

Test Report

No. : CE/2020/73878A

Date : 2020/07/27

Page : 1 of 32

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS
4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

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

Sample Submitted By : HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS
Sample Description : DIE BONDING PASTE
Style/Item No. : EN-4900G*
Sample Receiving Date : 2020/07/20
Testing Period : 2020/07/20 to 2020/07/27


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) As specified by client, to test PAHs and other item(s).

Test Result(s) : 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.

(2) Based upon the performed tests on the submitted sample(s), the test results of PAHs (15 items) comply with the limits of PAHs requirement (Category 1) as set by German Committee on Product Safety (AfPS) GS PAHs.


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



PIN CODE: FEDA7748

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/2020/73878A

Date : 2020/07/27

Page : 2 of 32

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS
4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

Test Result(s)

PART NAME No.1 : SILVER COLORED PASTE

Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5: 2013 and performed by ICP-OES.	2	n.d.	100
Lead (Pb)	mg/kg		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	With reference to IEC 62321-6: 2015 and performed by GC/MS.	-	n.d.	1000
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.	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.	-	

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/2020/73878A

Date : 2020/07/27

Page : 3 of 32

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS
4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
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
DBP (Dibutyl phthalate) (CAS No.: 84-74-2)	mg/kg		50	n.d.	1000
DIBP (Di-isobutyl phthalate) (CAS No.: 84-69-5)	mg/kg		50	n.d.	1000
DEHP (Di- (2-ethylhexyl) phthalate) (CAS No.: 117-81-7)	mg/kg		50	n.d.	1000
DINP (Di-isononyl phthalate) (CAS No.: 28553-12-0; 68515-48-0)	mg/kg		50	n.d.	-
DIDP (Di-isodecyl phthalate) (CAS No.: 26761-40-0; 68515-49-1)	mg/kg		50	n.d.	-
DNOP (Di-n-octyl phthalate) (CAS No.: 117-84-0)	mg/kg		50	n.d.	-
DNHP (Di-n-hexyl phthalate) (CAS No.: 84-75-3)	mg/kg		50	n.d.	-
DEP (Di-ethyl phthalate) (CAS No.: 84-66-2)	mg/kg		50	n.d.	-
DNPP (Di-n-pentyl phthalate) (CAS No.: 131-18-0)	mg/kg		50	n.d.	-
DMEP (Bis (2-methoxyethyl) phthalate) (CAS No.: 117-82-8)	mg/kg		50	n.d.	-
DIPP (Di-iso-pentyl phthalate) (CAS No.: 605-50-5)	mg/kg		50	n.d.	-
DHNUP (1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters) (CAS No.: 68515-42-4)	mg/kg		50	n.d.	-
DMP (Di-methyl phthalate) (CAS No.: 131-11-3)	mg/kg		50	n.d.	-
DIHP (1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich) (CAS No.: 71888-89-6)	mg/kg		50	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/2020/73878A

Date : 2020/07/27

Page : 4 of 32

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS
4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
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		2	n.d.	-
Phosphorus (P)	mg/kg	2	n.d.	-	
Beryllium (Be)	mg/kg	2	n.d.	-	
PFOS and its salts (CAS No.: 1763-23-1 and its salts)	mg/kg	With reference to CEN/TS 15968: 2010. Analysis was performed by LC/MS.	0.01	n.d.	-
PFOA and its salts (CAS No.: 335-67-1 and its salts)	mg/kg		0.01	n.d.	-
Polyvinyl chloride (PVC)	**	Analysis was performed by FTIR and FLAME Test.	-	Negative	-
TBBP-A-bis (CAS No.: 21850-44- 2)	mg/kg	With reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.	5	n.d.	-
Hexabromocyclododecane (HBCDD) and all major 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))	mg/kg	With reference to IEC 62321: 2008. Analysis was performed by GC/MS.	5	n.d.	-
Polychlorinated Biphenyls (PCBs) (CAS No.: 1336-36-3)	mg/kg	With reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.	0.5	n.d.	-
Polychlorinated Naphthalene (PCNs)	mg/kg	With reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.	5	n.d.	-
Polychlorinated Terphenyls (PCTs)	mg/kg	With reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.	0.5	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/2020/73878A

Date : 2020/07/27

Page : 5 of 32

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS
4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins) (CAS No.: 85535-84-8)	mg/kg	With reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.	100	n.d.	-
Polycyclic Aromatic Hydrocarbons (PAHs)					
Anthracene (CAS No.: 120-12-7)	mg/kg	With reference to AfPS GS 2019:01 PAK. Analysis was performed by GC/MS.	0.2	n.d.	-
Benzo[a]anthracene (CAS No.: 56-55-3)	mg/kg		0.2	n.d.	-
Benzo[a]pyrene (CAS No.: 50-32-8)	mg/kg		0.2	n.d.	-
Benzo[b]fluoranthene (CAS No.: 205-99-2)	mg/kg		0.2	n.d.	-
Benzo[g,h,i]perylene (CAS No.: 191-24-2)	mg/kg		0.2	n.d.	-
Benzo[k]fluoranthene (CAS No.: 207-08-9)	mg/kg		0.2	n.d.	-
Chrysene (CAS No.: 218-01-9)	mg/kg		0.2	n.d.	-
Dibenzo[a,h]anthracene (CAS No.: 53-70-3)	mg/kg		0.2	n.d.	-
Fluoranthene (CAS No.: 206-44-0)	mg/kg		0.2	n.d.	-
Indeno[1,2,3-c,d] pyrene (CAS No.: 193-39-5)	mg/kg		0.2	n.d.	-
Naphthalene (CAS No.: 91-20-3)	mg/kg		0.2	n.d.	-
Phenanthrene (CAS No.: 85-01-8)	mg/kg		0.2	n.d.	-
Pyrene (CAS No.: 129-00-0)	mg/kg		0.2	n.d.	-
Benzo[j]fluoranthene (CAS No.: 205-82-3)	mg/kg		0.2	n.d.	-
Benzo[e]pyrene (CAS No.: 192-97-2)	mg/kg		0.2	n.d.	-
Sum of 15 PAHs	mg/kg	-	n.d.	Δ	
Acenaphthene (CAS No.: 83-32-9)	mg/kg	With reference to AfPS GS 2019:01 PAK. Analysis was performed by GC/MS.	0.2	n.d.	-
Acenaphthylene (CAS No.: 208-96-8)	mg/kg		0.2	n.d.	-
Fluorene (CAS No.: 86-73-7)	mg/kg		0.2	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/2020/73878A

