



## Restricted Chemicals Test Results

### Device - UCC12040DVER

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TI Report Number	Component	Analysis Type	Test Date
60589779	Wire	RoHS 10 & Halogens	07/13/2023
60590152	Mount compound / Die attach	Halogens	06/19/2023
60590150	Mount compound / Die attach	RoHS 10	06/19/2023
60590146	Mount compound / Die attach	Halogens	06/19/2023
60590154	Mount compound / Die attach	Halogens	06/19/2023
60590148	Mount compound / Die attach	Halogens	06/19/2023
58966951	Semiconductor Device	RoHS 10 & Halogens	05/18/2023
53493006	Mold Compound	RoHS 10 & Halogens	11/21/2022
17609360	Magnet	RoHS 10	12/07/2020
17609358	Magnet	RoHS 10	12/07/2020



TI Report Number : 60589779

Component : Wire

Analysis Type : RoHS 10 & Halogens

Analysis Date : 07/13/2023

# Test Report

No.:

Date: 13-Jul-2023

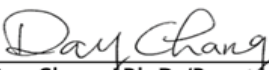
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The following sample(s) was/were submitted and identified by the applicant as:

Sample Submitted By :  
Sample Name : Au BONDING WIRE  
Color :

Sample Receiving Date : 03-Jul-2023  
Testing Period : 03-Jul-2023 to 13-Jul-2023

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 Results : Please refer to following pages.  
Conclusion : (1) Based on the performed tests on submitted sample(s), the test results of Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

  
Ray Chang, Ph.D./Department Manager  
Signed for and on behalf of  
SGS TAIWAN LTD.  
Chemical Laboratory-Kaohsiung



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# Test Report

No.:

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## Test Part Description

No.1 : Au BONDING WIRE

## Test Result(s)

Test Item(s)	Method	Unit	MDL	Result	Limit
				No.1	
Cadmium (Cd)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	2	n.d.	100
Lead (Pb)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	2	n.d.	1000
Mercury (Hg)	With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES.	mg/kg	2	n.d.	1000
Hexavalent Chromium Cr(VI) (#2)	With reference to IEC 62321-7-1: 2015, analysis was performed by UV-VIS.	µg/cm <sup>2</sup>	0.1	n.d.	-
Monobromobiphenyl	With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.	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 PBBs		mg/kg	-	n.d.	1000
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.	-
Sum of PBDEs		mg/kg	-	n.d.	1000

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Test Item(s)	Method	Unit	MDL	Result	Limit
				No.1	
Hexavalent Chromium Cr(VI)	With reference to IEC 62321-7-2: 2017, analysis was performed by UV-VIS.	mg/kg	8	n.d.	-
Hexavalent Chromium Cr(VI) (CAS No.: 18540-29-9)	With reference to US EPA 3060A: 1996 & US EPA 7196A: 1992, analysis was performed by UV-VIS.	mg/kg	2	n.d.	-
Hexavalent Chromium Cr(VI) (CAS No.: 18540-29-9)	With reference to ISO 3613: 2010, analysis was performed by UV-VIS.	µg/cm <sup>2</sup>	0.02	n.d.	-
Dimethyl fumarate (DMFu) (CAS No.: 624-49-7)	With reference to US EPA 3550C: 2007, analysis was performed by GC/MS.	mg/kg	0.1	n.d.	-
Polyvinyl chloride (PVC)	With reference to ASTM E1252: 2021, analysis was performed by FT-IR and Flame Test.	**	-	Negative	-
Red Phosphorus	Analysis was performed by Pyrolyzer-GC/MS.	**	-	Negative	-
Phosphorus (P) (CAS No.: 7723-14-0)	With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.	mg/kg	2	n.d.	-
Arsenic (As) (CAS No.: 7440-38-2)	With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.	mg/kg	2	n.d.	-
Antimony (Sb) (CAS No.: 7440-36-0)	With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.	mg/kg	2	n.d.	-
Perfluorooctanoic acid (PFOA) and it's salt (CAS No.: 335-67-1 and its salts)	With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.	mg/kg	0.01	n.d.	-
PFOS and its salts (CAS No.: 1763-23-1 and its salts)	With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.	mg/kg	0.01	n.d.	-
<b>Halogen</b>					
Fluorine (F) (CAS No.: 14762-94-8)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	n.d.	-
Chlorine (Cl) (CAS No.: 22537-15-1)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	n.d.	-
Bromine (Br) (CAS No.: 10097-32-2)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	n.d.	-
Iodine (I) (CAS No.: 14362-44-8)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	n.d.	-

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Test Item(s)	Method	Unit	MDL	Result	Limit
				No.1	
Tetrabromobisphenol A (TBBP-A) (CAS No.: 79-94-7)	With reference to RSTS-E&E-121, analysis was performed by LC/MS.	mg/kg	10	n.d.	-
<b>Phthalates</b>					
Butyl benzyl phthalate (BBP)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	1000
Dibutyl phthalate (DBP)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	1000
Di-(2-ethylhexyl) phthalate (DEHP)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	1000
Diisobutyl phthalate (DIBP)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	1000
Diisodecyl phthalate (DIDP) (CAS No.: 26761-40-0, 68515-49-1)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	-
Diisononyl phthalate (DINP) (CAS No.: 28553-12-0, 68515-48-0)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	-
Di-n-octyl phthalate (DNOP) (CAS No.: 117-84-0)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	-
1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP) (CAS No.: 68515-42-4)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	-
1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP) (CAS No.: 71888-89-6)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	-
Bis-(2-methoxyethyl) phthalate (DMEP) (CAS No.: 117-82-8)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	-
Di-n-hexyl phthalate (DNHP) (CAS No.: 84-75-3)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	-
Di-n-pentyl phthalate (DNPP) (CAS No.: 131-18-0)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	-
1,2-Benzenedicarboxylic acid, dipentylester, branched and linear (DPP) (CAS No.: 84777-06-0)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	-

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Test Item(s)	Method	Unit	MDL	Result	Limit
				No.1	
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified ( $\alpha$ - HBCDD, $\beta$ - HBCDD, $\gamma$ - HBCDD) (CAS No.: 25637-99-4, 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	With reference to IEC 62321: 2008, analysis was performed by GC/MS.	mg/kg	5	n.d.	-
PFOA and its salts (CAS No.: 335-67-1 and its salts)	With reference to US EPA 3550C: 2007, analysis was performed by LC/MS/MS.	mg/kg	10	n.d.	-
PFOS and its salts (CAS No.: 1763-23-1 and its salts)	With reference to US EPA 3550C: 2007, analysis was performed by LC/MS/MS.	mg/kg	10	n.d.	-
Medium Chain Chlorinated Paraffins(C14-C17) (MCCP) (CAS No.: 85535-85-9)	With reference to ISO 18219-2: 2021, analysis was performed by GC/MS.	mg/kg	50	n.d.	-

## Note :

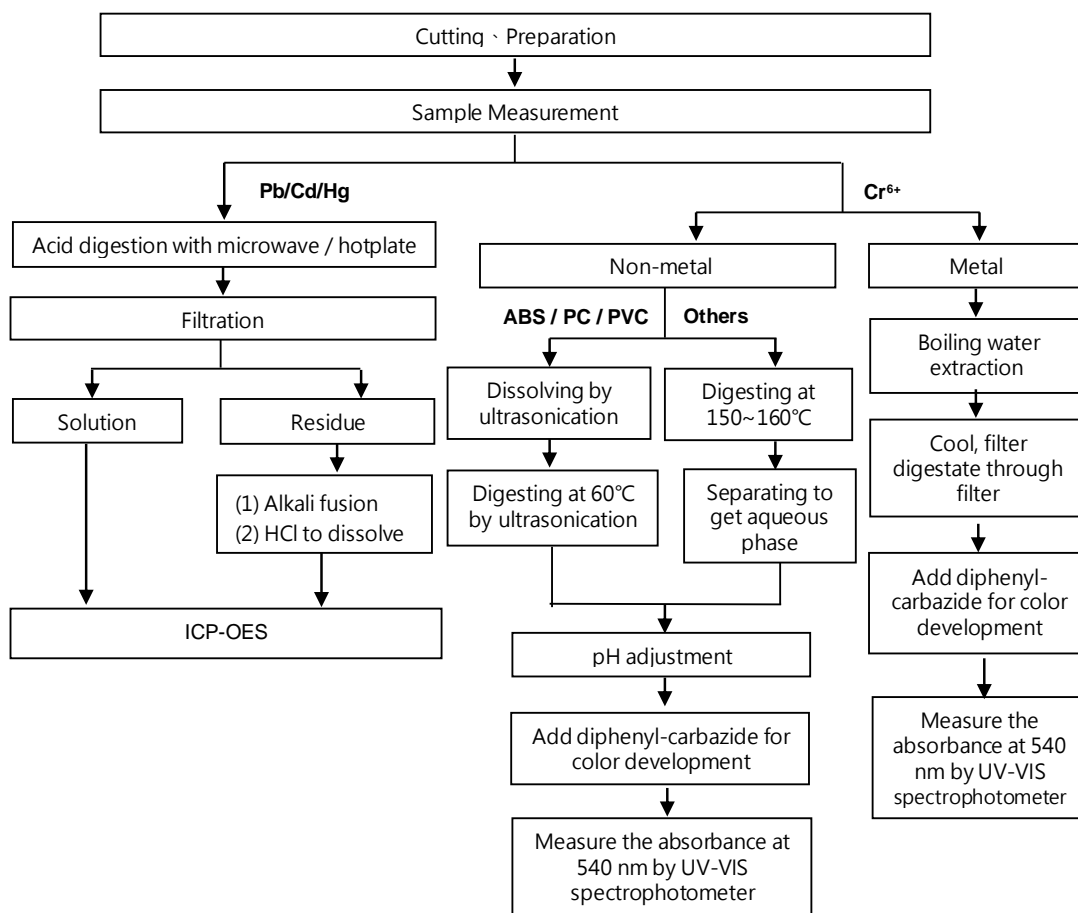
1. mg/kg = ppm ; 0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected ( Less than MDL)
4. "-" = Not Regulated
5. \*\*= Qualitative analysis (No Unit)
6. Negative = Undetectable ; Positive = Detectable
7. PFOS and its salts including :  
CAS No.: 1763-23-1, 2795-39-3, 29457-72-5, 29081-56-9, 70225-14-8, 56773-42-3, 251099-16-8, 307-35-7, 91036-71-4, 4021-47-0 and others.
8. PFOA and its salts including :  
CAS No.: 335-67-1, 335-95-5, 2395-00-8, 335-93-3, 335-66-0, 3825-26-1 and others.
9. (#2) =
  - a. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13  $\mu\text{g}/\text{cm}^2$ . The sample coating is considered to contain Cr(VI).
  - b. The sample is negative for Cr(VI) if Cr(VI) is n.d. (concentration less than 0.10  $\mu\text{g}/\text{cm}^2$ ). The coating is considered a non-Cr(VI) based coating
  - c. The result between 0.10  $\mu\text{g}/\text{cm}^2$  and 0.13  $\mu\text{g}/\text{cm}^2$  is considered to be inconclusive - unavoidable coating variations may influence the determination.
10. Unless otherwise stated , the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (w=0) stated in ILAC-G8:09/2019. According to this rule, the judgement of conformity is based on the comparing test results with limits.

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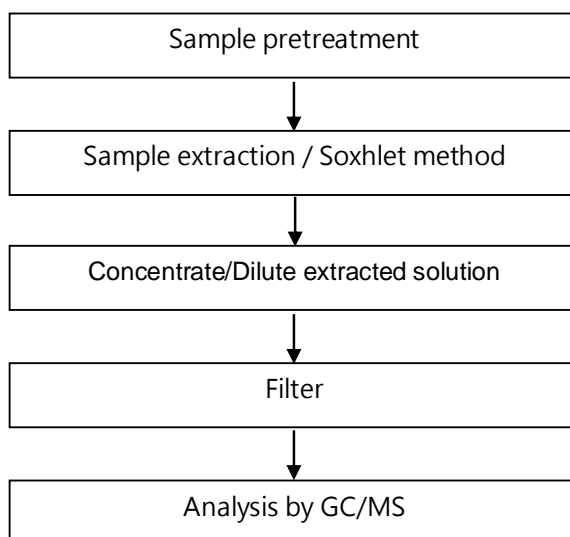


## Analytical flow chart of Heavy Metal

These samples were dissolved totally by pre-conditioning method according to below flow chart.  
(  $\text{Cr}^{6+}$  test method excluded )



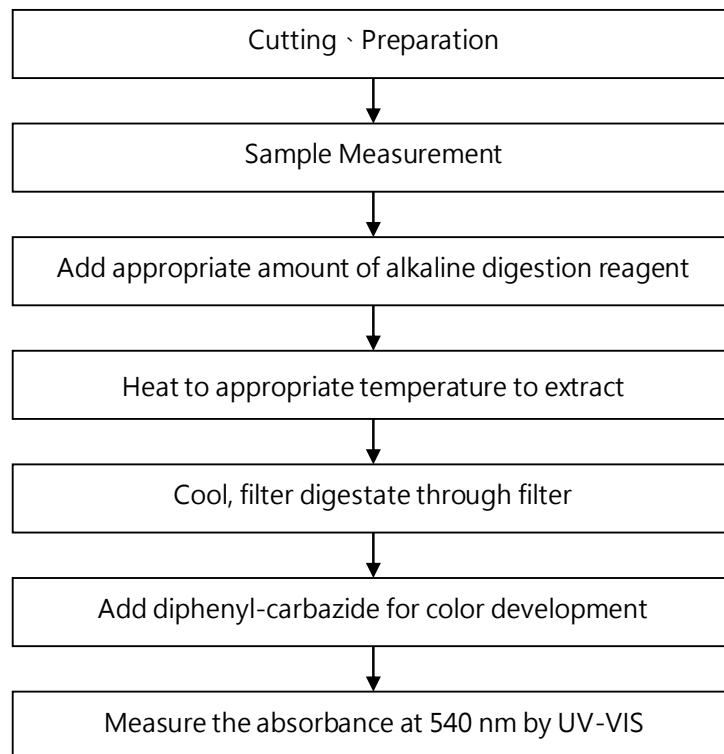
## PBB/PBDE analytical FLOW CHART



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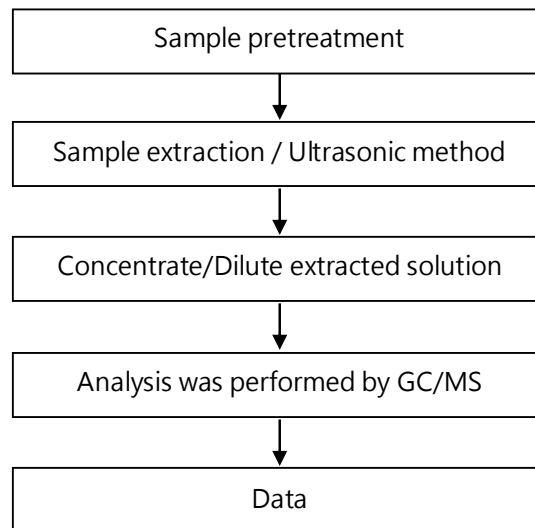
## Analytical flow chart - Hexavalent Chromium Cr(VI)

