

**Test Report** Page: 1 of 17 No.: KA/2020/91568 Date: 2020/09/25

SUMITOMO BAKELITE CO., LTD.

20-7 KIYOHARA-KOGYODANCHI, UTSUNOMIYA-CITY, TOCHIGI-PREFECTURE, 321-3231 JAPAN

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

Sample Submitted By : SUMITOMO BAKELITE CO., LTD.

Sample Description : DIE ATTACH PASTE

Style/Item No. : CRM-1076WA Sample Receiving Date : 2020/09/21

**Testing Period** : 2020/09/21 to 2020/09/25

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: (1) As specified by client, with reference to RoHS 2011/65/EU Annex II and amending **Test Requested** 

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).

Please refer to next page(s). Test Result(s)

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. / Manager Signed for and on beh **SGS Taiwan Limited** 

Chemical Laboratory-Kao

PIN CODE: DE1E46B8



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# Test Result(s)

PART NAME NO.1 : SILVER GRAY DIE ATTACH PASTE

Test Item (s)	Unit	Method	MDL	Result No.1	Limit
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5: 2013 and performed by ICP-OES.	2	n.d.	100
Lead (Pb)	mg/kg	With reference to IEC 62321-5: 2013 and performed by ICP-OES.	2	n.d.	1000
Mercury (Hg)	mg/kg	With reference to IEC 62321-4:2013+ AMD1:2017 and performed by ICP-OES.	2	n.d.	1000
Hexavalent Chromium Cr(VI)	mg/kg	With reference to IEC 62321-7-2:2017 and performed by UV-VIS.	8	n.d.	1000
Sum of PBBs	mg/kg		-	n.d.	1000
Monobromobiphenyl	mg/kg	]	5	n.d.	-
Dibromobiphenyl	mg/kg		5	n.d.	-
Tribromobiphenyl	mg/kg		5	n.d.	-
Tetrabromobiphenyl	mg/kg	W/# f to 150 00004 0 0045	5	n.d.	-
Pentabromobiphenyl	mg/kg	With reference to IEC 62321-6:2015 and performed by GC/MS.	5	n.d.	-
Hexabromobiphenyl	mg/kg	-performed by GC/MG.	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	With reference to IEC 62321-6:2015 and performed by GC/MS.	-	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.	-