Date : 2020/07/27

Page : 6 of 32

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS

4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
Tributyl Tin (TBT)	mg/kg	With reference to ISO 17353: 2004. Analysis was performed by GC/FPD.	0.03	n.d.	-
Bis(tributyltin)oxide (TBTO) (CAS No.: 56-35-9)	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.	-
Triphenyl Tin (TphT)	mg/kg	With reference to ISO 17353: 2004. Analysis was performed by GC/FPD.	0.03	n.d.	-
Dibutyl Tin (DBT)	mg/kg	With reference to ISO 17353: 2004. Analysis was performed by GC/FPD.	0.03	n.d.	-
Diocetyl Tin (DOT)	mg/kg	With reference to ISO 17353: 2004. Analysis was performed by GC/FPD.	0.03	n.d.	-
Asbestos					
Chrysotile (CAS No.: 12001-29-5)	%	With reference to EPA 600/R-93/116: 1993. Analysis was performed by Stereo Microscope (SM), Dispersion Staining Polarized Light Microscope (DS-PLM) and X-ray Diffraction Spectrometer (XRD).	-	Negative	-
Amosite (CAS No.: 12172-73-5)	%		-	Negative	-
Crocidolite (CAS No.: 12001-28-4)	%		-	Negative	-
Anthophyllite (CAS No.: 77536-67-5)	%		-	Negative	-
Tremolite (CAS No.: 77536-68-6)	%		-	Negative	-
Actinolite (CAS No.: 77536-66-4)	%		-	Negative	-
AZO					
1): 4-AMINODIPHENYL (CAS No.: 92-67-1)	mg/kg	With reference to LFGB 82.02-2: 2013. Analysis was performed by GC/MS.	3	n.d.	-
2): BENZIDINE (CAS No.: 92-87-5)	mg/kg	With reference to LFGB 82.02-2: 2013. Analysis was performed by GC/MS.	3	n.d.	-
3): 4-CHLORO-O-TOLUIDINE (CAS No.: 95-69-2)	mg/kg	With reference to LFGB 82.02-2: 2013. Analysis was performed by GC/MS.	3	n.d.	-
4): 2-NAPHTHYLAMINE (CAS No.: 91-59-8)	mg/kg	With reference to LFGB 82.02-2: 2013. Analysis was performed by GC/MS.	3	n.d.	-
5): O-AMINOAZOTOLUENE (CAS No.: 97-56-3)	mg/kg	With reference to LFGB 82.02-2: 2013. Analysis was performed by GC/MS.	3	n.d.	-
6): 2-AMINO-4-NITROTOLUENE (CAS No.: 99-55-8)	mg/kg	With reference to LFGB 82.02-2: 2013. Analysis was performed by GC/MS.	3	n.d.	-
7): P-CHLOROANILINE (CAS No.: 106-47-8)	mg/kg	With reference to LFGB 82.02-2: 2013. Analysis was performed by GC/MS.	3	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/2020/73878A

Date : 2020/07/27

Page : 7 of 32

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS

4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
8): 2,4-DIAMINOANISOLE (CAS No.: 615-05-4)	mg/kg	With reference to LFGB 82.02-2: 2013. Analysis was performed by GC/MS.	3	n.d.	-
9): 4,4'-DIAMINODIPHENYLMETHANE (CAS No.: 101-77-9)	mg/kg	With reference to LFGB 82.02-2: 2013. Analysis was performed by GC/MS.	3	n.d.	-
10): 3,3'-DICHLOROBENZIDINE (CAS No.: 91-94-1)	mg/kg	With reference to LFGB 82.02-2: 2013. Analysis was performed by GC/MS.	3	n.d.	-
11): 3,3'-DIMETHOXYBENZIDINE (CAS No.: 119-90-4)	mg/kg	With reference to LFGB 82.02-2: 2013. Analysis was performed by GC/MS.	3	n.d.	-
12): 3,3'-DIMETHYLBENZIDINE (CAS No.: 119-93-7)	mg/kg	With reference to LFGB 82.02-2: 2013. Analysis was performed by GC/MS.	3	n.d.	-
13): 3,3'-DIMETHYL-4,4'-DIAMINODIPHENYLMETHANE (CAS No.: 838-88-0)	mg/kg	With reference to LFGB 82.02-2: 2013. Analysis was performed by GC/MS.	3	n.d.	-
14): P-CRESIDINE (2-METHOXY-5-METHYLANILINE) (CAS No.: 120-71-8)	mg/kg	With reference to LFGB 82.02-2: 2013. Analysis was performed by GC/MS.	3	n.d.	-
15): 4,4'-METHYLENE-BIS-(2-CHLOROANILINE) (CAS No.: 101-14-4)	mg/kg	With reference to LFGB 82.02-2: 2013. Analysis was performed by GC/MS.	3	n.d.	-
16): 4,4'-OXYDIANILINE (CAS No.: 101-80-4)	mg/kg	With reference to LFGB 82.02-2: 2013. Analysis was performed by GC/MS.	3	n.d.	-
17): 4,4'-THIODIANILINE (CAS No.: 139-65-1)	mg/kg	With reference to LFGB 82.02-2: 2013. Analysis was performed by GC/MS.	3	n.d.	-
18): O-TOLUIDINE (CAS No.: 95-53-4)	mg/kg	With reference to LFGB 82.02-2: 2013. Analysis was performed by GC/MS.	3	n.d.	-
19): 2,4-TOLUYLENEDIAMINE (CAS No.: 95-80-7)	mg/kg	With reference to LFGB 82.02-2: 2013. Analysis was performed by GC/MS.	3	n.d.	-
20): 2,4,5-TRIMETHYLANILINE (CAS No.: 137-17-7)	mg/kg	With reference to LFGB 82.02-2: 2013. Analysis was performed by GC/MS.	3	n.d.	-
21): O-ANISIDINE (CAS No.: 90-04-0)	mg/kg	With reference to LFGB 82.02-2: 2013. Analysis was performed by GC/MS.	3	n.d.	-
22): 4-AMINOAZOBENZENE (CAS No.: 60-09-3)	mg/kg	With reference to LFGB 82.02-2: 2013. Analysis was performed by GC/MS.	3	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/2020/73878A