Test method: EPA 3060A & 7196A



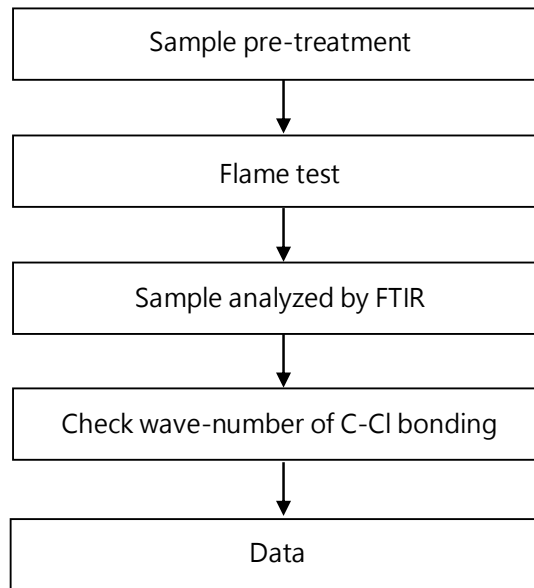
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## Analytical flow chart of Dimethyl Fumarate



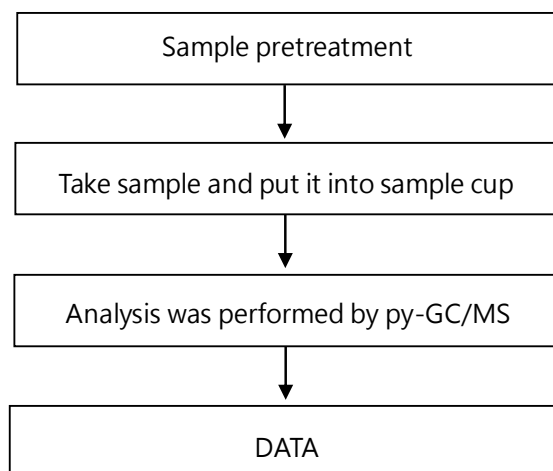
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## Analysis flow chart - PVC



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## Analytical flow chart - Red phosphorus

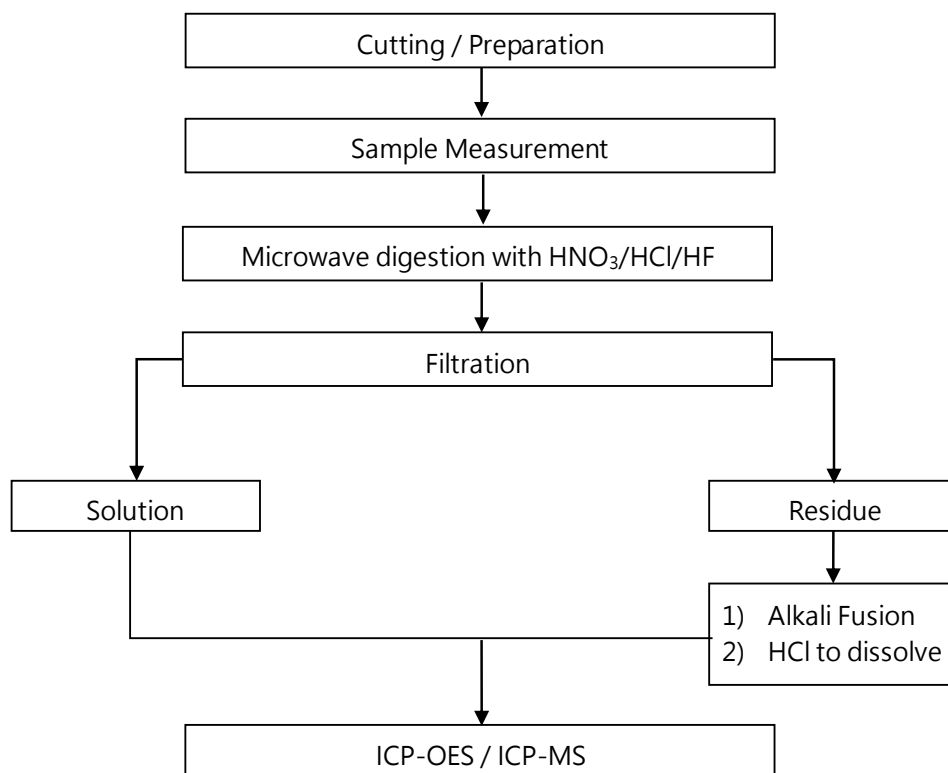


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## Analytical flow chart of Elements (Heavy metal included)

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

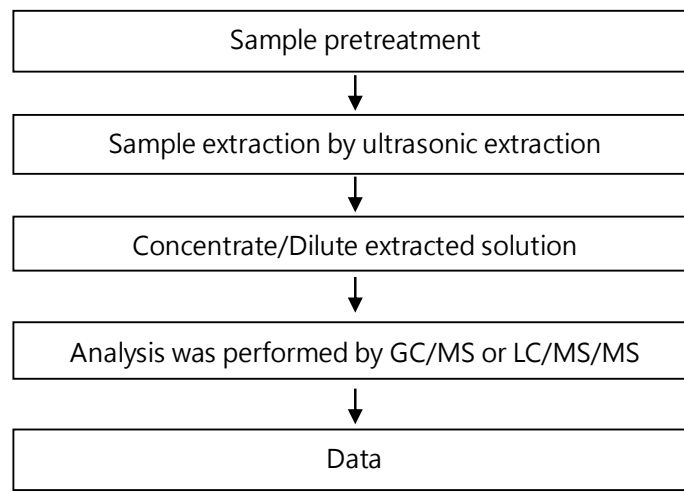
【Reference method : US EPA 3051 、US EPA 3052】



\* US EPA 3051 method does not add HF.

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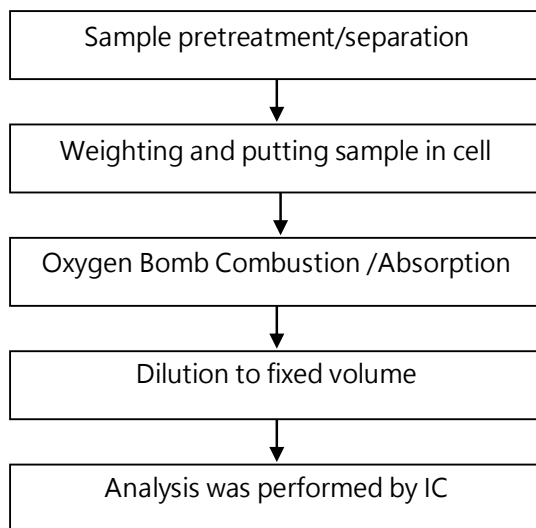
## Analytical flow chart – PFAS (including PFOA/PFOS/its related compound, etc.)



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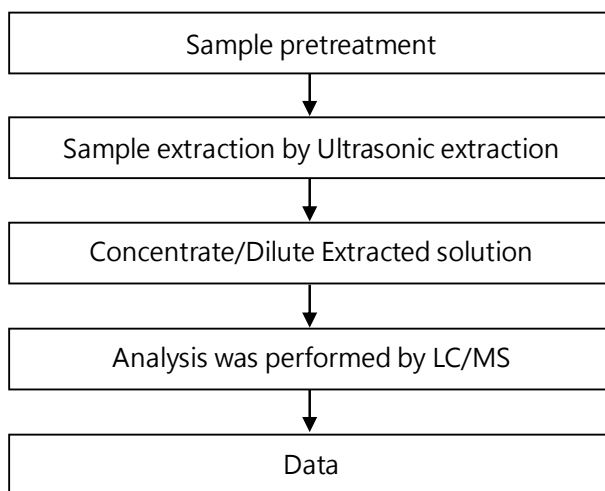


## Analytical flow chart of Halogen



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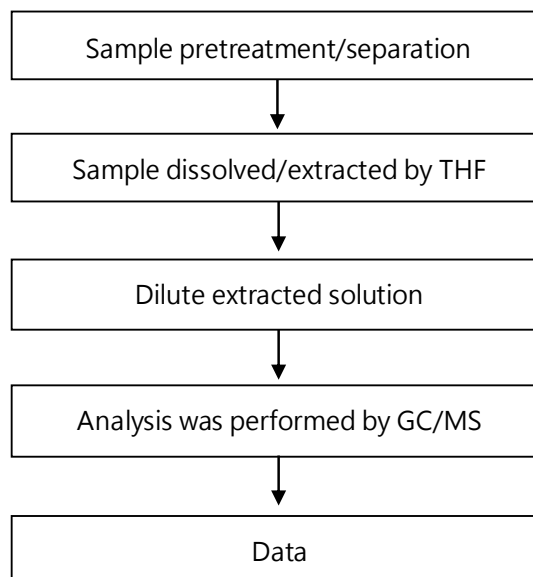
## TBBP-A analytical flow chart



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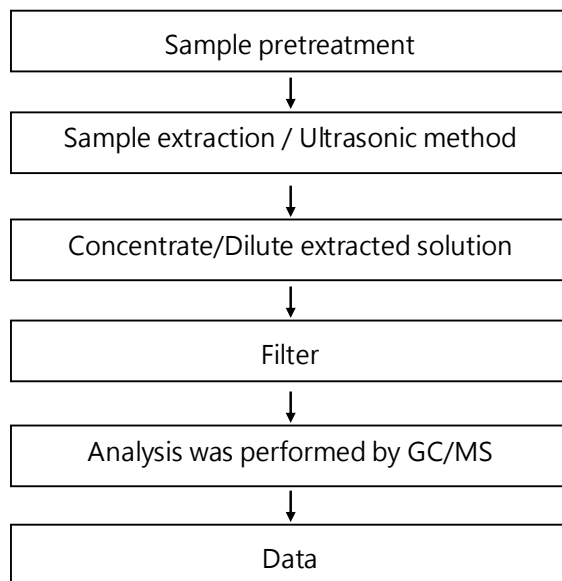
## Analytical flow chart of phthalate content

【Test method: IEC 62321-8】



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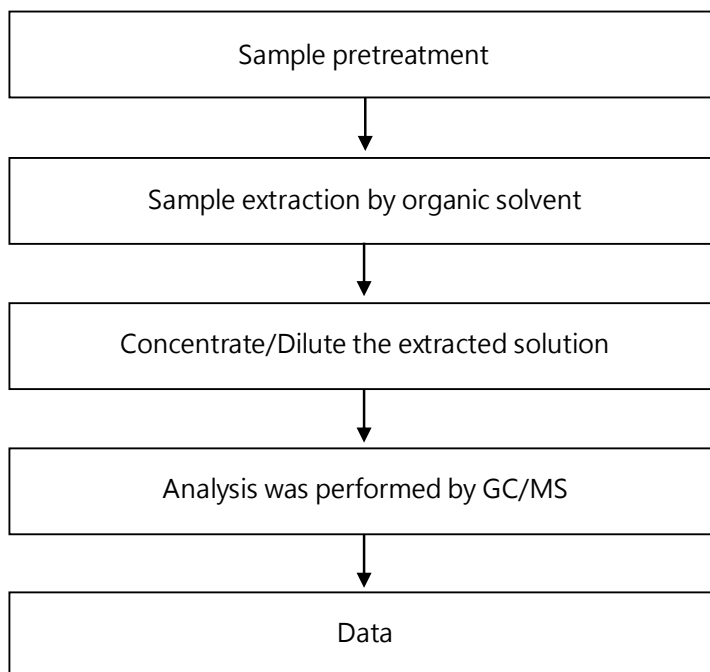
## Analytical flow chart - HBCDD



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## Analytical flow chart

\* Apply to: PCBs, PCNs, PCTs, Mirex, Chlorinated Paraffins, DBBT



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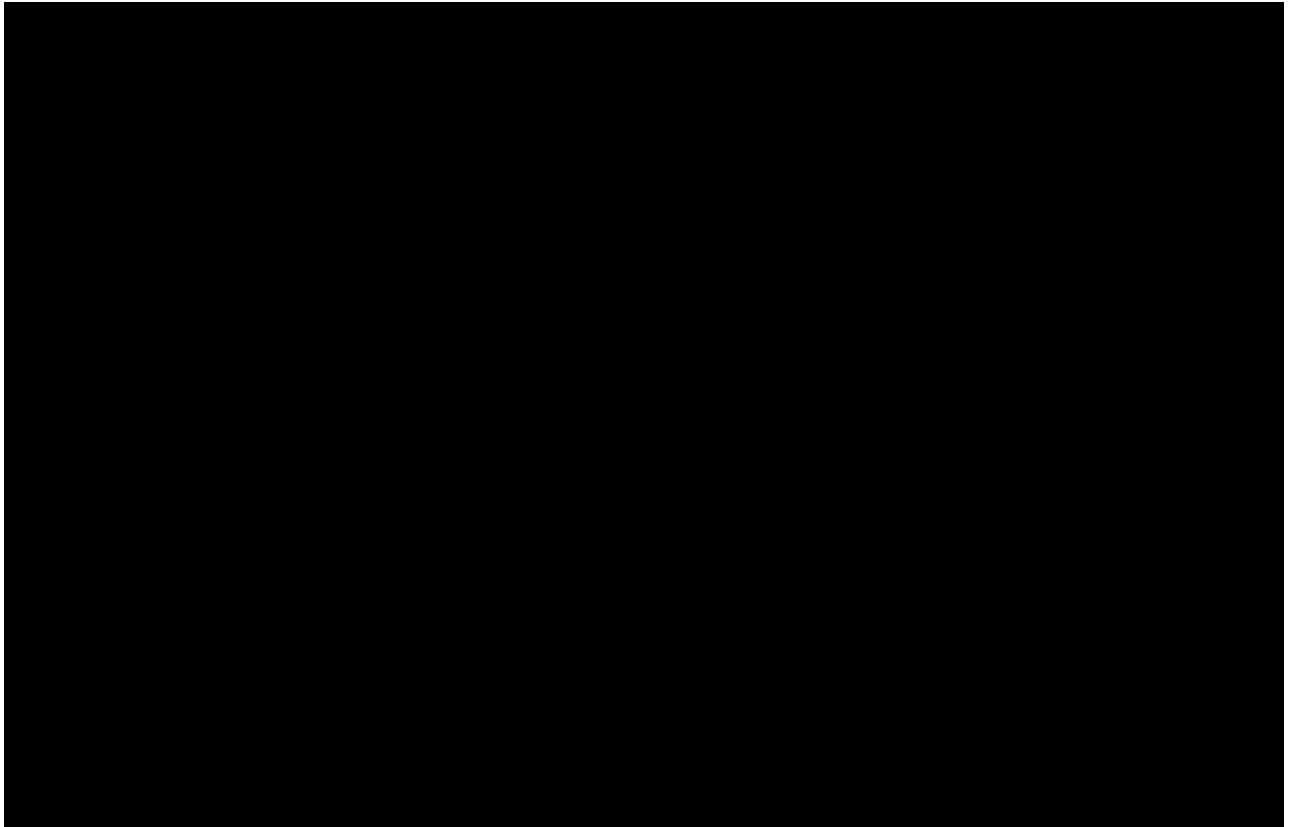
# Test Report

No.:



Date: 13-Jul-2023

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TI Report Number : 60590152

Component : Mount compound / Die attach

Analysis Type : Halogens

Analysis Date : 06/19/2023



# Test Report

No.: [REDACTED]

Date: 03-Jul-2023

Page: 1 of 4

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

Sample Submitted By : [REDACTED]

Sample Name : ADHESIVE

Style/Item No. : [REDACTED]

Sample Receiving Date : 27-Jun-2023

Testing Period : 27-Jun-2023 to 03-Jul-2023

Test Requested : Testing item(s) is/are specified by client. Please refer to result table for testing item(s).