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Unit	Mothod	MDI	Result	Limit
		IVIDL	No.1	Limit
mg/kg	With reference to US EPA 3052: 1996. Analysis was performed by ICP-OES.	2	n.d.	-
mg/kg	With reference to US EPA 3052: 1996. Analysis was performed by ICP-OES.	2	n.d.	-
mg/kg	With reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.	0.5	n.d.	-
mg/kg	With reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.	5	n.d.	-
mg/kg	With reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.	0.5	n.d.	-
%	With reference to US EPA 3550C: 2007. Analysis was performed by GC/ECD.	0.01	n.d.	-
mg/kg	With reference to BS EN 14582:2016. Analysis was performed by IC.	50	n.d.	-
mg/kg	With reference to BS EN 14582:2016. Analysis was performed by IC.	50	n.d.	-
mg/kg	With reference to BS EN 14582:2016. Analysis was performed by IC.	50	n.d.	-
mg/kg	With reference to BS EN 14582:2016. Analysis was performed by IC.	50	n.d.	-
				-
mg/kg	With reference to ISO 17353: 2004. Analysis was performed by GC/FPD.	0.03	n.d.	-
mg/kg	With reference to ISO 17353: 2004. Analysis was performed by GC/FPD.	0.03	n.d.	-
mg/kg	With reference to ISO 17353: 2004. Analysis was performed by GC/FPD. Calculated from the result of Tributyl Tin (TBT).	0.03 (▲)	n.d.	-
mg/kg	With reference to ISO 17353: 2004. Analysis was performed by GC/FPD.	0.03	n.d.	-
mg/kg	With reference to ISO 17353: 2004. Analysis was performed by GC/FPD.	0.03	n.d.	-
	mg/kg	mg/kg With reference to US EPA 3052: 1996. Analysis was performed by ICP-OES.  mg/kg With reference to US EPA 3052: 1996. Analysis was performed by ICP-OES.  mg/kg With reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.  mg/kg With reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.  mg/kg With reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.  With reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.  With reference to US EPA 3550C: 2007. Analysis was performed by GC/ECD.  mg/kg With reference to BS EN 14582:2016. Analysis was performed by IC.  mg/kg With reference to BS EN 14582:2016. Analysis was performed by IC.  mg/kg With reference to BS EN 14582:2016. Analysis was performed by IC.  mg/kg With reference to BS EN 14582:2016. Analysis was performed by IC.  mg/kg With reference to ISO 17353: 2004. Analysis was performed by GC/FPD.  mg/kg With reference to ISO 17353: 2004. Analysis was performed by GC/FPD.  Calculated from the result of Tributyl Tin (TBT).  mg/kg With reference to ISO 17353: 2004. Analysis was performed by GC/FPD.  Calculated from the result of Tributyl Tin (TBT).  mg/kg With reference to ISO 17353: 2004. Analysis was performed by GC/FPD.  Calculated from the result of Tributyl Tin (TBT).	mg/kg With reference to US EPA 3052: 1996. Analysis was performed by ICP-OES.  mg/kg With reference to US EPA 3052: 1996. Analysis was performed by ICP-OES.  mg/kg With reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.  mg/kg With reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.  mg/kg With reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.  with reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.  with reference to US EPA 3550C: 2007. Analysis was performed by GC/ECD.  mg/kg With reference to BS EN 14582:2016. Analysis was performed by IC.  mg/kg With reference to BS EN 14582:2016. Analysis was performed by IC.  mg/kg With reference to BS EN 14582:2016. Analysis was performed by IC.  mg/kg With reference to BS EN 14582:2016. 50  Analysis was performed by IC.  mg/kg With reference to ISO 17353: 2004. Analysis was performed by GC/FPD.  mg/kg With reference to ISO 17353: 2004. Analysis was performed by GC/FPD.  mg/kg With reference to ISO 17353: 2004. Analysis was performed by GC/FPD.  mg/kg With reference to ISO 17353: 2004. Analysis was performed by GC/FPD.  mg/kg With reference to ISO 17353: 2004. Analysis was performed by GC/FPD.  mg/kg With reference to ISO 17353: 2004. Analysis was performed by GC/FPD.  mg/kg With reference to ISO 17353: 2004. Analysis was performed by GC/FPD.  mg/kg With reference to ISO 17353: 2004. Analysis was performed by GC/FPD.  mg/kg With reference to ISO 17353: 2004. Analysis was performed by GC/FPD.  mg/kg With reference to ISO 17353: 2004. O.03  Analysis was performed by GC/FPD.  mg/kg With reference to ISO 17353: 2004. O.03  Analysis was performed by GC/FPD.	mg/kg With reference to US EPA 3052: 1996. Analysis was performed by ICP-OES.  mg/kg With reference to US EPA 3052: 1996. Analysis was performed by ICP-OES.  mg/kg With reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.  mg/kg With reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.  mg/kg With reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.  mg/kg With reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.  with reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.  with reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.  with reference to US EPA 3550C: 2007. Analysis was performed by GC/ECD.  mg/kg With reference to BS EN 14582:2016. Analysis was performed by IC.  mg/kg With reference to BS EN 14582:2016. Analysis was performed by IC.  mg/kg With reference to BS EN 14582:2016. Analysis was performed by IC.  mg/kg With reference to BS EN 14582:2016. Analysis was performed by IC.  mg/kg With reference to BS EN 14582:2016. Analysis was performed by IC.  mg/kg With reference to ISO 17353: 2004. Analysis was performed by GC/FPD.  mg/kg With reference to ISO 17353: 2004. Analysis was performed by GC/FPD. Calculated from the result of Tributyl Tin (TBT).  mg/kg With reference to ISO 17353: 2004. Analysis was performed by GC/FPD. Calculated from the result of Tributyl Tin (TBT).  mg/kg With reference to ISO 17353: 2004. Analysis was performed by GC/FPD. Calculated from the result of Tributyl Tin (TBT).



