

Test Report

No. : CE/2020/73449

Date : 2020/07/28

Page : 1 of 9

ALPHA ASSEMBLY SOLUTIONS (TAIWAN) LIMITED

NO. 20, LANE 12, SEC. 2, NAN-SHAN RD., LUZHU DISTRICT, TAOYUAN CITY, 33860 TAIWAN

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

Sample Submitted By : ALPHA ASSEMBLY SOLUTIONS (TAIWAN) LIMITED
 Sample Description : Atrox
 Style/Item No : Atrox™ D591-3 Series
 Sample Receiving Date : 2020/07/17
 Testing Period : 2020/07/17 to 2020/07/28

Test Requested

- (1) As specified by client, with reference to RoHS 2011/65/EU Annex II and amending Directive (EU) 2015/863 to determine Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP contents in the submitted sample(s).
- (2) Please refer to next pages for the other item(s).

Test Result(s) : Please refer to following pages.

Troy Chang
 Troy Chang / Manager - Tech
 Signed for and behalf of
 SGS TAIWAN LTD.
 Chemical Laboratory - Taipei



PIN CODE: E2F75A48

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://twap.sgs.com/Terms-and-Conditions.html> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://twap.sgs.com/Terms-and-Conditions.html>. 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 instruction, 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) tested.

Test Report

No. : CE/2020/73449

Date : 2020/07/28

Page : 2 of 9

ALPHA ASSEMBLY SOLUTIONS (TAIWAN) LIMITED

NO. 20, LANE 12, SEC. 2, NAN-SHAN RD., LUZHU DISTRICT, TAOYUAN CITY, 33860 TAIWAN

Test Result(s)

PART NAME No.1 : GRAY PASTE

Test Item(s)	Unit	Method	MDL	Result No.1
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5: 2013 and performed by ICP-OES.	2	n.d.
Lead (Pb)	mg/kg	With reference to IEC 62321-5: 2013 and performed by ICP-OES.	2	n.d.
Mercury (Hg)	mg/kg	With reference to IEC 62321-4:2013+AMD1:2017 and performed by ICP-OES.	2	n.d.
Hexavalent Chromium Cr(VI)	mg/kg	With reference to IEC 62321-7-2: 2017 and performed by UV-VIS.	8	n.d.
Sum of PBBs	mg/kg	With reference to IEC 62321-6: 2015 and performed by GC/MS.	-	n.d.
Monobromobiphenyl	mg/kg		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.
Sum of PBDEs	mg/kg		-	n.d.
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		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.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://twap.sgs.com/Terms-and-Conditions.html> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://twap.sgs.com/Terms-and-Conditions.html>. 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 instruction, 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) tested.

Test Report

No. : CE/2020/73449

Date : 2020/07/28

Page : 3 of 9

ALPHA ASSEMBLY SOLUTIONS (TAIWAN) LIMITED

NO. 20, LANE 12, SEC. 2, NAN-SHAN RD., LUZHU DISTRICT, TAOYUAN CITY, 33860 TAIWAN

Test Item(s)	Unit	Method	MDL	Result No.1
DEHP (Di- (2-ethylhexyl) phthalate) (CAS No.: 117-81-7)	mg/kg	With reference to IEC 62321-8: 2017. Analysis was performed by GC/MS.	50	n.d.
BBP (Butyl Benzyl phthalate) (CAS No.: 85-68-7)	mg/kg	With reference to IEC 62321-8: 2017. Analysis was performed by GC/MS.	50	n.d.
DBP (Dibutyl phthalate) (CAS No.: 84-74-2)	mg/kg	With reference to IEC 62321-8: 2017. Analysis was performed by GC/MS.	50	n.d.
DIBP (Di-isobutyl phthalate) (CAS No.: 84-69-5)	mg/kg	With reference to IEC 62321-8: 2017. Analysis was performed by GC/MS.	50	n.d.
Halogen				
Halogen-Fluorine (F) (CAS No.: 14762-94-8)	mg/kg	With reference to BS EN 14582: 2016. Analysis was performed by IC.	50	n.d.
Halogen-Chlorine (Cl) (CAS No.: 22537-15-1)	mg/kg		50	n.d.
Halogen-Bromine (Br) (CAS No.: 10097-32-2)	mg/kg		50	n.d.
Halogen-Iodine (I) (CAS No.: 14362-44-8)	mg/kg		50	n.d.
Antimony (Sb)	mg/kg	With reference to US EPA 3052: 1996. Analysis was performed by ICP-OES.	2	n.d.