Test Results : Please refer to following pages.

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# Test Report

No.: [REDACTED]

Date: 03-Jul-2023

Page: 2 of 4

## Test Part Description

No.1 : BLUE PASTE

## Test Result(s)

Test Item(s)	Method	Unit	MDL	Result
				No.1
Antimony (Sb) (CAS No.: 7440-36-0)	With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.	mg/kg	2	n.d.

## Note :

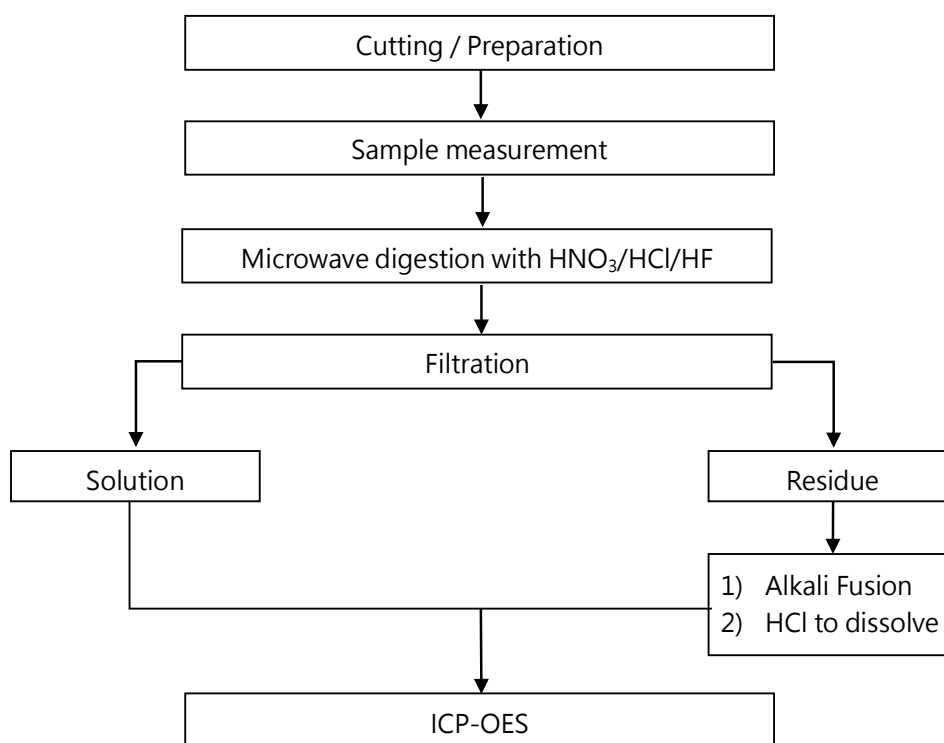
1. mg/kg = ppm ; 0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected ( Less than MDL)

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## Analytical flow chart of Elements (Heavy Metal included)

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

【Reference method : US EPA 3051A 、US EPA 3052】



\* US EPA 3051A method does not add HF.

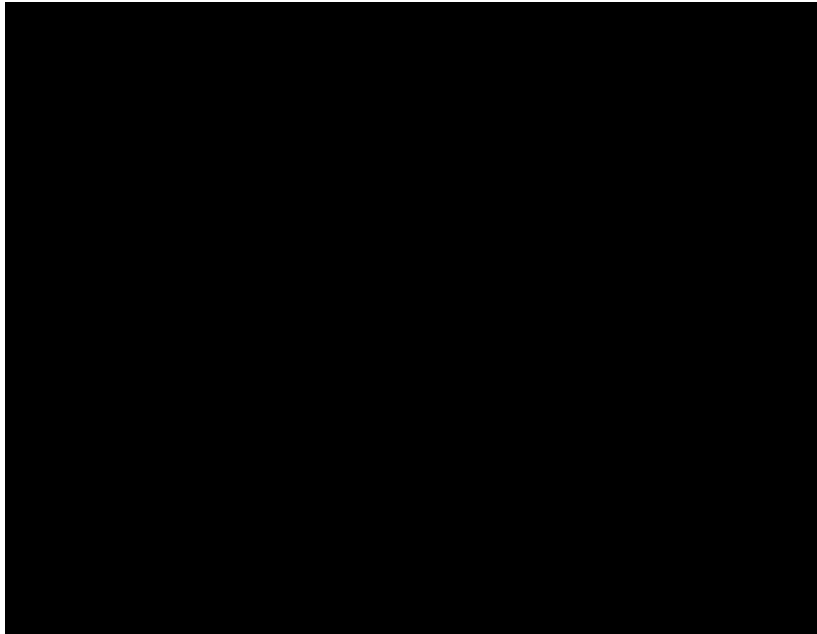
## Test Report

No.: [REDACTED]

Date: 03-Jul-2023

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



\*\* End of Report \*\*

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TI Report Number : 60590150

Component : Mount compound / Die attach

Analysis Type : RoHS 10

Analysis Date : 06/19/2023



# Test Report

No.: [REDACTED]

Date: 03-Jul-2023

Page: 1 of 9

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

Sample Submitted By : [REDACTED]  
Sample Name : ADHESIVE  
Style/Item No. : [REDACTED]

Sample Receiving Date : 27-Jun-2023  
Testing Period : 27-Jun-2023 to 03-Jul-2023

Test Results : Please refer to following pages.

Test Requested	Conclusion
RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU	PASS
Other items : <ul style="list-style-type: none"><li>- Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (<math>\alpha</math>- HBCDD, <math>\beta</math>- HBCDD, <math>\gamma</math>- HBCDD)</li><li>- Beryllium (Be)</li><li>- Phthalates (DIDP, DINP, DNOP)</li></ul>	See Results

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# Test Report

No.: XXXXXXXXXX

Date: 03-Jul-2023

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## Test Part Description

No.1 : BLUE PASTE

## Test Result(s)

Test Item(s)	Method	Unit	MDL	Result	Limit
				No.1	
Cadmium (Cd)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	2	n.d.	100
Lead (Pb)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	2	n.d.	1000
Mercury (Hg)	With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES.	mg/kg	2	n.d.	1000
Hexavalent Chromium Cr(VI)	With reference to IEC 62321-7-2: 2017, analysis was performed by UV-VIS.	mg/kg	8	n.d.	1000
Monobromobiphenyl	With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.	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 PBBs		mg/kg	-	n.d.	1000
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.	-
Sum of PBDEs		mg/kg	-	n.d.	1000

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# Test Report

No.: XXXXXXXXXX

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Test Item(s)	Method	Unit	MDL	Result	Limit
				No.1	
Butyl benzyl phthalate (BBP)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	1000
Dibutyl phthalate (DBP)		mg/kg	50	n.d.	1000
Di-(2-ethylhexyl) phthalate (DEHP)		mg/kg	50	n.d.	1000
Diisobutyl phthalate (DIBP)		mg/kg	50	n.d.	1000

Test Item(s)	Method	Unit	MDL	Result	Limit
				No.1	
Diisodecyl phthalate (DIDP) (CAS No.: 26761-40-0, 68515-49-1)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	-
Diisononyl phthalate (DINP) (CAS No.: 28553-12-0, 68515-48-0)		mg/kg	50	n.d.	-
Di-n-octyl phthalate (DNOP) (CAS No.: 117-84-0)		mg/kg	50	n.d.	-
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified ( $\alpha$ - HBCDD, $\beta$ - HBCDD, $\gamma$ - HBCDD) (CAS No.: 25637-99-4, 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	With reference to IEC 62321-9: 2021, analysis was performed by GC/MS.	mg/kg	20	n.d.	-
Beryllium (Be) (CAS No.: 7440-41-7)	With reference to US EPA 3050B: 1996, analysis was performed by ICP-OES.	mg/kg	2	n.d.	-

## Note :

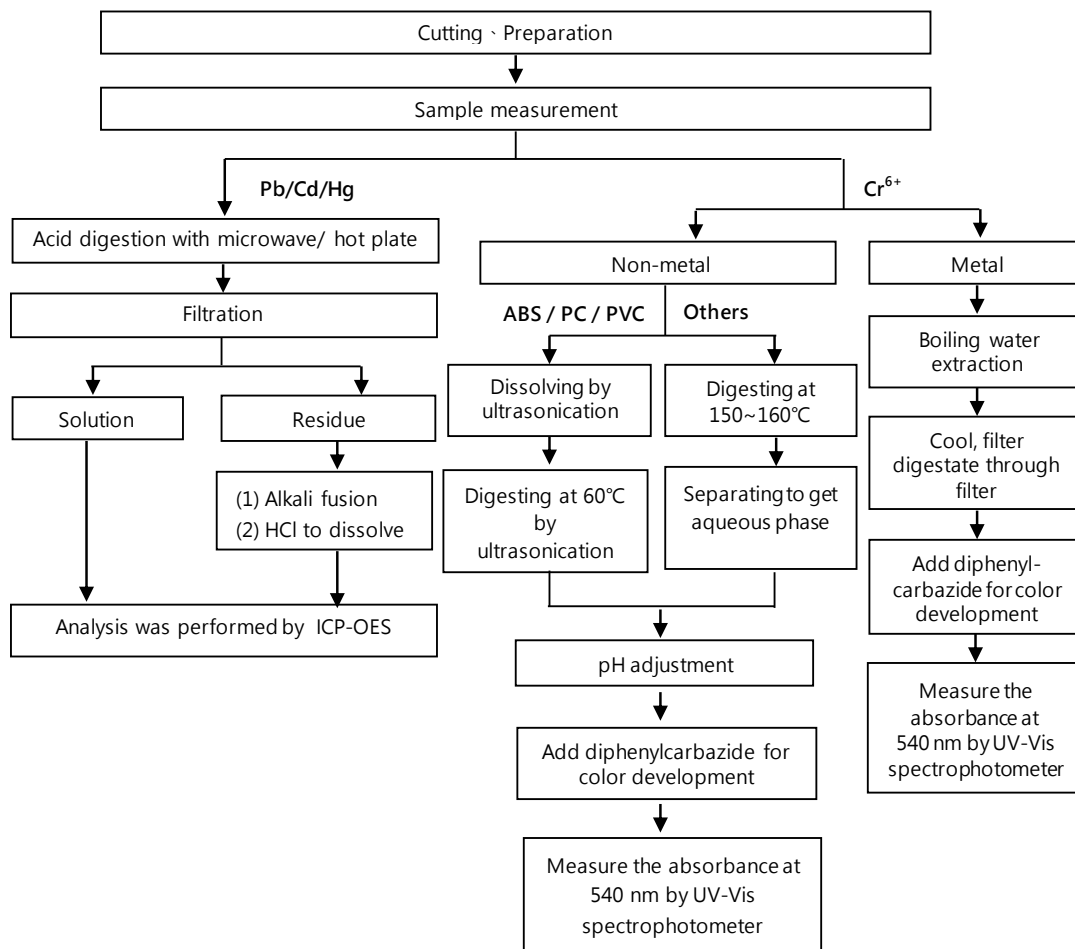
1. mg/kg = ppm ; 0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected ( Less than MDL)
4. "-" = Not Regulated
5. Unless otherwise stated , the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (w=0) stated in ILAC-G8:09/2019. According to this rule, the judgement of conformity is based on the comparing test results with limits.

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## Analytical flow chart of heavy metal

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

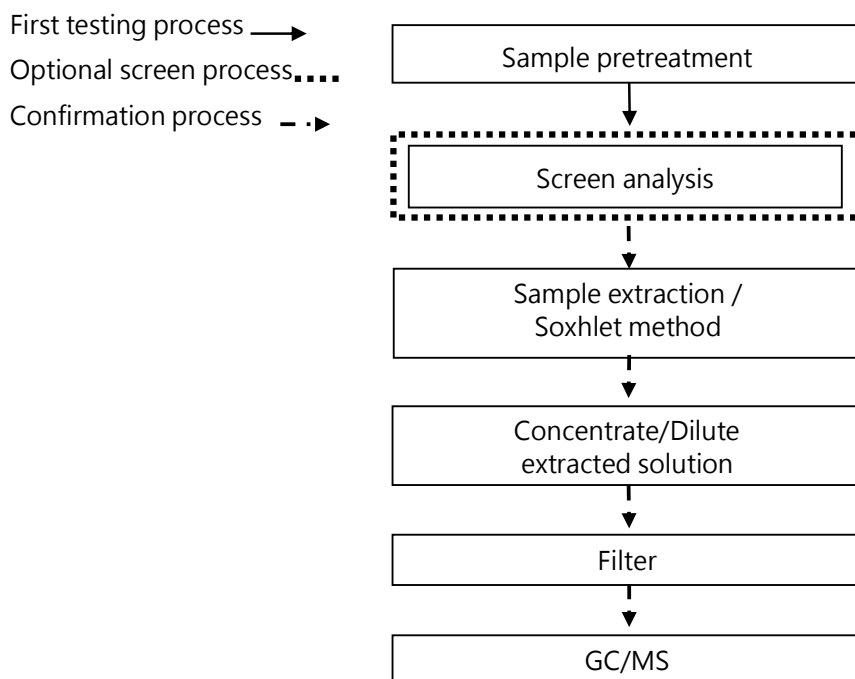
(  $\text{Cr}^{6+}$  test method excluded )