Date : 2020/07/27

Page : 8 of 32

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS

4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
23): 2,4-XYLIDINE (CAS No.: 95-68-1)	mg/kg	With reference to LFGB 82.02-2: 2013. Analysis was performed by GC/MS.	3	n.d.	-
24): 2,6-XYLIDINE (CAS No.: 87-62-7)	mg/kg	With reference to LFGB 82.02-2: 2013. Analysis was performed by GC/MS.	3	n.d.	-
CFC's (Chlorofluorocarbons)					
Group I					
Chlorofluorocarbon-11 (CAS No.: 75-69-4)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-12 (CAS No.: 75-71-8)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-113 (CAS No.: 76-13-1)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-114 (CAS No.: 76-14-2)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-115 (CAS No.: 76-15-3)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Group III					
Chlorofluorocarbon-13 (CAS No.: 75-72-9)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-111 (CAS No.: 354-56-3)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-112 (CAS No.: 76-12-0)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-211 (CAS No.: 422-78-6)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-212 (CAS No.: 3182-26-1)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-213 (CAS No.: 2354-06-5)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-214 (CAS No.: 29255-31-0)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-215 (CAS No.: 4259-43-2)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Chlorofluorocarbon-216 (CAS No.: 661-97-2)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	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/2020/73878A

Date : 2020/07/27

Page : 9 of 32

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS
4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
Chlorofluorocarbon-217 (CAS No.: 422-86-6)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFCs (Hydrochlorofluorocarbons)					
HCFC-21 (CAS No.: 75-43-4)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-22 (CAS No.: 75-45-6)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-31 (CAS No.: 593-70-4)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-121 (CAS No.: 354-14-3)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-122 (CAS No.: 354-21-2)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-123 (CAS No.: 306-83-2)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-124 (CAS No.: 2837-89-0)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-131 (CAS No.: 359-28-4)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-132b (CAS No.: 1649-08-7)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-133a (CAS No.: 75-88-7)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-141b (CAS No.: 1717-00-6)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-142b (CAS No.: 75-68-3)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-221 (CAS No.: 422-26-4)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-222 (CAS No.: 422-49-1)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-223 (CAS No.: 422-52-6)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-224 (CAS No.: 422-54-8)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	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/2020/73878A

Date : 2020/07/27

Page : 10 of 32

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS

4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
HCFC-225ca (CAS No.: 422-56-0)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-225cb (CAS No.: 507-55-1)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-226 (CAS No.: 431-87-8)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-231 (CAS No.: 421-94-3)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-232 (CAS No.: 460-89-9)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-233 (CAS No.: 7125-84-0)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-234 (CAS No.: 425-94-5)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-235 (CAS No.: 460-92-4)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-241 (CAS No.: 666-27-3)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-242 (CAS No.: 460-63-9)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-243 (CAS No.: 460-69-5)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-244	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-251 (CAS No.: 421-41-0)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-252 (CAS No.: 819-00-1)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-253 (CAS No.: 460-35-5)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-261 (CAS No.: 420-97-3)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-262 (CAS No.: 421-02-03)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HCFC-271 (CAS No.: 430-55-7)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	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/2020/73878A

Date : 2020/07/27

Page : 11 of 32

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS

4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
Halons					
Halon-1211 (CAS No.: 353-59-3)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Halon-1301 (CAS No.: 75-63-8)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Halon-2402 (CAS No.: 124-73-2)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Bromomethane (CAS No.: 74-83-9)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFCs (Hydrobromofluorocarbons)					
HBFC-21B2 (CHFBr ₂) (CAS No.: 1868-53-7)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-22B1 (CHF ₂ Br) (CAS No.: 1511-62-2)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-31B1 (CH ₂ FBr) (CAS No.: 373-52-4)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-121B4 (C ₂ HFBr ₄)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-122B3 (C ₂ HF ₂ Br ₃)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-123B2 (C ₂ HF ₃ Br ₂)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-124B1 (C ₂ HF ₄ Br)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-131B3 (C ₂ H ₂ FBr ₃)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-132B2 (C ₂ H ₂ F ₂ Br ₂)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-133B1 (C ₂ H ₂ F ₃ Br)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-141B2 (C ₂ H ₃ FBr ₂)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-142B1 (C ₂ H ₃ F ₂ Br)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	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/2020/73878A

