www.sgs.com/terms_e-document.htm <http://www.sgs.com/terms_e-document.htm>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s).

SGS Korea Co.,Ltd.
205, GBMC, 88 Somang-gil, Juchon-myeon, Gimhae-si, Gyeongnam, Korea 50969
t +82 (0)55 310 8801 f +82 (0)55 310 8809 http://www.sgsgroup.kr

Member of the SGS Group (Société Générale de Surveillance)

Flow Chart for Halogen Test



*** End of Report ***

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at www.sgs.com/terms_e-document.htm <http://www.sgs.com/terms_e-document.htm>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s).

SGS Korea Co.,Ltd.
205, GBMC, 88 Somang-gil, Juchon-myeon, Gimhae-si, Gyeongnam, Korea 50969
t +82 (0)55 310 8801 f +82 (0)55 310 8809 http://www.sgsgroup.kr

Member of the SGS Group (Société Générale de Surveillance)