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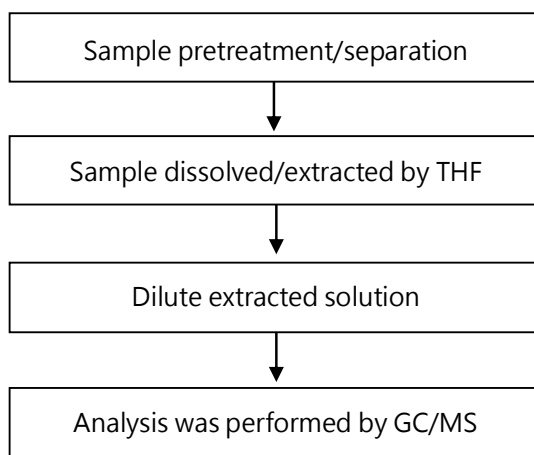
## Analytical flow chart – PBBs / PBDEs



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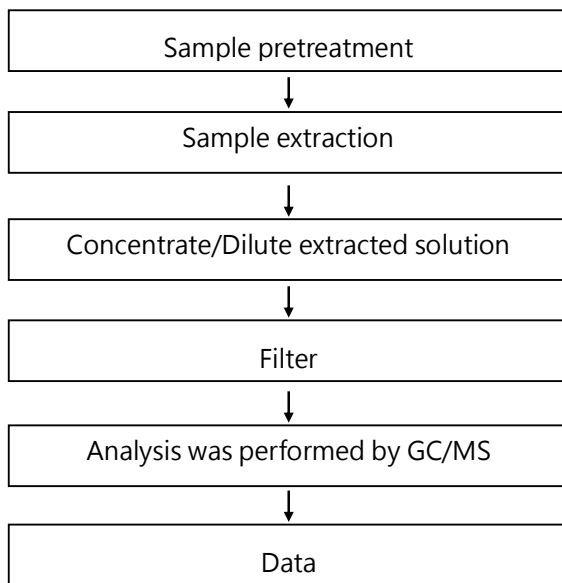
## Analytical flow chart - Phthalate

【Test method: IEC 62321-8】



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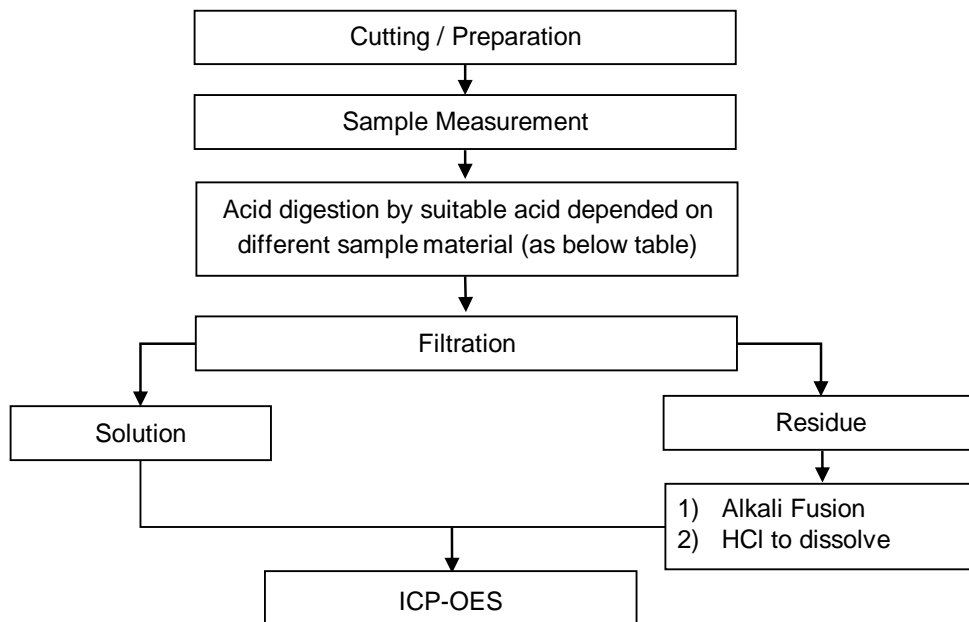
## Analytical flow chart - HBCDD



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### 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 <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub>
Glass	HNO <sub>3</sub> /HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO <sub>3</sub>
Plastic	H <sub>2</sub> SO <sub>4</sub> , H <sub>2</sub> O <sub>2</sub> , HNO <sub>3</sub> , HCl
Others	Added appropriate reagent to total digestion

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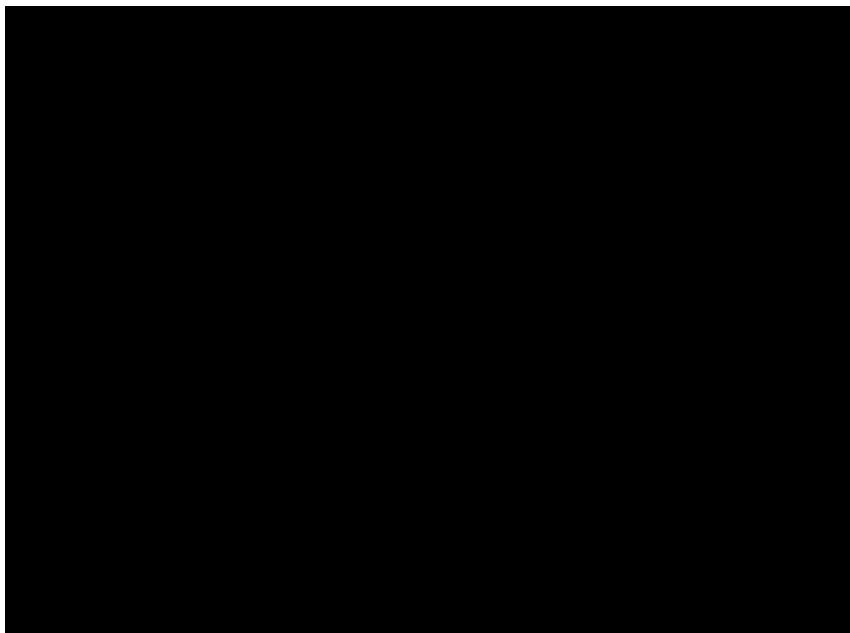
## Test Report

No.: [REDACTED]

Date: 03-Jul-2023

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



\*\* End of Report \*\*

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TI Report Number : 60590146

Component : Mount compound / Die attach

Analysis Type : Halogens

Analysis Date : 06/19/2023



# Test Report

No.: [REDACTED]

Date: 03-Jul-2023

Page: 1 of 4

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

Sample Submitted By : [REDACTED]

Sample Name : ADHESIVE

Style/Item No. : [REDACTED]

Sample Receiving Date : 27-Jun-2023

Testing Period : 27-Jun-2023 to 03-Jul-2023

Test Requested : As specified by client, to test Halogen-Fluorine, Chlorine, Bromine, Iodine in the submitted sample.

Test Results : Please refer to following pages.

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# Test Report

No.: [REDACTED]

Date: 03-Jul-2023

Page: 2 of 4

## Test Part Description

No.1 : BLUE PASTE

## Test Result(s)

Test Item(s)	Method	Unit	MDL	Result
				No.1
Fluorine (F) (CAS No.: 14762-94-8)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	1590
Chlorine (Cl) (CAS No.: 22537-15-1)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	321
Bromine (Br) (CAS No.: 10097-32-2)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	n.d.
Iodine (I) (CAS No.: 14362-44-8)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	n.d.

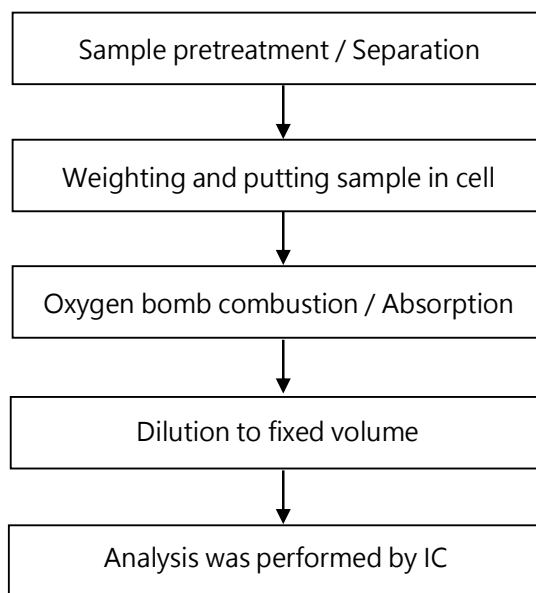
## Note :

1. mg/kg = ppm ; 0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected ( Less than MDL)

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## Analytical flow chart - Halogen



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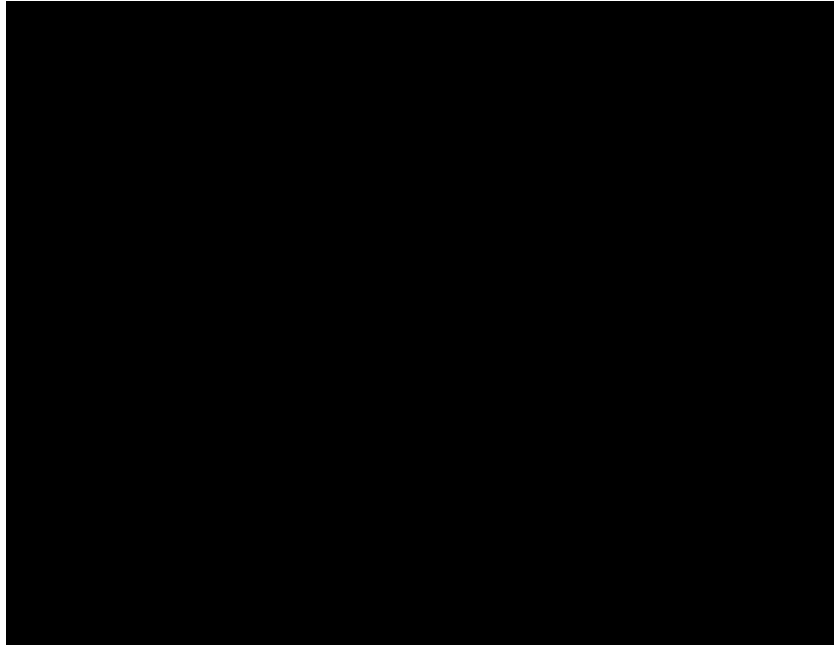
# Test Report

No.: [REDACTED]

Date: 03-Jul-2023

Page: 4 of 4

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TI Report Number : 60590154

Component : Mount compound / Die attach

Analysis Type : Halogens

Analysis Date : 06/19/2023



# Test Report

No.: [REDACTED]

Date: 03-Jul-2023

Page: 1 of 4

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

Sample Submitted By : [REDACTED]  
Sample Name : ADHESIVE  
Style/Item No. : [REDACTED]

=====  
Sample Receiving Date : 27-Jun-2023  
Testing Period : 27-Jun-2023 to 03-Jul-2023

Test Requested : Testing item(s) is/are specified by client. Please refer to result table for testing item(s).

Test Results : Please refer to following pages.

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# Test Report

No.: [REDACTED]

Date: 03-Jul-2023

Page: 2 of 4

## Test Part Description

No.1 : BLUE PASTE

## Test Result(s)

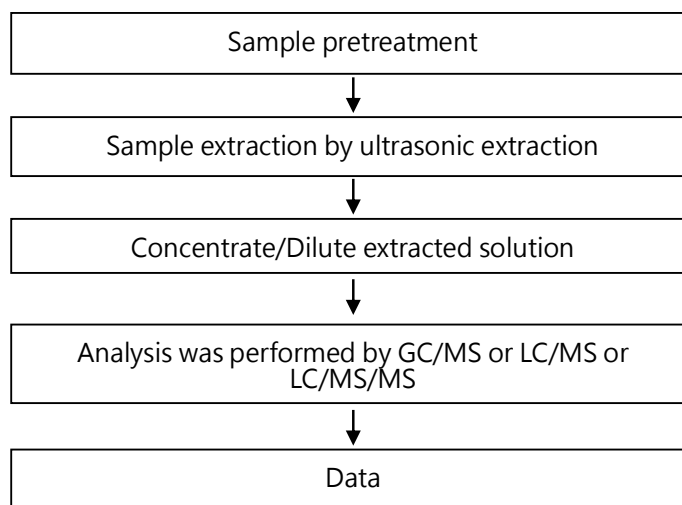
Test Item(s)	Method	Unit	MDL	Result
				No.1
PFOS and its salts (CAS No.: 1763-23-1 and its salts)	With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.	mg/kg	0.01	n.d.
PFOA and its salts (CAS No.: 335-67-1 and its salts)	With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.	mg/kg	0.01	n.d.

## Note :

1. mg/kg = ppm ; 0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected ( Less than MDL)
4. PFOS and its salts including :  
CAS No.: 1763-23-1, 2795-39-3, 29457-72-5, 29081-56-9, 70225-14-8, 56773-42-3, 251099-16-8, 307-35-7, 91036-71-4, 4021-47-0 and others.
5. PFOA and its salts including :  
CAS No.: 335-67-1, 335-95-5, 2395-00-8, 335-93-3, 335-66-0, 3825-26-1 and others.

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## Analytical flow chart – PFAS (including PFOA/PFOS/its related compound, etc.)



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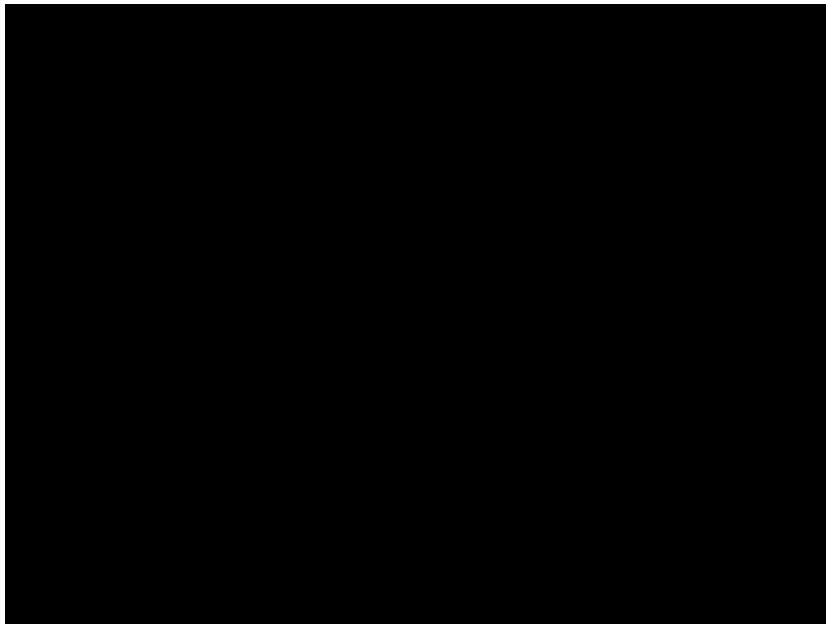
# Test Report

No.: [REDACTED]

Date: 03-Jul-2023

Page: 4 of 4

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TI Report Number : 60590148

Component : Mount compound / Die attach

Analysis Type : Halogens

Analysis Date : 06/19/2023





# Test Report

No.: [REDACTED]

Date: 03-Jul-2023

Page: 1 of 4

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

Sample Submitted By : [REDACTED]

Sample Name : ADHESIVE

Style/Item No. : [REDACTED]

Sample Receiving Date : 27-Jun-2023

Testing Period : 27-Jun-2023 to 03-Jul-2023

Test Requested : Testing item(s) is/are specified by client. Please refer to result table for testing item(s).