Date : 2020/07/27

Page : 12 of 32

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS

4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
HBFC-151B1 (C2H4FBr)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-221B6 (C3HFBr6)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-222B5 (C3HF2Br5)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-223B4 (C3HF3Br4)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-224B3 (C3HF4Br3)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-225B2 (C3HF5Br2)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-226B1 (C3HF6Br)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-231B5 (C3H2FBr5)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-232B4 (C3H2F2Br4)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-233B3 (C3H2F3Br3)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-234B2 (C3H2F4Br2)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-235B1 (C3H2F5Br)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-241B4 (C3H3FBr4)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-242B3 (C3H3F2Br3)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-243B2 (C3H3F3Br2)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-244B1 (C3H3F4Br)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-251B3 (C3H4FBr3)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-252B2 (C3H4F2Br2)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	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/2020/73878A

Date : 2020/07/27

Page : 13 of 32

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS
4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
HBFC-253B1 (C3H4F3Br)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-261B2 (C3H5FBr2)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-262B1 (C3H5F2Br)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HBFC-271B1 (C3H6FBr)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HFCs (Hydrofluorocarbon)					
HFC-23 (CHF3) (CAS No.: 75-46-7)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HFC-32 (CH2F2) (CAS No.: 75-10-5)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HFC-41 (CH3F) (CAS No.: 593-53-3)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HFC-43-10mee (C5H2F10)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HFC-125 (C2HF5)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HFC-134 (C2H2F4)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HFC-134a (CH2FCF3) (CAS No.: 811-97-2)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HFC-143 (CH3F3)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HFC-143a (CH3F3)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HFC-152a (C2H4F2) (CAS No.: 75-37-6)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HFC-227ea (C3HF7) (CAS No.: 431-89-0)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HFC-236fa (C3H2F6)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HFC-236ea (C3H2F6) (CAS No.: 431-63-0)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	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/2020/73878A

Date : 2020/07/27

Page : 14 of 32

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS

4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
HFC-245ca (C3H3F5)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HFC-245fa (C3H3F5)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
HFC-365mfc (C4H5F5)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
PFCs (Perfluorocarbon)					
F14 (CAS No.: 75-73-0)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Fluorocarbon 116 (CAS No.: 76-16-4)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Freon 218 (CAS No.: 76-19-7)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Decafluorobutane (CAS No.: 355-25-9)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Freon C318 (CAS No.: 115-25-3)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Perfluor-1-butene (CAS No.: 357-26-6)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
perfluorisobutene (CAS No.: 382-21-8)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
1,4-dihydrooctafluorobutane (CAS No.: 377-36-6)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Nonafluor-2- (trifluoromethyl) butane (CAS No.: 594-91-2)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Perfluoro-n-pentane (CAS No.: 678-26-2)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
2-perfluoromethylpentane (CAS No.: 355-04-4)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Perfluorohexane (CAS No.: 355-42-0)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
CHCs (Chlorinate hydrocarbon)					
1,1,1,2-Tetrachloroethane (CAS No.: 630-20-6)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
1,1,1-Trichloroethane (CAS No.: 71-55-6)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	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/2020/73878A

Date : 2020/07/27

Page : 15 of 32

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS

4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
1,1,2,2-Tetrachloroethane (CAS No.: 79-34-5)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
1,1,2-Trichloroethane (CAS No.: 79-00-5)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
1,1-Dichloroethane (CAS No.: 75-34-3)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
1,1-Dichloroethene (CAS No.: 75-35-4)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
1,1-Dichloropropene (CAS No.: 563-58-6)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
1,2,3-Trichloropropane (CAS No.: 96-18-4)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
1,2-Dichloroethane (CAS No.: 107-06-2)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
1,2-Dichloropropane (CAS No.: 78-87-5)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
1,3-Dichloropropane (CAS No.: 142-28-9)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
2,2-Dichloropropane (CAS No.: 594-20-7)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Carbon tetrachloride (CAS No.: 56-23-5)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Chloroethane (CAS No.: 75-00-3)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Chloroform (CAS No.: 67-66-3)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Chloromethane (CAS No.: 74-87-3)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
cis-1,2-Dichloroethene (CAS No.: 156-59-2)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
cis-1,3-Dichloropropene (CAS No.: 10061-01-5)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Hexachlorobutadiene (CAS No.: 87-68-3)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Dichloromethane, Methylene chloride (CAS No.: 75-09-2)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	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/2020/73878A

Date : 2020/07/27

Page : 16 of 32

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS
4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
Tetrachloroethene (CAS No.: 127-18-4)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
trans-1,2-Dichloroethene (CAS No.: 156-60-5)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
trans-1,3-Dichloropropene (CAS No.: 10061-02-6)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Trichloroethylene (CAS No.: 79-01-6)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Bromochloromethane (CAS No.: 74-97-5)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
Sulfur Hexafluoride (SF6) (CAS No.: 2551-62-4)	mg/kg	With reference to US EPA 5021A: 2014. Analysis was performed by GC/MS.	1	n.d.	-
2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320) (CAS No.: 3846-71-7)	mg/kg	With reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.	5	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
5. ** = Qualitative analysis (No Unit)
6. Negative = Undetectable / Positive = Detectable
7. Testing range of asbestos qualitative analysis is from less than 0.1% to 100%. The judgment criterion: asbestos fibers being found is shown as "Positive"; asbestos fibers not being found is shown as "Negative".
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.
11. (▲) : 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