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Test Item (s)	Unit	Method	MDL	Result	Limit
				No.1	
PFOS and its salts (CAS No.:	mg/kg	With reference to CEN/TS 15968 (2010).	0.01	n.d.	-
1763-23-1 and its salts)		Analysis was performed by LC/MSMS.			
PFOA and its salts (CAS No.: 335-	mg/kg	With reference to CEN/TS 15968 (2010).	0.01	n.d.	-
67-1 and its salts)		Analysis was performed by LC/MSMS.			
Phthalates					
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.	1000
,		With reference to IEC 62321-8:2017.	F0		4000
DBP (Dibutyl phthalate) (CAS No.: 84-74-2)	mg/kg	Analysis was performed by GC/MS.	50	n.d.	1000
,	/1	· · · · ·			1000
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.	1000
DIBP (Di-isobutyl phthalate) (CAS	mg/kg	With reference to IEC 62321-8:2017.	50	n.d.	1000
No.: 84-69-5)	mg/kg	Analysis was performed by GC/MS.	30	n.u.	1000
DIDP (Di-isodecyl phthalate) (CAS	mg/kg	With reference to IEC 62321-8:2017.	50	n.d.	_
No.: 26761-40-0; 68515-49-1)	g/g	Analysis was performed by GC/MS.		11.4.	
DINP (Di-isononyl phthalate) (CAS	mg/kg	With reference to IEC 62321-8:2017.	50	n.d.	-
No.: 28553-12-0; 68515-48-0)		Analysis was performed by GC/MS.			
DNOP (Di-n-octyl phthalate) (CAS	mg/kg	With reference to IEC 62321-8:2017.	50	n.d.	-
No.: 117-84-0)		Analysis was performed by GC/MS.			
Hexabromocyclododecane	mg/kg	With reference to IEC 62321: 2008.	5	n.d.	-
(HBCDD) and all major		Analysis was performed by GC/MS.			
diastereoisomers identified (α-					
HBCDD, β- HBCDD, γ- HBCDD)					
(CAS No.: 25637-99-4 and 3194-					
55-6 (134237-51-7, 134237-50-6,					
134237-52-8))					
PVC	**	Analysis was performed by FTIR and	-	Negative	-
		FLAME Test.			
Arsenic (As)	mg/kg	With reference to US EPA 3052: 1996.	2	n.d.	_
		Analysis was performed by ICP-OES.			



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#### Note:

1. mg/kg = ppm; 0.1wt% = 1000ppm

2. n.d. = Not Detected

3. MDL = Method Detection Limit

4. " - " = Not Regulated

5. \*\* = Qualitative analysis (No Unit)

6. Negative = Undetectable / Positive = Detectable

7. (A): The MDL was evaluated for element / tested substance.

Conversion Formula :  $AX = A \times F$ 

AX	A	F
Bis(tributyltin)oxide (TBTO)	Tributyl Tin (TBT)	1.024

Parameter Conversion Table:

https://twap.sgs.com/sgsrsts/chn/download-REACH tw.asp

- 8. PFOS and its salts including CAS No.: 29081-56-9, 2795-39-3, 29457-72-5, 70225-14-8, 56773-42-3, 251099-16-8, 307-35-7.
- 9. PFOA and its salts including CAS No.: 3825-26-1, 335-95-5, 2395-00-8, 335-93-3, 335-66-0.
- 10. The statement of compliance conformity is based on comparison of testing results and limits.



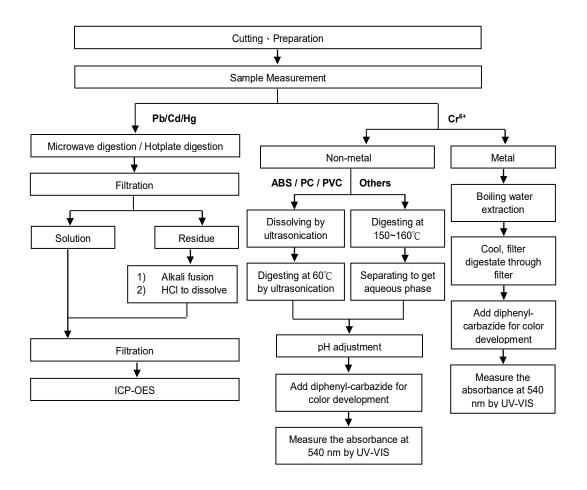
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# **Analytical flow chart of Heavy Metal**

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



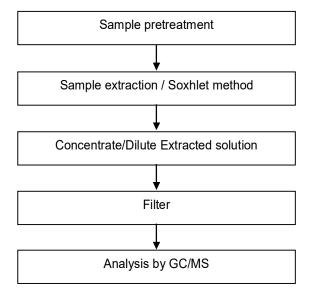


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# PBB/PBDE analytical FLOW CHART