Test Results : Please refer to following pages.

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# Test Report

No.: [REDACTED]

Date: 03-Jul-2023

Page: 2 of 4

## Test Part Description

No.1 : BLUE PASTE

## Test Result(s)

Test Item(s)	Method	Unit	MDL	Result
				No.1
Phosphorus (P)	With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.	mg/kg	2	107

## Note :

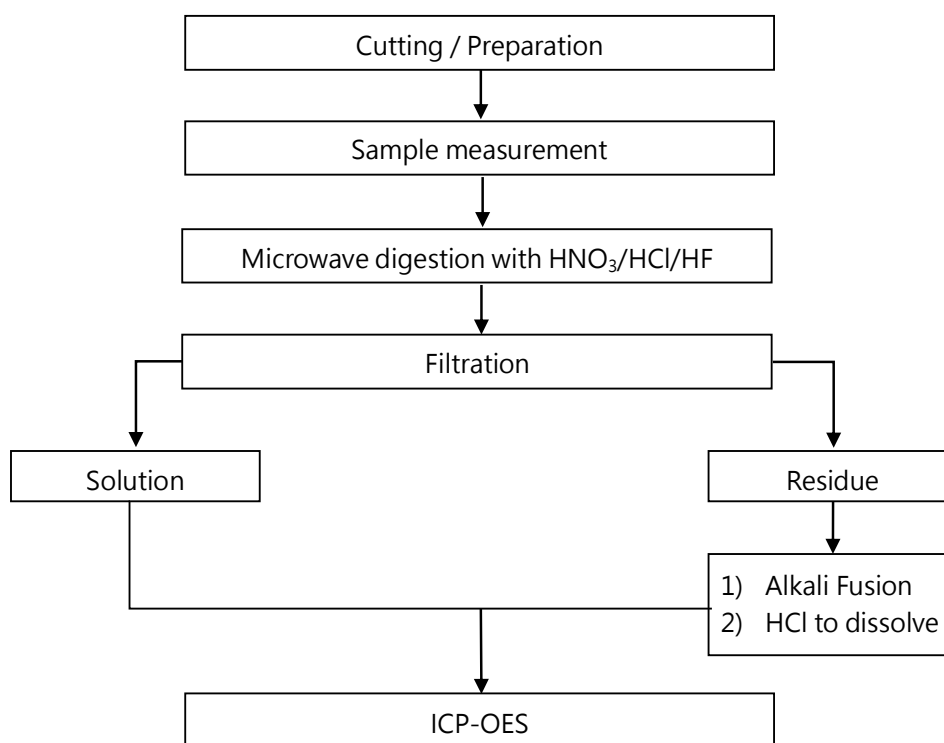
1. mg/kg = ppm ; 0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit

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## Analytical flow chart of Elements (Heavy Metal included)

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

【Reference method : US EPA 3051A 、US EPA 3052】



\* US EPA 3051A method does not add HF.

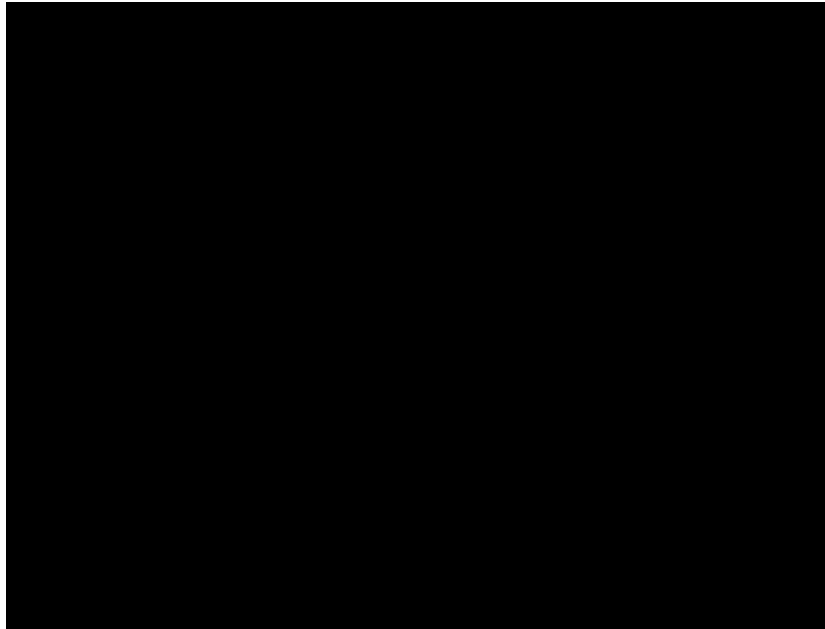
## Test Report

No.: [REDACTED]

Date: 03-Jul-2023

Page: 4 of 4

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TI Report Number : 58966951

Component : Semiconductor Device

Analysis Type : RoHS 10 & Halogens

Analysis Date : 05/18/2023

## Test Report

No. [REDACTED]

Date: May 18, 2023

Page 1 of 10

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

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

**Standard TI Wafer**

Sample Received Date:

**05/09/2023**

Testing Period:

**05/10/2023 – 05/16/2023**

Test Requested : Please refer to the result summary.

Test Method & Results : Please refer to next page(s).

Result Summary :

Test(s) Requested	Conclusion
1. RoHS Directive (EU) 2015/863 Amending Annex II to Directive 2011/65/EU	PASS
2. Halogen Content	See Test Results
3. Element Content (As Requested by Client)	See Test Results

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# Test Report

No. XXXXXXXXXX

Date: May 18, 2023

Page 2 of 10

## 1. RoHS Directive (EU) 2015/863 Amending Annex II to Directive 2011/65/EU

Test Item(s):	Unit	Test Method	Result	MDL	Limit
			1		
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5:2013 (Determination of Cd and Pb by ICP-OES and /or ICP-MS)	ND	2	100
Lead (Pb)	mg/kg		ND	2	1000
Mercury (Hg)	mg/kg	With reference to IEC 62321-4:2013+A1:2017 (Determination of Hg by ICP-OES and/ or ICP-MS)	ND	2	1000
Hexavalent Chromium (CrVI) #	µg/cm²	With reference to IEC 62321-7-1:2015 (Determination of CrVI by UV-VIS)	ND*	0.10	--
<b>Sum of PBBs</b>	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBB and PBDE by GC-MS)	ND	-	1000
Monobromobiphenyl	mg/kg		ND	5	-
Dibromobiphenyl	mg/kg		ND	5	-
Tribromobiphenyl	mg/kg		ND	5	-
Tetrabromobiphenyl	mg/kg		ND	5	-
Pentabromobiphenyl	mg/kg		ND	5	-
Hexabromobiphenyl	mg/kg		ND	5	-
Heptabromobiphenyl	mg/kg		ND	5	-
Octabromobiphenyl	mg/kg		ND	5	-
Nonabromobiphenyl	mg/kg		ND	5	-
Decabromobiphenyl	mg/kg		ND	5	-
<b>Sum of PBDEs</b>	mg/kg		ND	-	1000
Monobromodiphenyl ether	mg/kg		ND	5	-
Dibromodiphenyl ether	mg/kg		ND	5	-
Tribromodiphenyl ether	mg/kg		ND	5	-
Tetrabromodiphenyl ether	mg/kg		ND	5	-
Pentabromodiphenyl ether	mg/kg		ND	5	-
Hexabromodiphenyl ether	mg/kg		ND	5	-
Heptabromodiphenyl ether	mg/kg		ND	5	-
Octabromodiphenyl ether	mg/kg		ND	5	-
Nonabromodiphenyl ether	mg/kg		ND	5	-
Decabromodiphenyl ether	mg/kg		ND	5	-
Bis (2-ethylhexyl) Phthalate (DEHP)	mg/kg	IEC 62321-8:2017 (Determination of DEHP, BBP, DBP and DIBP by GC-MS)	ND	50	1000
Butyl Benzyl Phthalate (BBP)	mg/kg		ND	50	1000
Dibutyl Phthalate (DBP)	mg/kg		ND	50	1000
Diisobutyl Phthalate (DIBP)	mg/kg		ND	50	1000
<b>Conclusion</b>	/	/	PASS	/	/

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Sample Description:

## 1. Standard TI Wafer

## Note:

- (a) mg/kg = ppm ; 0.1wt% = 1000ppm
- (b) ND= not detected
- (c) MDL = Method Detection Limit
- (d) # =
  - a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 µg/cm<sup>2</sup>. The sample coating is considered to contain CrVI
  - b. The sample is negative for CrVI if CrVI is ND (concentration less than 0.10 µg/cm<sup>2</sup>). The coating is considered a non-CrVI based coating.
  - c. The result between 0.10 µg/cm<sup>2</sup> and 0.13 µg/cm<sup>2</sup> is considered to be inconclusive - unavoidable coating variations may influence the determination.
  - d. For corrosion protection coatings on metals: Information on storage conditions and production date of the tested sample is unavailable and thus results of Cr(VI) represent status of the sample at the time of testing represent status of the sample at the time of testing.
- (e) - = not regulated
- (f) \* = Total Chromium analysis by ICP-MS and/or ICP-OES was not detected in submitted sample. Therefore, Hexavalent Chromium determination using UV-Visible Spectroscopy was not performed.
- (g) IEC 62321 series is equivalent to EN 62321 series

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## 2. Halogen Content

Test Method(s): With reference to IEC 62321-3-2:2020 "Determination of certain substances in electrotechnical products – Part 3-2: Screening – Fluorine, bromine and chlorine in polymer and electronics by combustion-ion chromatography (C-IC), and/or with reference to BS EN 14582:2016 – Analysis was performed by ion chromatography.

Test Item(s):	Unit	Results (ppm)	Reporting Limit (ppm)
		1	
Chlorine (Cl)	mg/kg	ND	50
Bromine (Br)	mg/kg	ND	50

### Sample Description:

1. Standard TI Wafer

Note: 1. ppm = parts per million  
2. mg/kg = ppm  
3. 1% = 10000 ppm (mg/kg)  
4. ND = Not Detected, reported when the reading is less than the reporting limit value.

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### 3. Element Content (As Requested by Client)

Test Method: With reference to US EPA Method 3050B followed by analysis using ICP-MS.

Test Item		Result (mg/kg)	Reporting Limit (mg/kg)
		1	
Beryllium	(Be)	ND	5
Arsenic	(As)	ND	5
Antimony	(Sb)	12.3	5

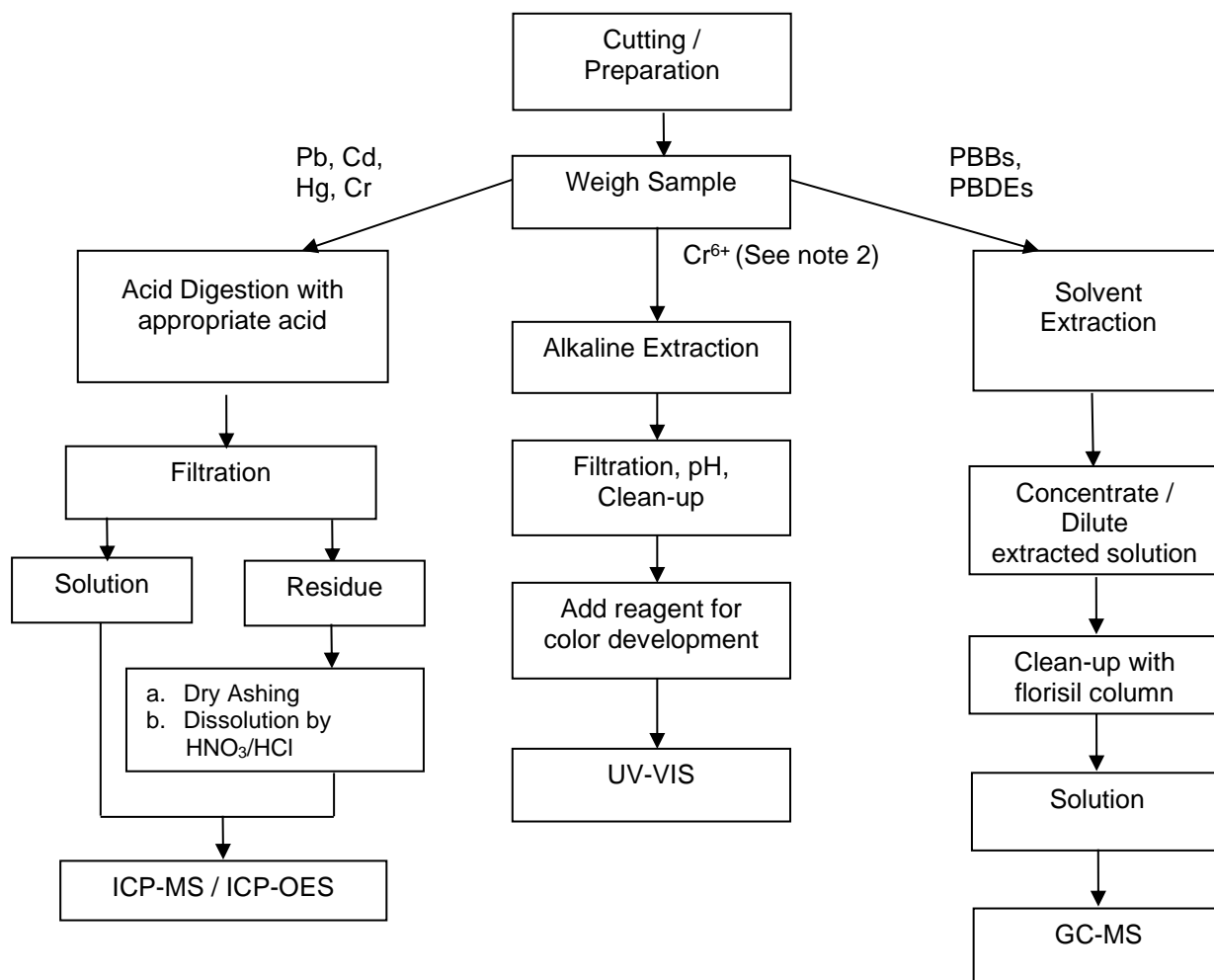
#### Sample Description:

##### 1. Standard TI Wafer

- Note:
1. mg/kg = milligram per kilogram
  2. mg/kg = ppm
  3. 1% = 10000 mg/kg (ppm)
  4. ND = Not Detected
  5. TBD = To Be Determined