Note :

1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected = less than MDL
4. " - " = Not Regulated

Test Report

No. : CE/2020/73449

Date : 2020/07/28

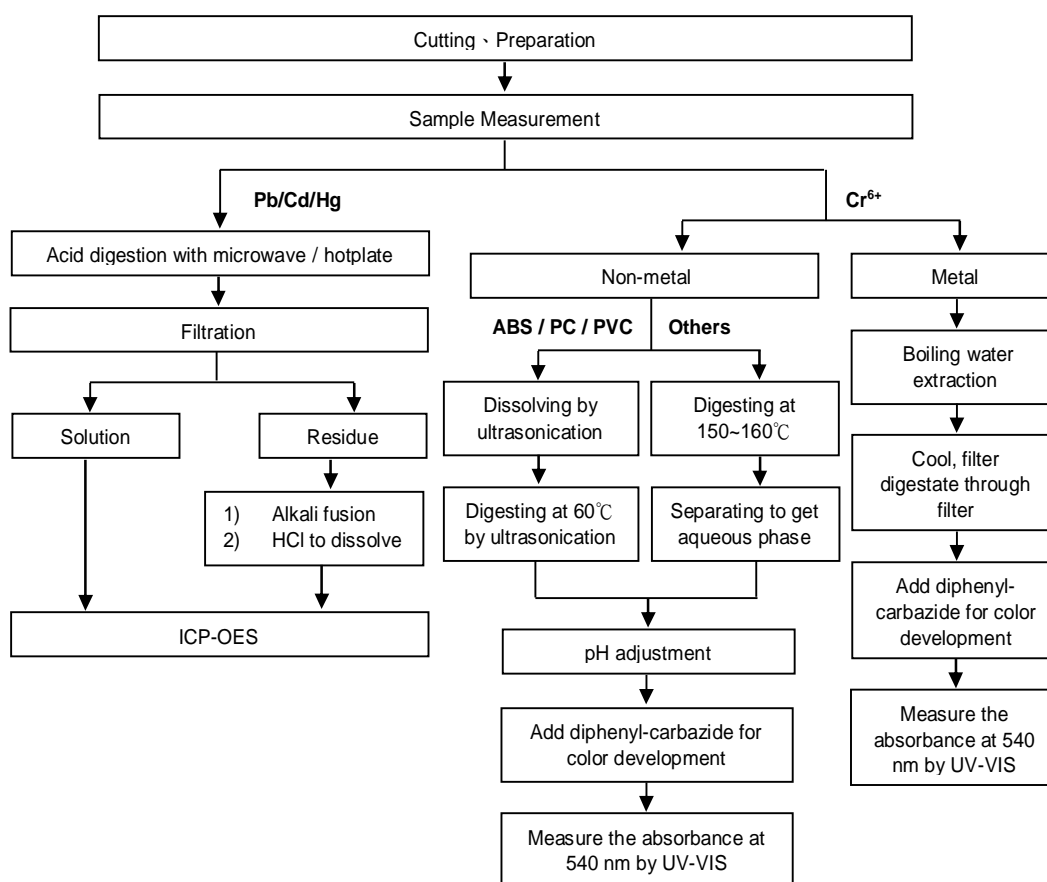
Page : 4 of 9

ALPHA ASSEMBLY SOLUTIONS (TAIWAN) LIMITED

NO. 20, LANE 12, SEC. 2, NAN-SHAN RD., LUZHU DISTRICT, TAOYUAN CITY, 33860 TAIWAN

Analytical flow chart of Heavy Metal

These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ test method excluded)