Test Report

No. : CE/2020/73878A

Date : 2020/07/27

Page : 17 of 32

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS

4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

△ AfPS (German commission for Product Safety): GS PAHs requirements

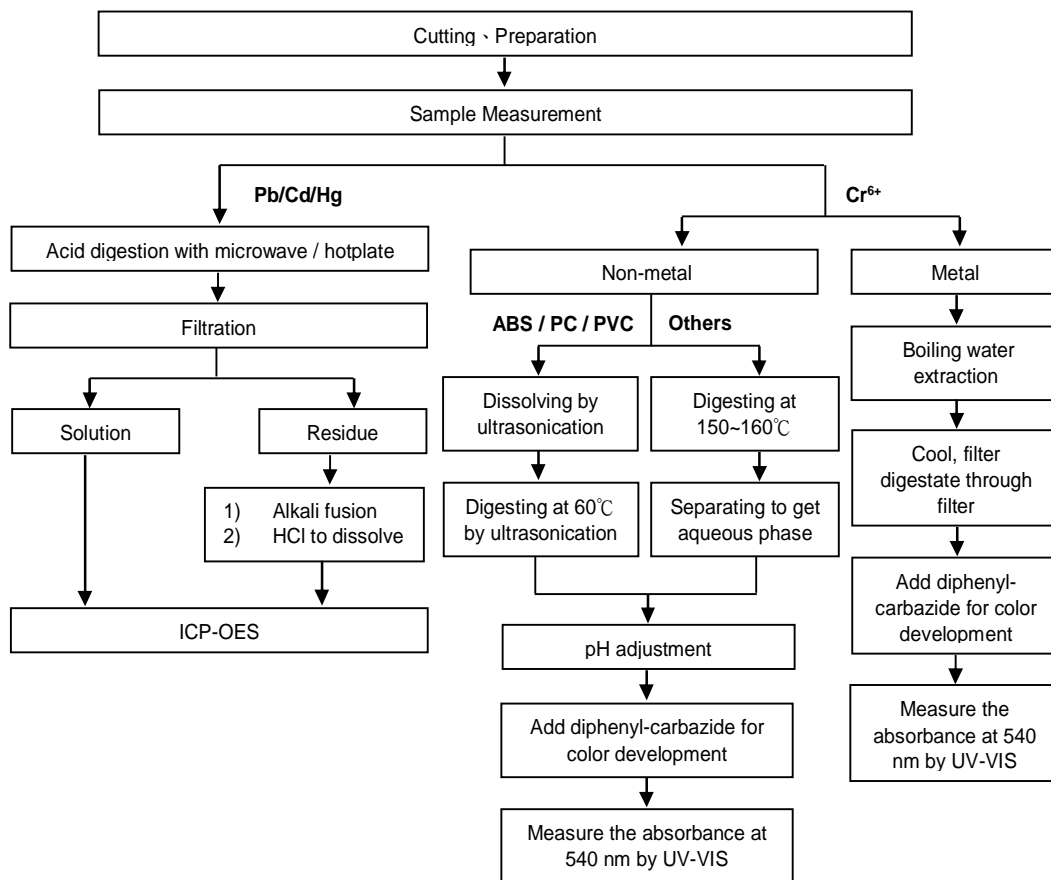
Parameter	Category 1	Category 2		Category 3	
	Materials intended to be placed in the mouth, or materials in toys (Directive 2009/48/EC) or articles for children up to 3 years of age with intended long-term skin contact (> 30 seconds).	Materials that are not in Category 1, with intended or foreseeable long-term skin contact (> 30 seconds) or short-term repetitive contact with the skin.	a. Use by children under	b. Other consumer	a. Use by children under
Naphthalene	< 1	< 2		< 10	
Phenanthrene	< 1 Sum	< 5 Sum	< 10 Sum	< 20 Sum	< 50 Sum
Anthracene					
Fluoranthene					
Pyrene					
Benzo[a]anthracene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Chrysene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[b]fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[j]fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[k]fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[a]pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[e]pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Indeno[1,2,3-c,d] pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Dibenzo[a,h]anthracene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[g,h,i]perylene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Sum of 15 PAH	< 1	< 5	< 10	< 20	< 50

Unit : mg/kg

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS
4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

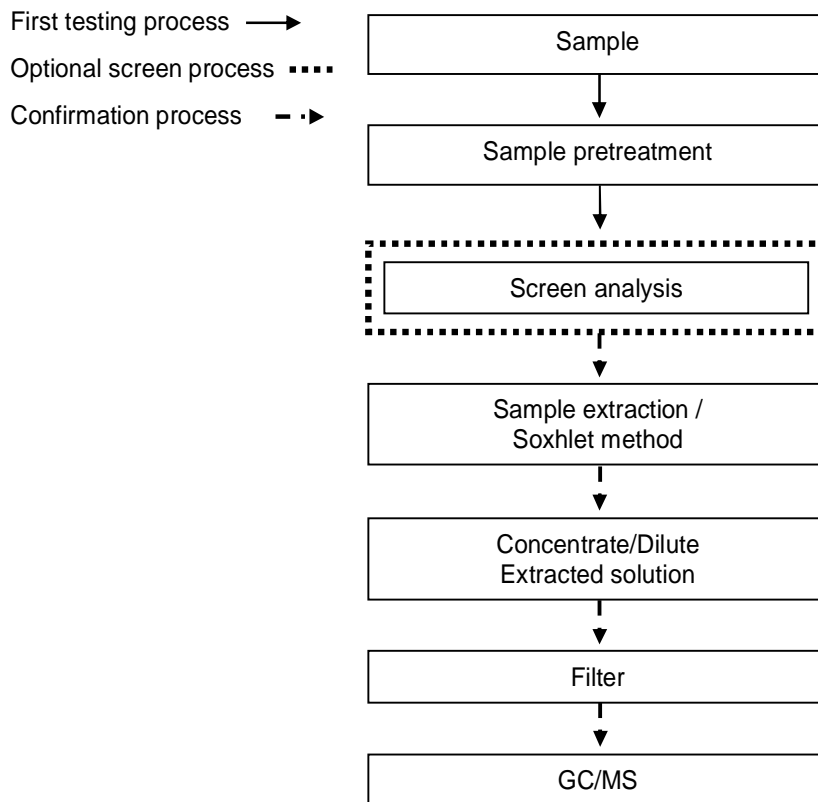
Analytical flow chart of Heavy Metal

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



HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS
 4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