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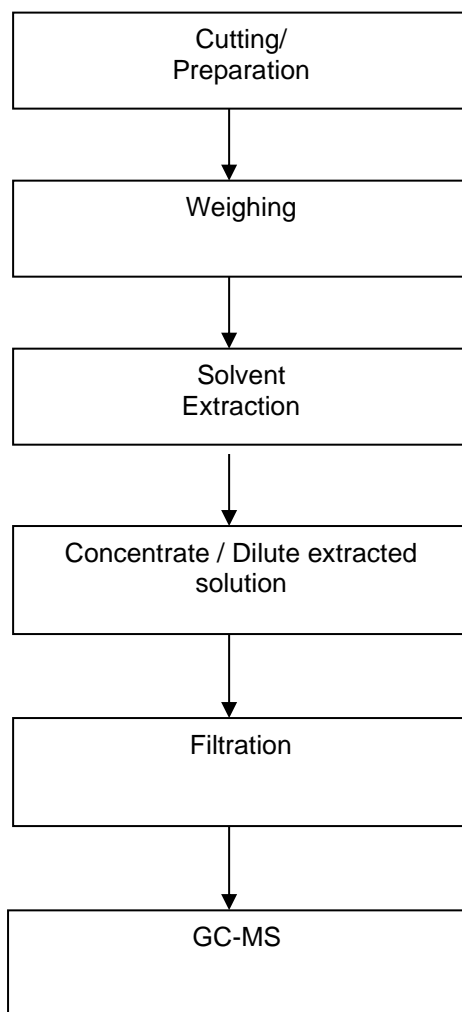
### Flowchart for RoHS:



- Note : 1. The Cr, Cd, Pb and Hg contents test on polymeric samples were dissolved totally by pre-conditioning method according to above flow chart.  
2. Cr<sup>6+</sup> is performed only when total Cr is detected

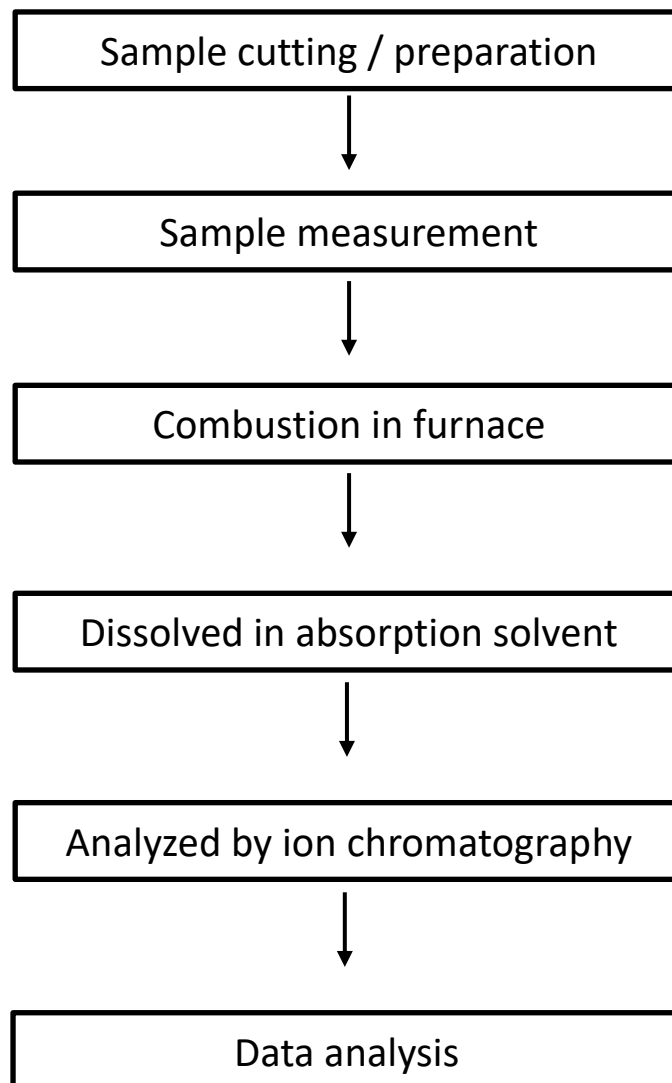
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### Flowchart for Phthalates:



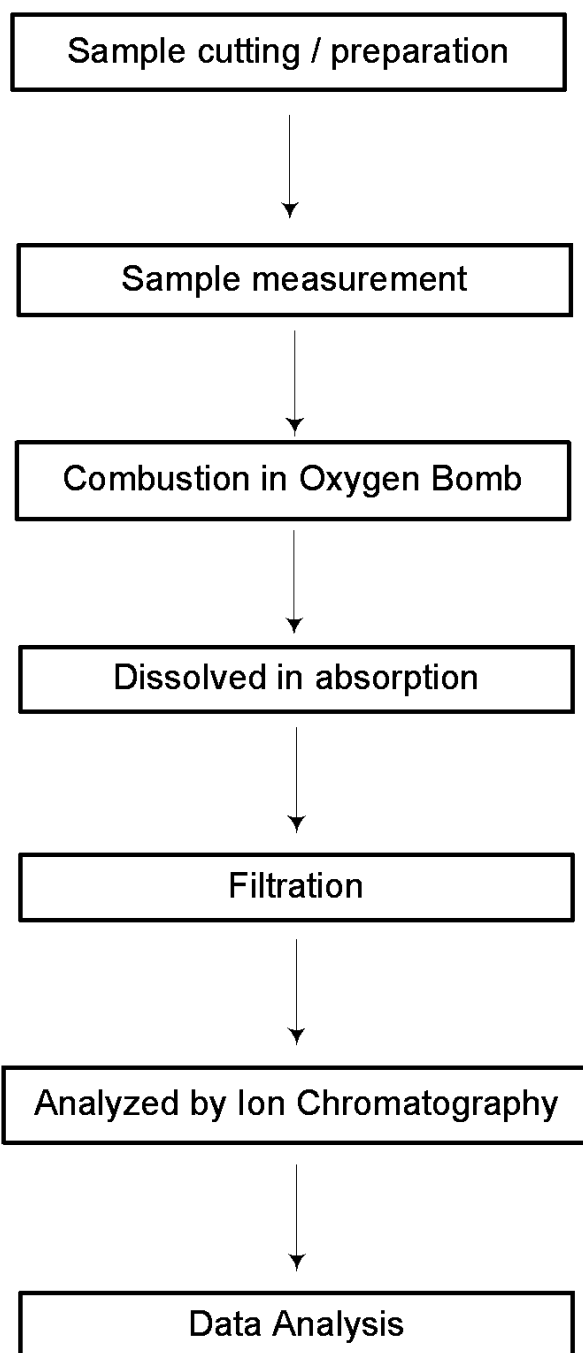
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## Flow Chart of Halogen Test by Combustion Ion Chromatography:



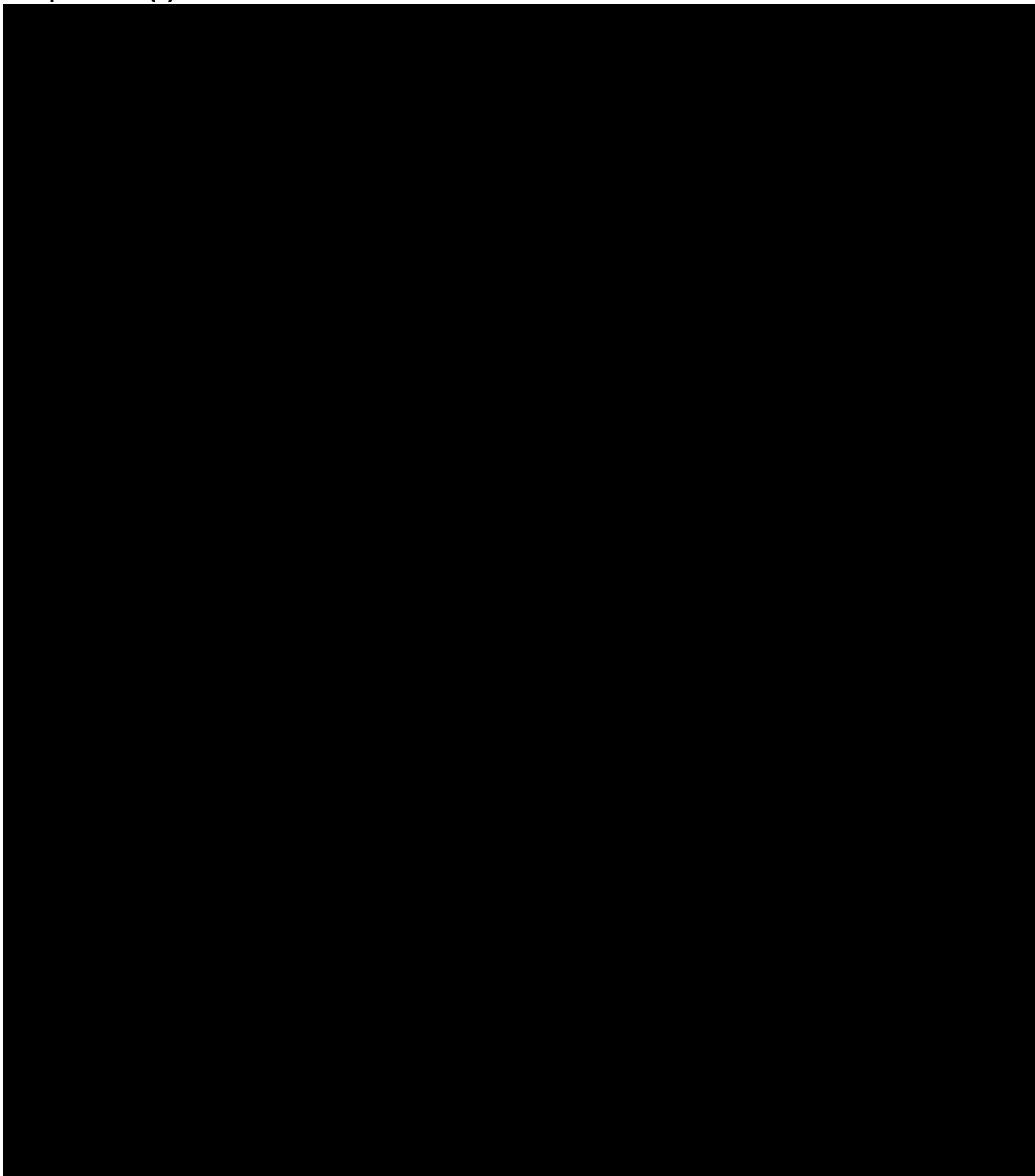
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## Halogen Testing Flow Chart (EN 14582):



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### Sample Photo(s):



SGS authenticates the photo(s) on the original report only

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TI Report Number : 53493006

Component : Mold Compound

Analysis Type : RoHS 10 & Halogens

Analysis Date : 11/21/2022





# Test Report

No.: ETR22B02488

Date: 21-Nov-2022

Page: 1 of 9

SHOWA DENKO MATERIALS CO., LTD.

1772-1 KANAKUBO, YUUKI-SHI, IBARAKI, 307-0015 JAPAN

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

Sample Submitted By : SHOWA DENKO MATERIALS CO., LTD.

Sample Name : EPOXY MOLDING COMPOUND

Style/Item No. :

Sample Receiving Date : 15-Nov-2022

Testing Period : 15-Nov-2022 to 21-Nov-2022

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 Results : Please refer to following pages.

Conclusion : (1) Based on the performed tests on submitted sample(s), the test results of Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

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



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# Test Report

No.: ETR22B02488

Date: 21-Nov-2022

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SHOWA DENKO MATERIALS CO., LTD.

1772-1 KANAKUBO, YUUKI-SHI, IBARAKI, 307-0015 JAPAN

## Test Part Description

No.1 : DARK GRAY LUMP

## Test Result(s)

Test Item(s)	Method	Unit	MDL	Result	Limit
				No.1	
Cadmium (Cd) (CAS No.: 7440-43-9)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	2	n.d.	100
Lead (Pb) (CAS No.: 7439-92-1)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	2	n.d.	1000
Mercury (Hg) (CAS No.: 7439-97-6)	With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES.	mg/kg	2	n.d.	1000
Hexavalent Chromium Cr(VI) (CAS No.: 18540-29-9)	With reference to IEC 62321-7-2: 2017, analysis was performed by UV-VIS.	mg/kg	8	n.d.	1000
Monobromobiphenyl	With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.	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 PBBs		mg/kg	-	n.d.	1000
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.	-
Sum of PBDEs		mg/kg	-	n.d.	1000

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# Test Report

No.: ETR22B02488

Date: 21-Nov-2022

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SHOWA DENKO MATERIALS CO., LTD.

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Test Item(s)	Method	Unit	MDL	Result	Limit
				No.1	
Butyl benzyl phthalate (BBP) (CAS No.: 85-68-7)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	1000
Dibutyl phthalate (DBP) (CAS No.: 84-74-2)		mg/kg	50	n.d.	1000
Di-(2-ethylhexyl) phthalate (DEHP) (CAS No.: 117-81-7)		mg/kg	50	n.d.	1000
Diisobutyl phthalate (DIBP) (CAS No.: 84-69-5)		mg/kg	50	n.d.	1000
Fluorine (F) (CAS No.: 14762-94-8)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	n.d.	-
Chlorine (Cl) (CAS No.: 22537-15-1)		mg/kg	50	n.d.	-
Bromine (Br) (CAS No.: 10097-32-2)		mg/kg	50	n.d.	-
Iodine (I) (CAS No.: 14362-44-8)		mg/kg	50	n.d.	-
Antimony (Sb) (CAS No.: 7440-36-0)	With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.	mg/kg	2	n.d.	-