Test Report

No. : CE/2020/73449

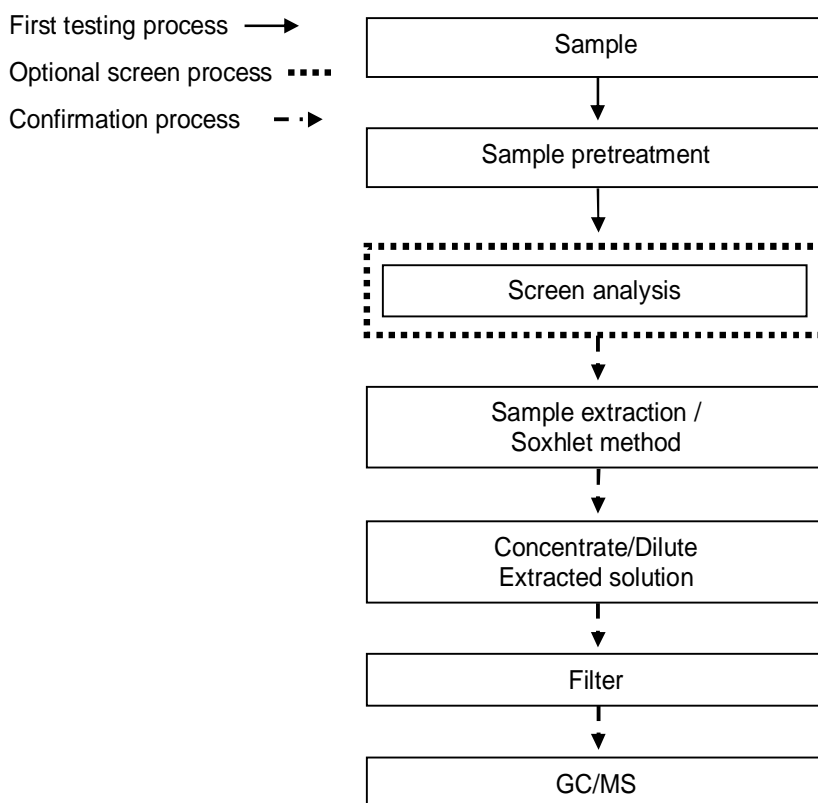
Date : 2020/07/28

Page : 5 of 9

ALPHA ASSEMBLY SOLUTIONS (TAIWAN) LIMITED

NO. 20, LANE 12, SEC. 2, NAN-SHAN RD., LUZHU DISTRICT, TAOYUAN CITY, 33860 TAIWAN

Analytical flow chart – PBB / PBDE



This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://twap.sgs.com/Terms-and-Conditions.html> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://twap.sgs.com/Terms-and-Conditions.html>. 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 instruction, 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) tested.

Test Report

No. : CE/2020/73449

Date : 2020/07/28

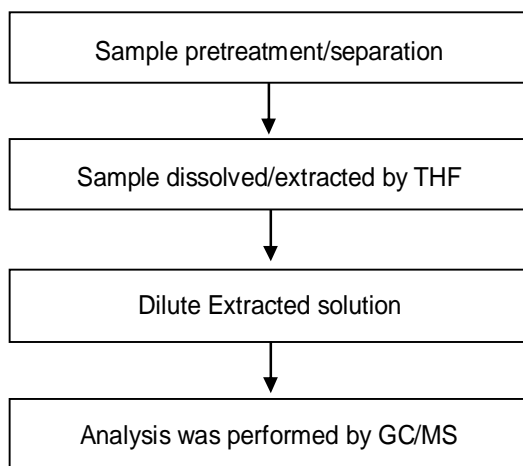
Page : 6 of 9

ALPHA ASSEMBLY SOLUTIONS (TAIWAN) LIMITED

NO. 20, LANE 12, SEC. 2, NAN-SHAN RD., LUZHU DISTRICT, TAOYUAN CITY, 33860 TAIWAN

Analytical flow chart - Phthalate

【Test method: IEC 62321-8】



This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://twap.sgs.com/Terms-and-Conditions.html> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://twap.sgs.com/Terms-and-Conditions.html>. 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 instruction, 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) tested.

Test Report

No. : CE/2020/73449

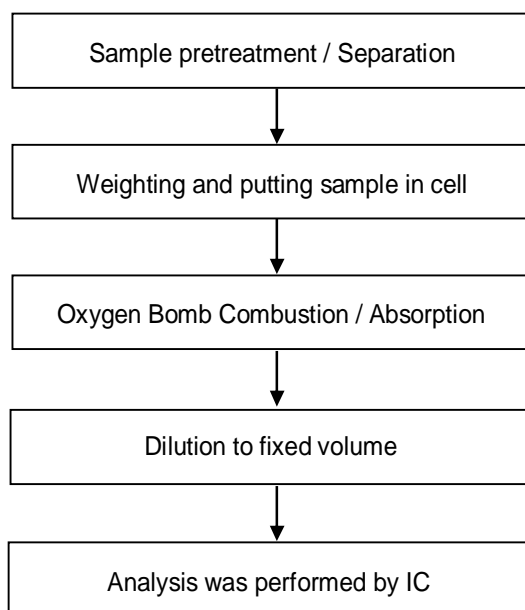
Date : 2020/07/28

Page : 7 of 9

ALPHA ASSEMBLY SOLUTIONS (TAIWAN) LIMITED

NO. 20, LANE 12, SEC. 2, NAN-SHAN RD., LUZHU DISTRICT, TAOYUAN CITY, 33860 TAIWAN

Analytical flow chart - Halogen



This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://twap.sgs.com/Terms-and-Conditions.html> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://twap.sgs.com/Terms-and-Conditions.html>. 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 instruction, 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) tested.