Analytical flow chart – PBB / PBDE

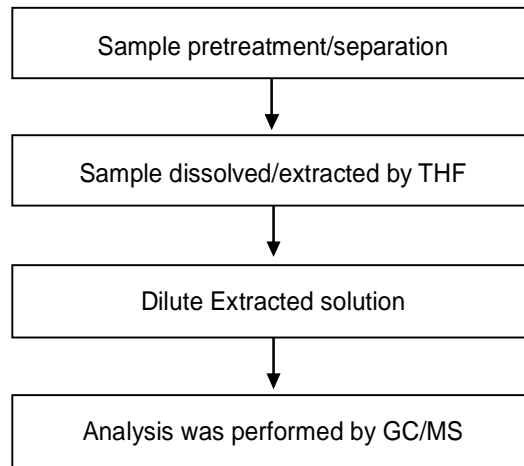


This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://twap.sgs.com/Terms-and-Conditions.html> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://twap.sgs.com/Terms-and-Conditions.html>.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

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS
4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

Analytical flow chart - Phthalate

【Test method: IEC 62321-8】

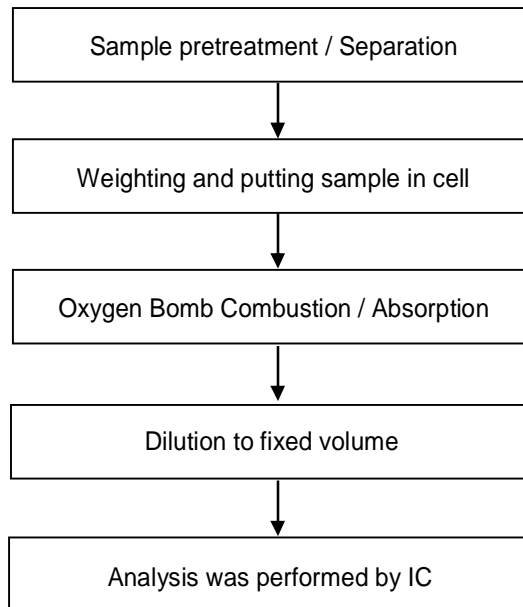


This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://twap.sgs.com/Terms-and-Conditions.html> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://twap.sgs.com/Terms-and-Conditions.html>.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

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS

4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

Analytical flow chart - Halogen

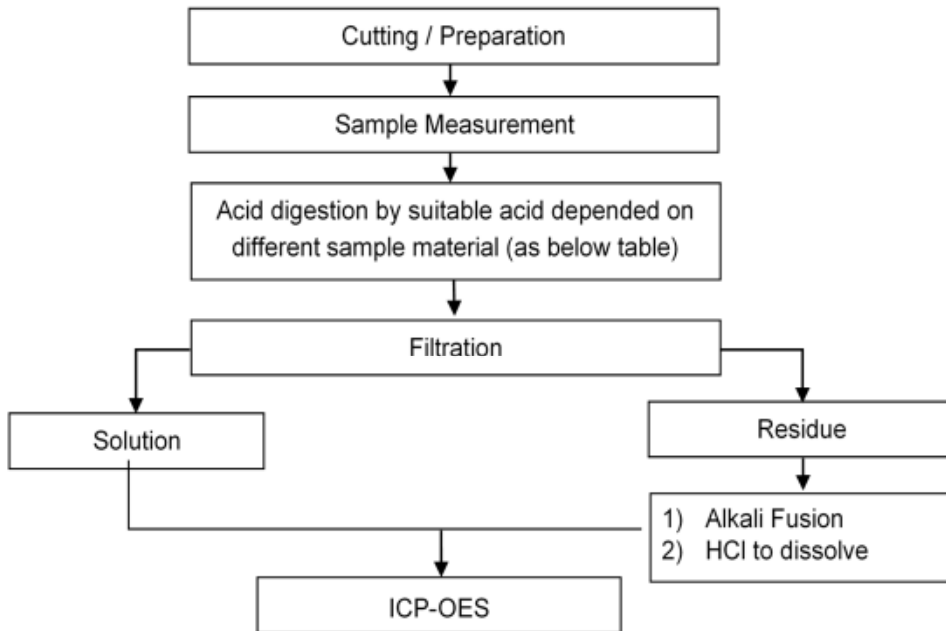


This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://twap.sgs.com/Terms-and-Conditions.html> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://twap.sgs.com/Terms-and-Conditions.html>.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

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS
 4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

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.

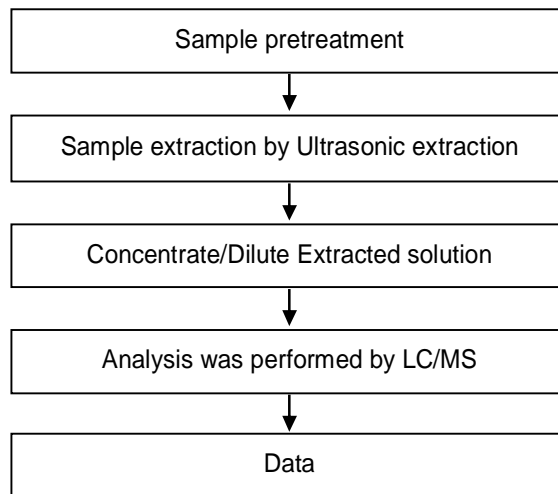


Steel, copper, aluminum, solder	Aqua regia, HNO ₃ , HCl, HF, H ₂ O ₂
Glass	HNO ₃ /HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO ₃
Plastic	H ₂ SO ₄ , H ₂ O ₂ , HNO ₃ , HCl
Others	Added appropriate reagent to total digestion