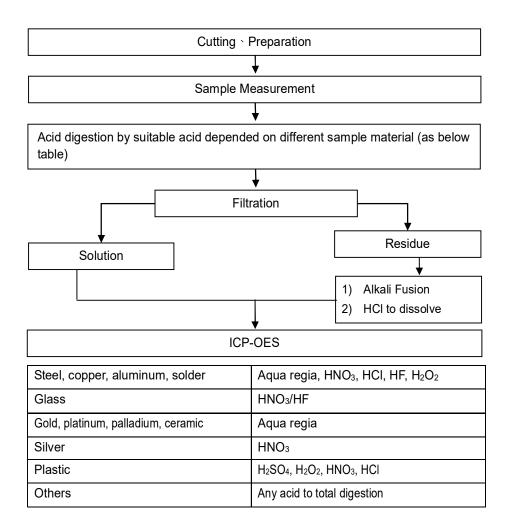
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### Flow Chart of digestion for the elements analysis performed by ICP-OES

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





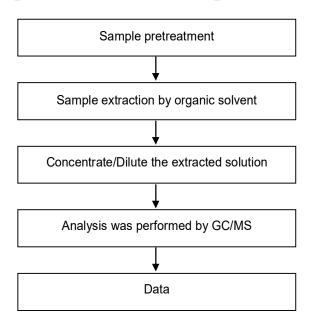
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# Chlorinated Flame retardant analytical flow chart

[Reference method: US EPA 3550C] [Test Items: PCBs, PCNs, PCTs]





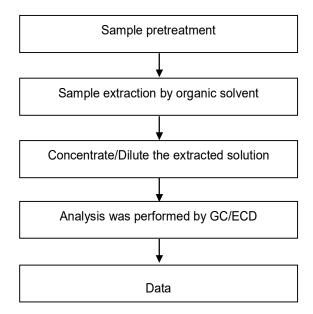
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### **Analytical flow chart - Chlorinated Paraffins**

[Reference method: US EPA 3550C]



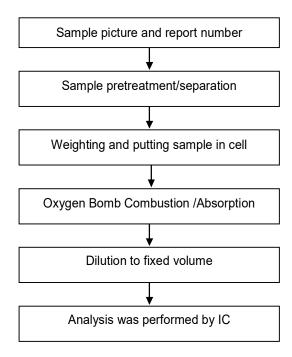


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#### Analytical flow chart of Halogen



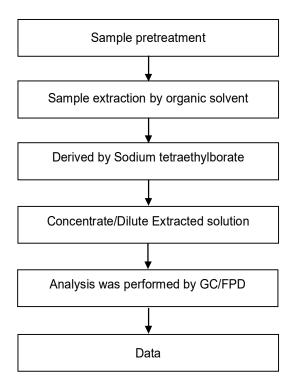


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# Analytical flow chart of Organic-Tin



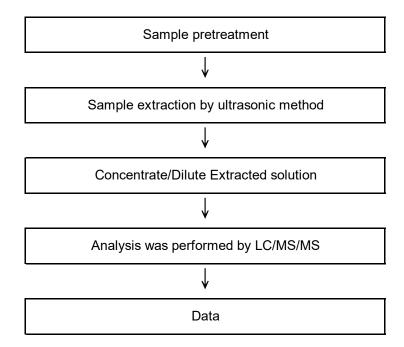


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# Analytical flow chart of PFOA/PFOS





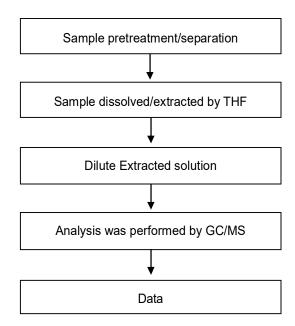
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# Analytical flow chart of phthalate content

# [Test method: IEC 62321-8]



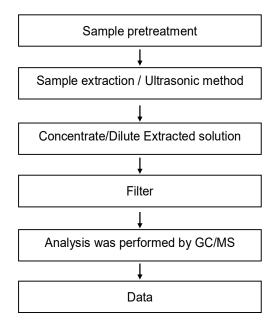


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# **HBCDD** analytical flow chart



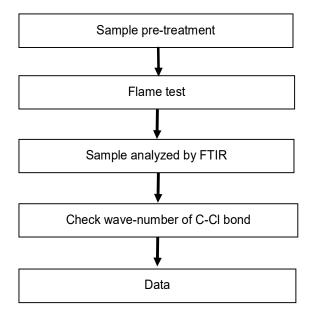


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#### Analysis flow chart for determination of PVC in polymer material





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

KA/2020/91568



\*\* End of Report \*\*