Test Report

No. : CE/2020/73449

Date : 2020/07/28

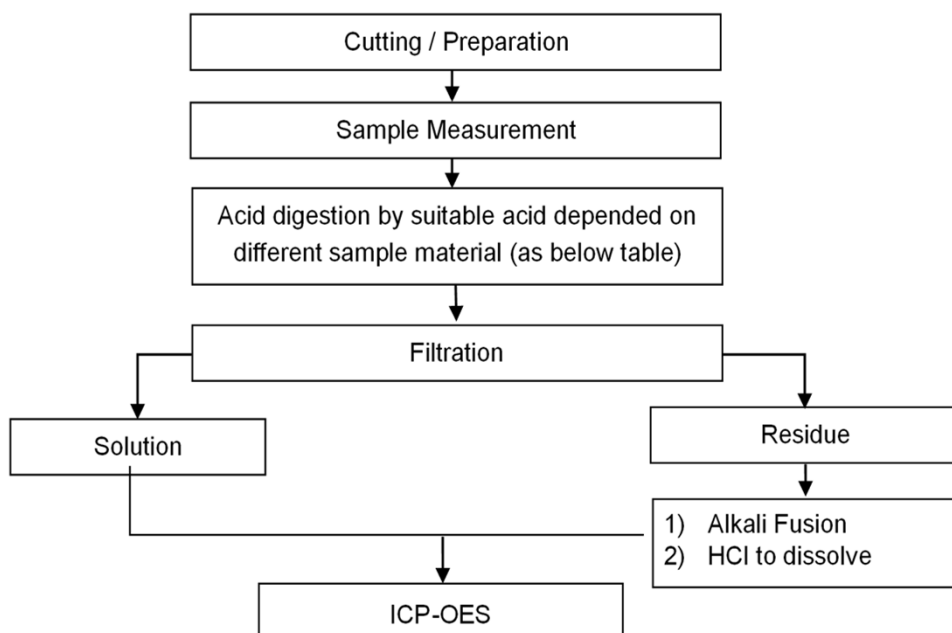
Page : 8 of 9

ALPHA ASSEMBLY SOLUTIONS (TAIWAN) LIMITED

NO. 20, LANE 12, SEC. 2, NAN-SHAN RD., LUZHU DISTRICT, TAOYUAN CITY, 33860 TAIWAN

Flow Chart of digestion for the elements analysis performed by ICP-OES

These samples were dissolved totally by pre-conditioning method according to below flow chart.



Steel, copper, aluminum, solder	Aqua regia, HNO ₃ , HCl, HF, H ₂ O ₂
Glass	HNO ₃ /HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO ₃
Plastic	H ₂ SO ₄ , H ₂ O ₂ , HNO ₃ , HCl
Others	Added appropriate reagent to total digestion

Test Report

No. : CE/2020/73449

Date : 2020/07/28

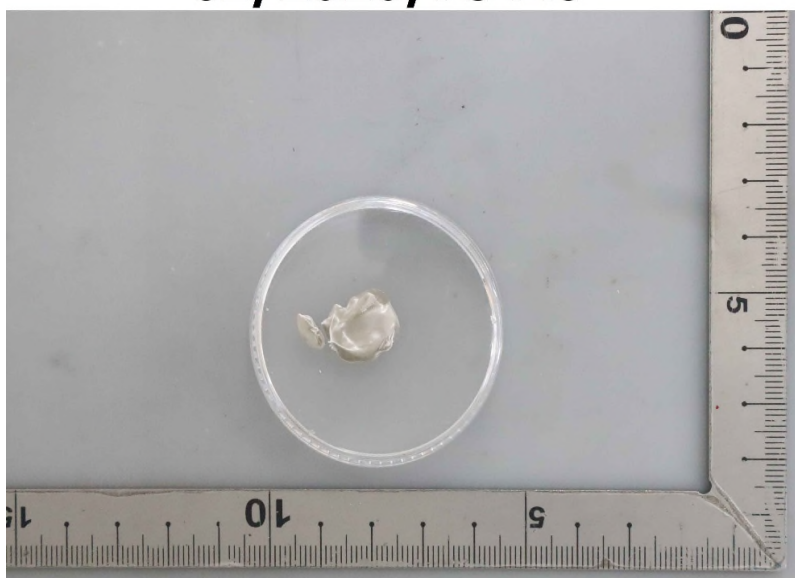
Page : 9 of 9

ALPHA ASSEMBLY SOLUTIONS (TAIWAN) LIMITED

NO. 20, LANE 12, SEC. 2, NAN-SHAN RD., LUZHU DISTRICT, TAOYUAN CITY, 33860 TAIWAN

* The tested sample / part is marked by an arrow if it's shown on the photo. *

CE/2020/73449



** 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 <https://twap.sgs.com/Terms-and-Conditions.html> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://twap.sgs.com/Terms-and-Conditions.html>. 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 instruction, 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) tested.