## Note :

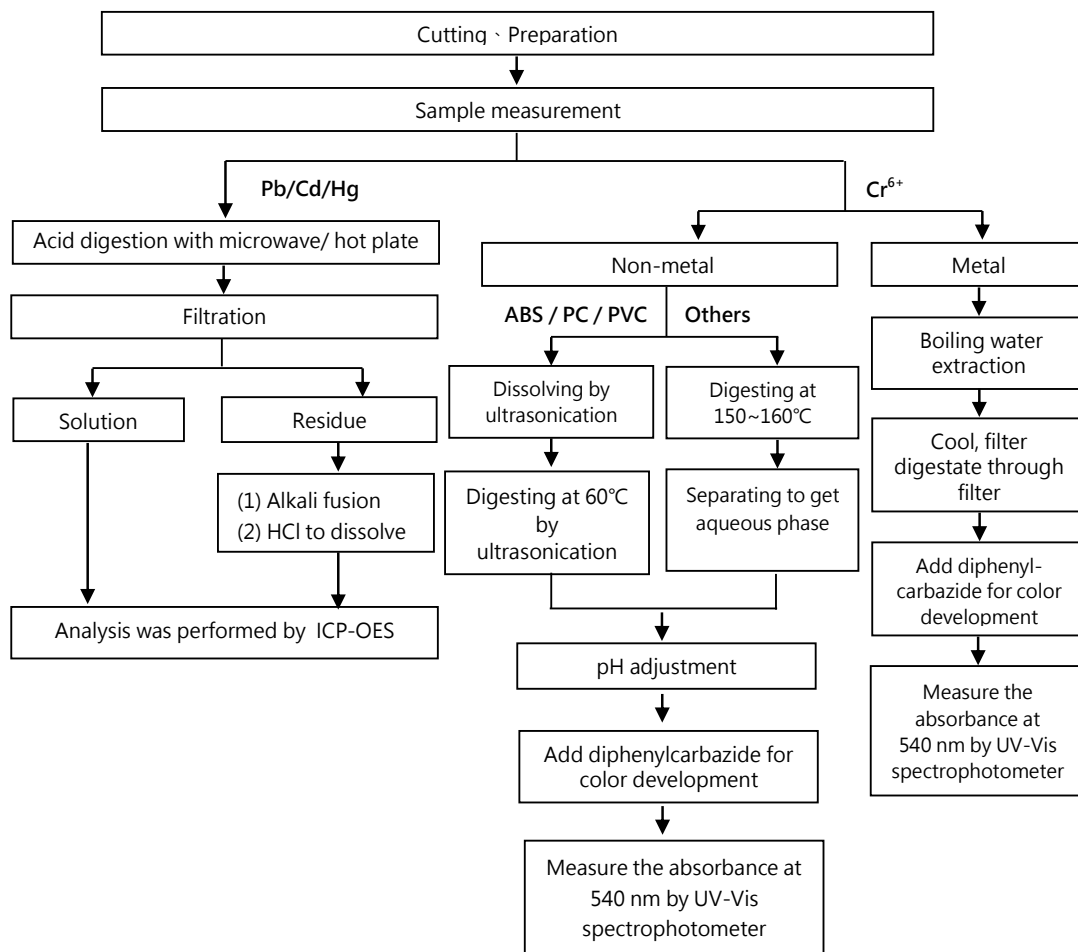
1. mg/kg = ppm ; 0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected ( Less than MDL)
4. "-" = Not Regulated
5. Unless otherwise stated , the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (w=0) stated in ILAC-G8:09/2019. According to this rule, the judgement of conformity is based on the comparing test results with limits.

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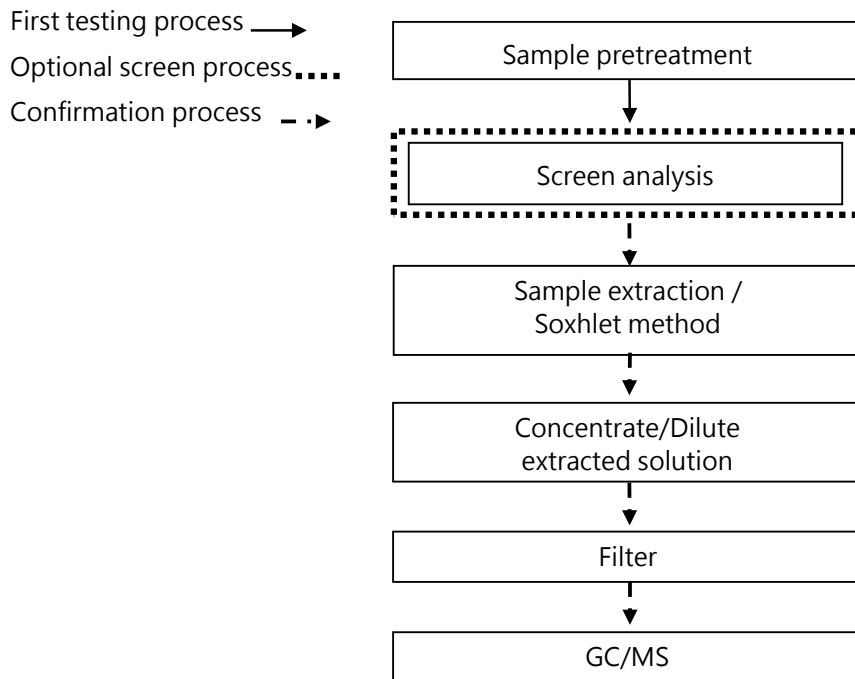
## Analytical flow chart of heavy metal

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

(  $\text{Cr}^{6+}$  test method excluded )



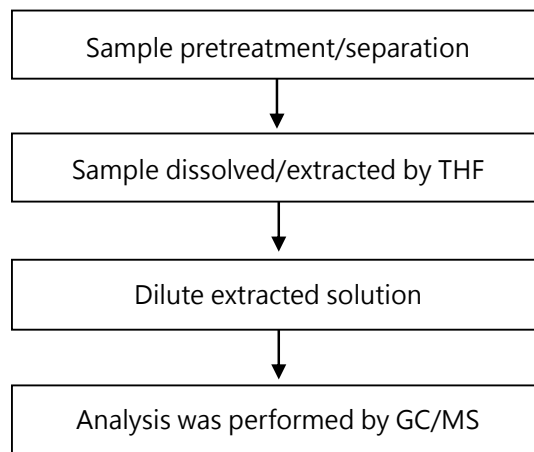
## Analytical flow chart – PBBs / PBDEs



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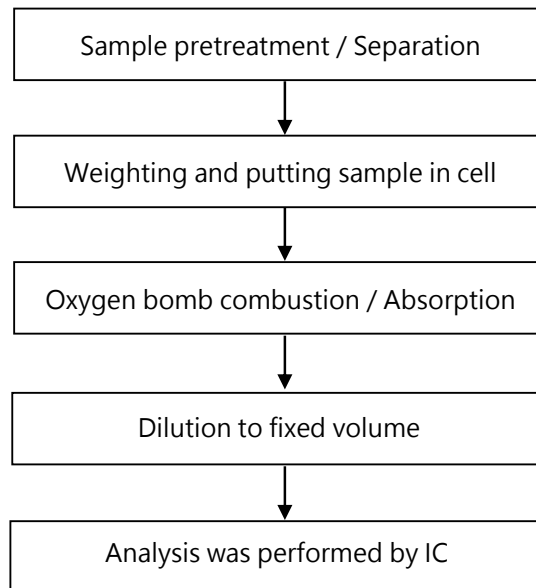
## Analytical flow chart - Phthalate

【Test method: IEC 62321-8】



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## Analytical flow chart - Halogen

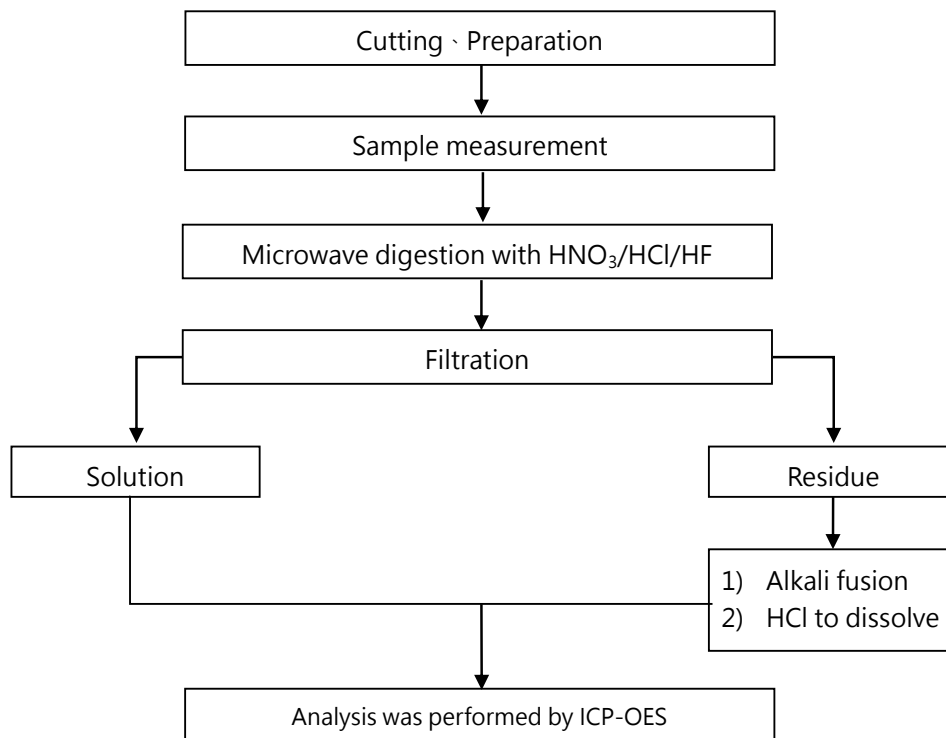


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## Analytical flow chart of elements (Heavy metal included)

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

【Reference method : US EPA 3051A 、US EPA 3052】



\* US EPA 3051A method does not add HF.





# Test Report

No.: ETR22B02488

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SHOWA DENKO MATERIALS CO., LTD.

1772-1 KANAKUBO, YUUKI-SHI IBARAKI, 307-0015 JAPAN

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



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TI Report Number : 17609360

Component : Magnet

Analysis Type : RoHS 10

Analysis Date : 12/07/2020

## Test Report

No. [REDACTED]

Date: 07 Dec 2020

Page 1 of 6

The following sample(s) was/were submitted and identified on behalf of the clients as : Ni-Zn Ferrite core  
(Belongs to NB、ND、NE、NH、NL、NM、NN、NP、NQ、NS、NW、NX、NY、NZ、4R、4S)

Date of Sample Received :

01 Dec 2020

Testing Period :

01 Dec 2020 - 07 Dec 2020

Test Requested :

Selected test(s) as requested by client.

Test Method :

Please refer to next page(s).

Test Results :

Please refer to next page(s).

Conclusion :

Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP) , Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) , and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of

SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

Jessie Li

Jessie Li

Approved Signatory



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中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663

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t (86-20) 82155555 sgs.china@sgs.com

## Test Report

No. [REDACTED]

Date: 07 Dec 2020

Page 2 of 6

Test Results :

### Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN20-213633.001	Dark grey core

Remarks :

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected ( < MDL )
- (4) "-" = Not Regulated

### RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : With reference to IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017 , IEC 62321-6:2015 and IEC 62321-8:2017, analyzed by ICP-OES , UV-Vis and GC-MS .

Test Item(s)	Limit	Unit	MDL	001
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	ND
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	1,000	mg/kg	8	ND
Sum of PBBs	1,000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND



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Guangzhou Branch, Technical Services Co., Ltd.

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中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663

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## Test Report

No. [REDACTED]

Date: 07 Dec 2020

Page 3 of 6

Test Item(s)	Limit	Unit	MDL	001
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND
Dibutyl phthalate (DBP)	1,000	mg/kg	50	ND
Butyl benzyl phthalate (BBP)	1,000	mg/kg	50	ND
Bis (2-ethylhexyl) phthalate (DEHP)	1,000	mg/kg	50	ND
Diisobutyl Phthalates (DIBP)	1,000	mg/kg	50	ND

### Notes :

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863. IEC 62321 series is equivalent to EN 62321 series  
[https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP\\_ORG\\_ID,FSP\\_LANG\\_ID:1258637,25](https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25)
- (2) The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.
- (3) The restriction of DEHP, BBP, DBP and DIBP shall not apply to toys which are already subject to the restriction of DEHP, BBP, DBP and DIBP through entry 51 of Annex XVII to Regulation (EC) No 1907/2006.



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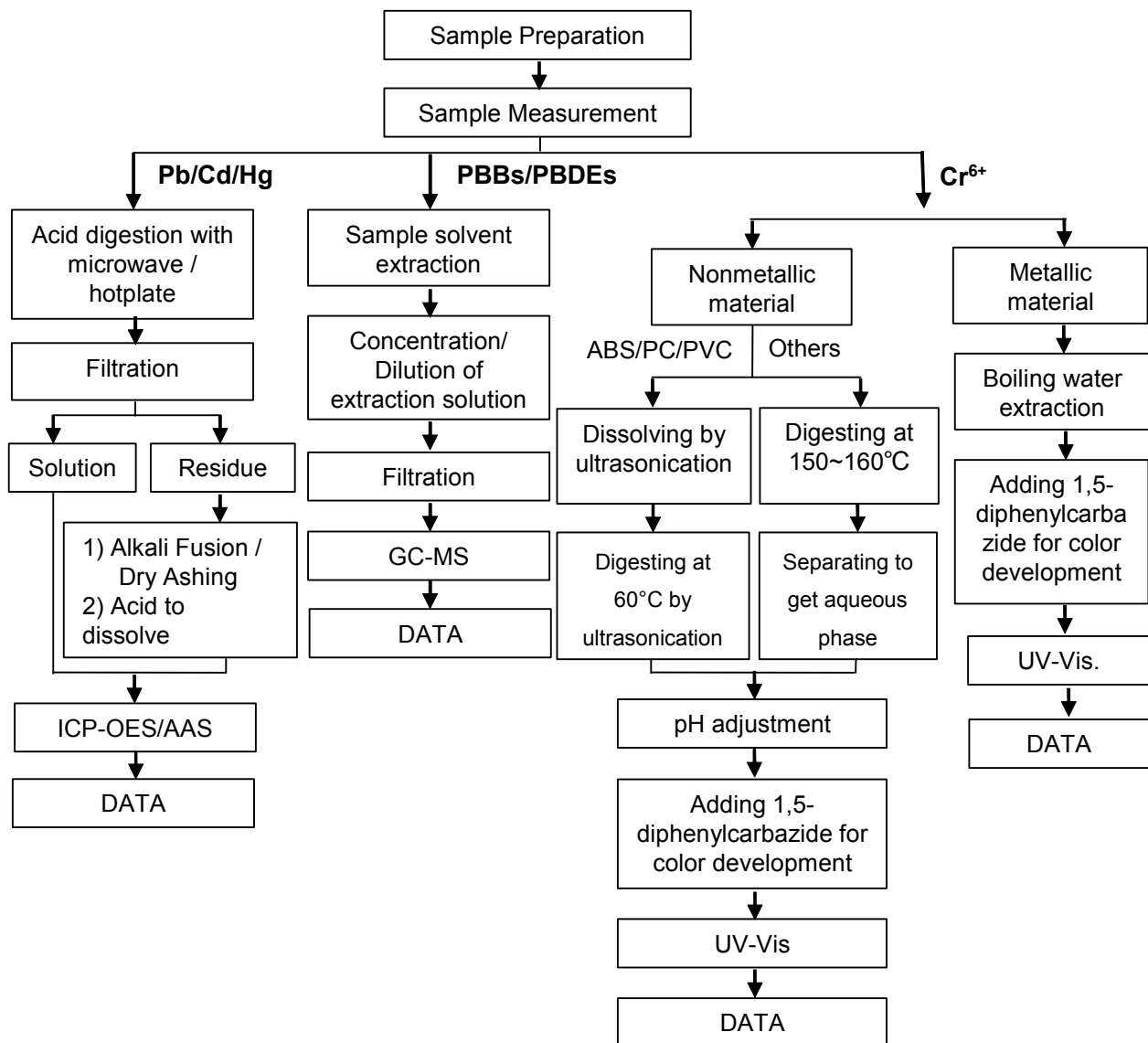
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### ATTACHMENTS

#### Pb/Cd/Hg/Cr<sup>6+</sup>/PBBs/PBDEs Testing Flow Chart

- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart.  
(Cr<sup>6+</sup> and PBBs/PBDEs test method excluded).