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS

4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

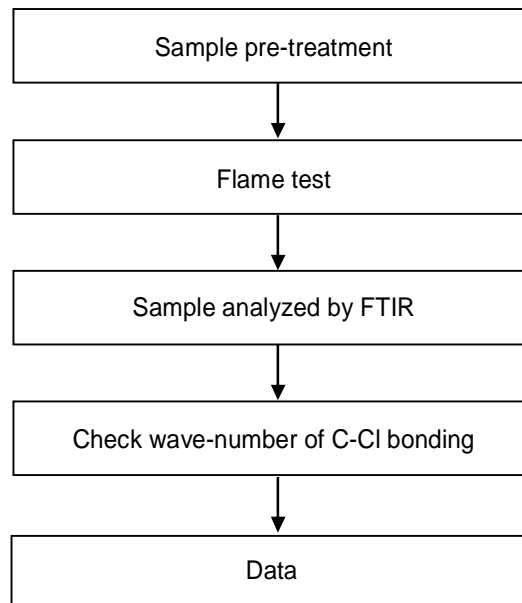
Analytical flow chart - PFOA/PFOS



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.

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS
4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

Analysis flow chart - PVC

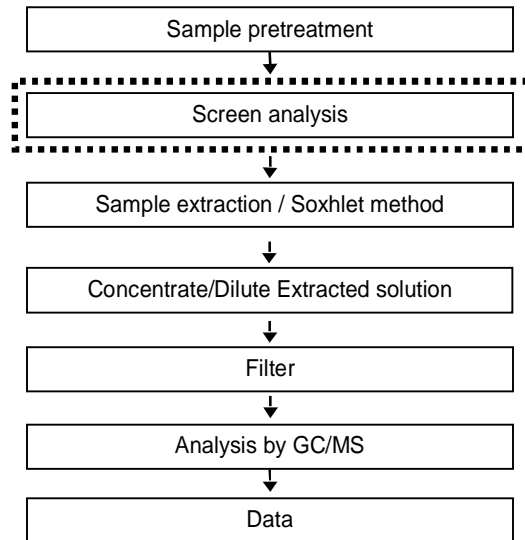


This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://twap.sgs.com/Terms-and-Conditions.html> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://twap.sgs.com/Terms-and-Conditions.html>.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

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS
 4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

Analytical flow chart - TBBP-A-bis

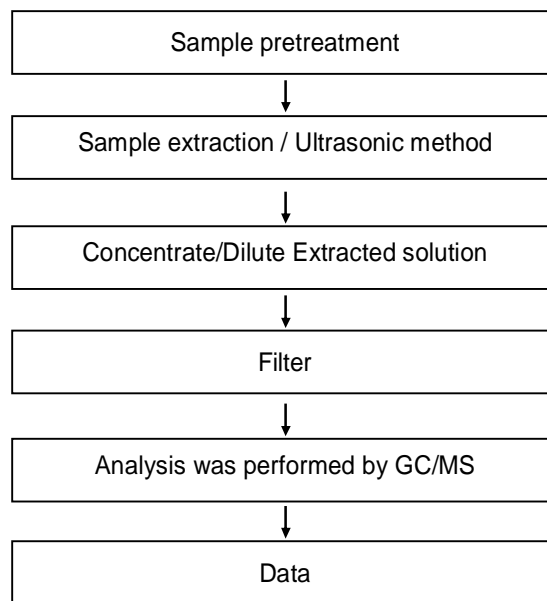
First testing process —————>
 Optional screen process - - - - ->
 Confirmation process - · - · ->



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.

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS
 4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

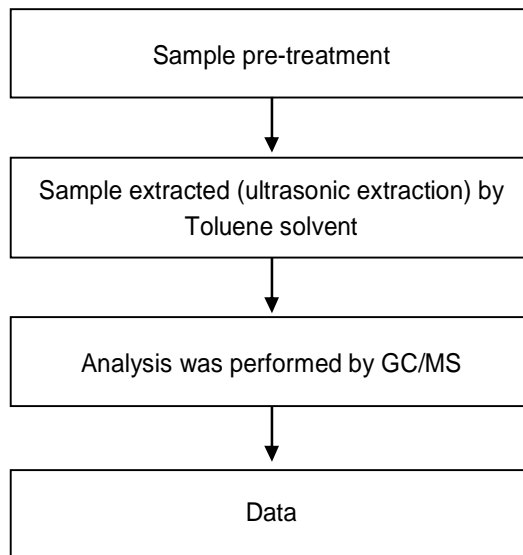
Analytical flow chart - HBCDD



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.

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS
4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

Analytical flow chart - PAHs (Polycyclic Aromatic Hydrocarbons)

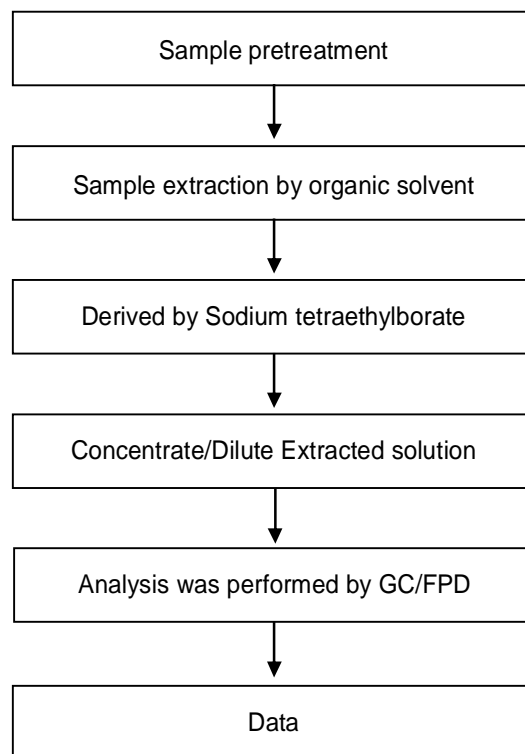


This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://twap.sgs.com/Terms-and-Conditions.html> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://twap.sgs.com/Terms-and-Conditions.html>.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