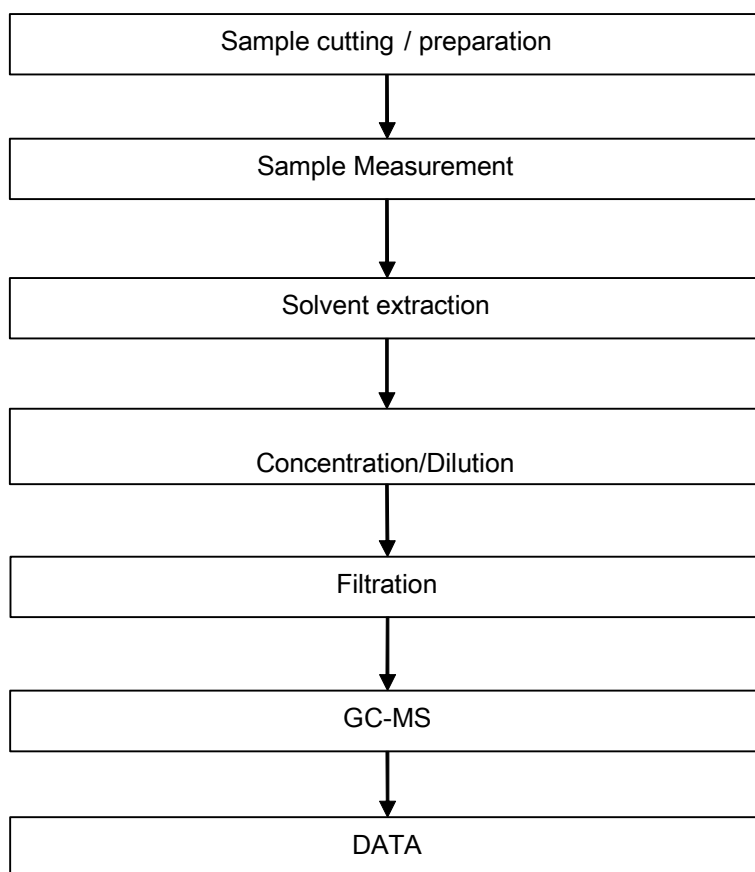
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## ATTACHMENTS

### Phthalates Testing Flow Chart



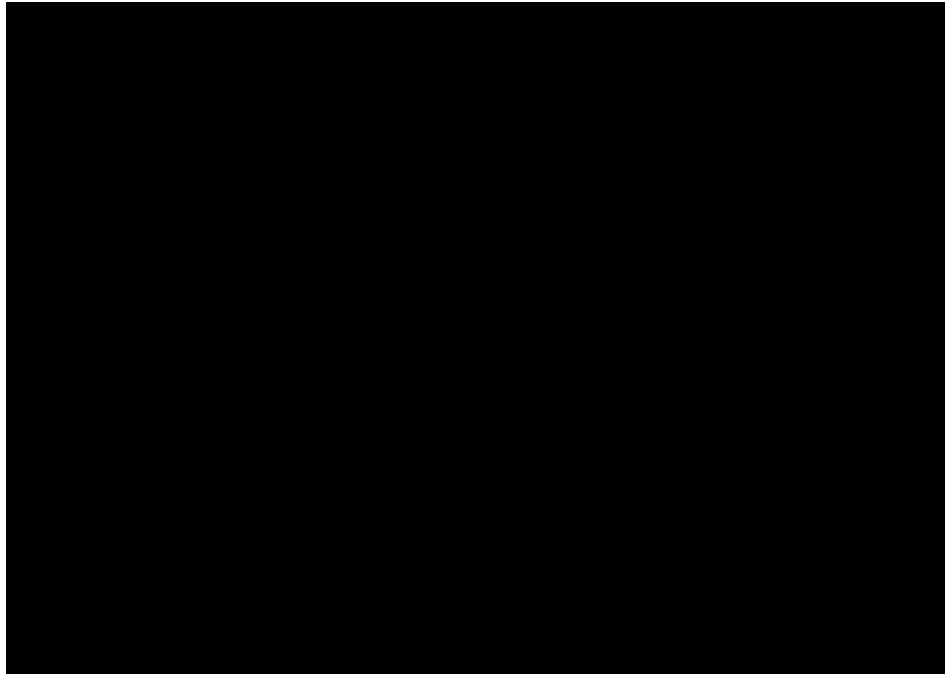
## Test Report

No. [REDACTED]

Date: 07 Dec 2020

Page 6 of 6

Sample photo:



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TI Report Number : 17609358

Component : Magnet

Analysis Type : RoHS 10

Analysis Date : 12/07/2020

## Test Report

Date: 07 Dec 2020

Page 1 of 6

The following sample(s) was/were submitted and identified on behalf of the clients as : Ni-Zn Ferrite core  
(Belongs to NB、ND、NE、NH、NL、NM、NN、NP、NQ、NS、NW、NX、NY、NZ、4R、4S)

Date of Sample Received : 01 Dec 2020  
Testing Period : 01 Dec 2020 - 07 Dec 2020  
Test Requested : Selected test(s) as requested by client.  
Test Method : Please refer to next page(s).  
Test Results : Please refer to next page(s).  
Conclusion : Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP) , Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) , and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of  
SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

Jessie Li

Jessie Li  
Approved Signatory



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Guangzhou Branch, Technical Services Chemical Laboratory

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## Test Report

Date: 07 Dec 2020

Page 2 of 6

Test Results :

### Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN20-213633.001	Dark grey core

Remarks :

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected ( < MDL )
- (4) "-" = Not Regulated

### RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : With reference to IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017 , IEC 62321-6:2015 and IEC 62321-8:2017, analyzed by ICP-OES , UV-Vis and GC-MS .

Test Item(s)	Limit	Unit	MDL	001
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	ND
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	1,000	mg/kg	8	ND
Sum of PBBs	1,000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND



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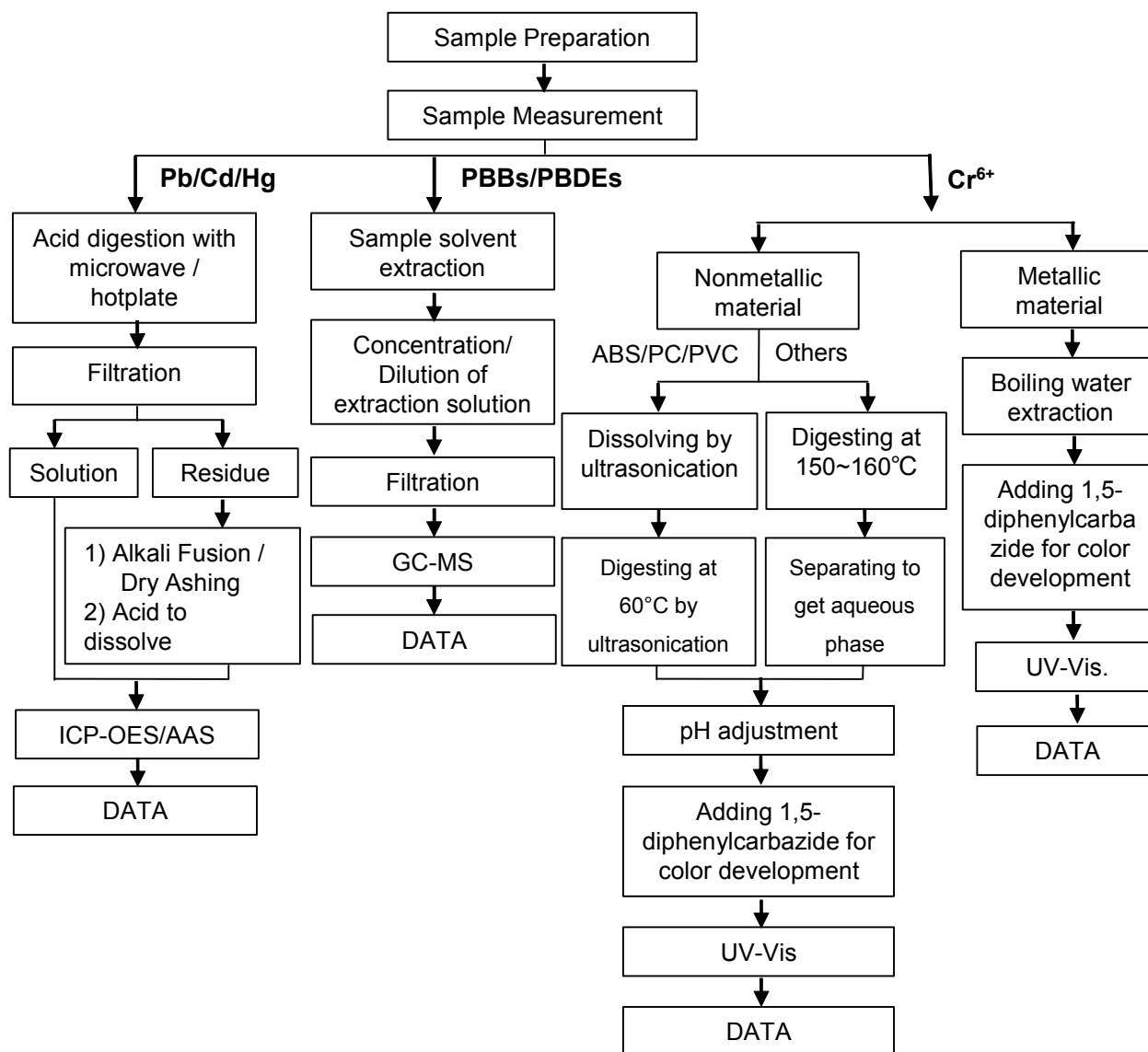
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#### Pb/Cd/Hg/Cr<sup>6+</sup>/PBBs/PBDEs Testing Flow Chart

- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart.  
(Cr<sup>6+</sup> and PBBs/PBDEs test method excluded).

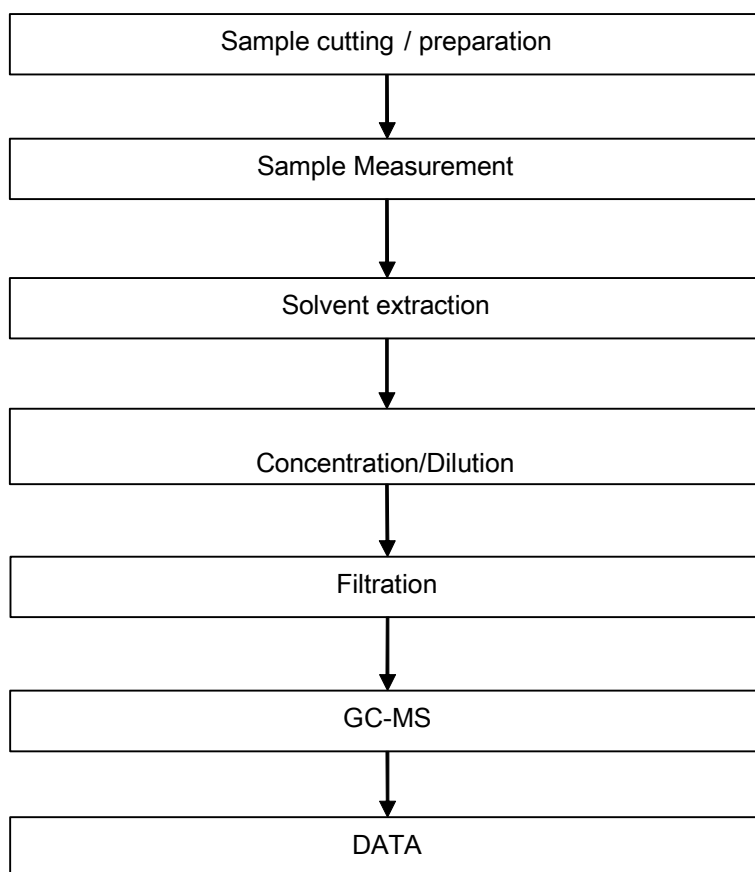


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#### Phthalates Testing Flow Chart



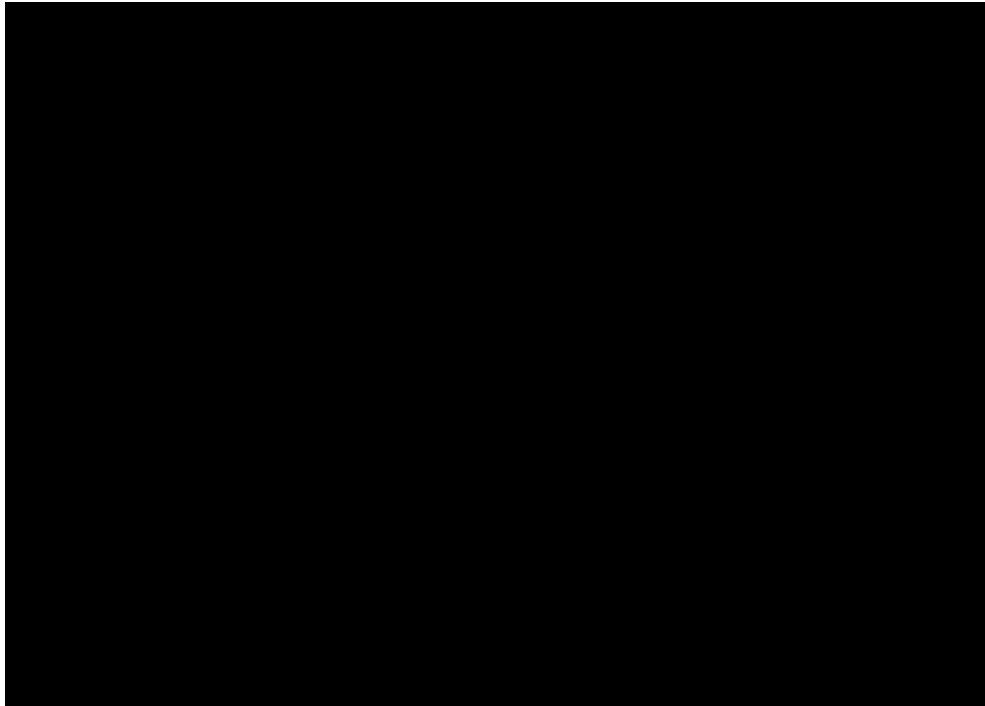


## Test Report

Date: 07 Dec 2020

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