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS

4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

Analytical flow chart - Organic-Tin



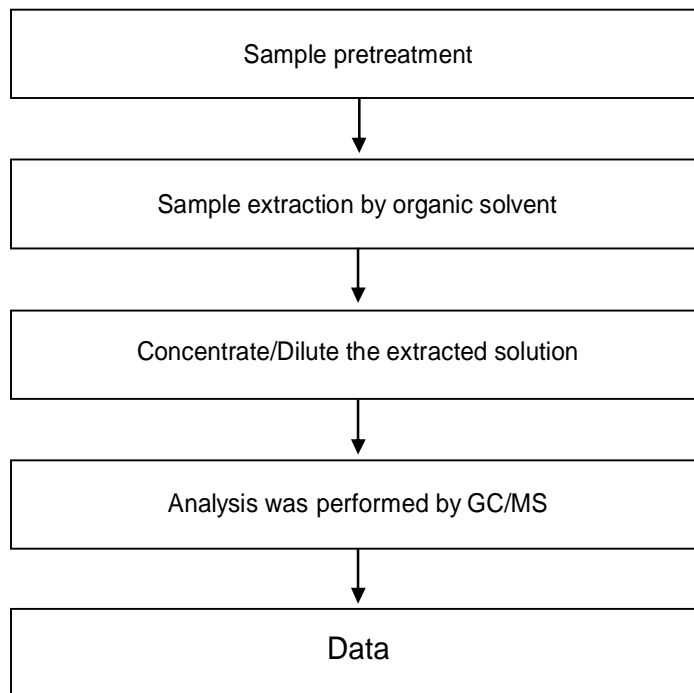
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://twap.sgs.com/Terms-and-Conditions.html> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://twap.sgs.com/Terms-and-Conditions.html>.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

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS

4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

Analytical flow chart

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

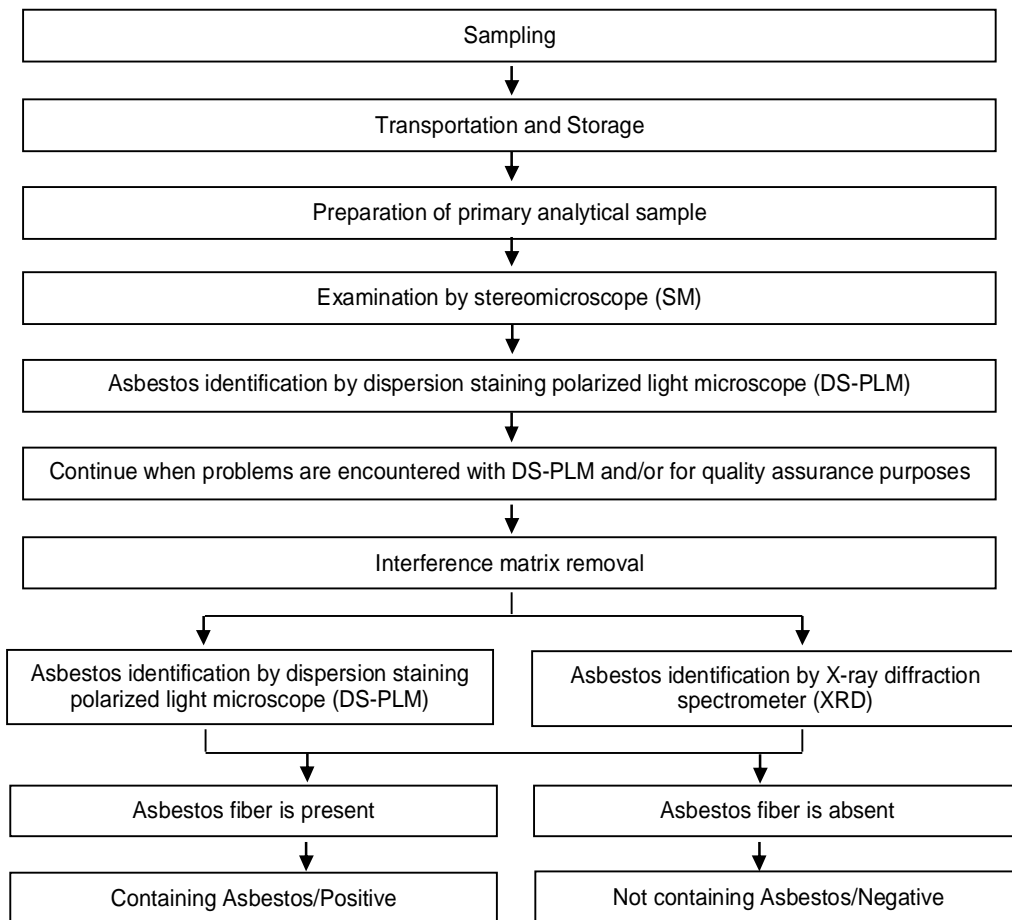


This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://twap.sgs.com/Terms-and-Conditions.html> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://twap.sgs.com/Terms-and-Conditions.html>.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

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS
 4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

Analysis flow chart for determination of Asbestos

【 Reference method: EPA 600/R-93/116 】

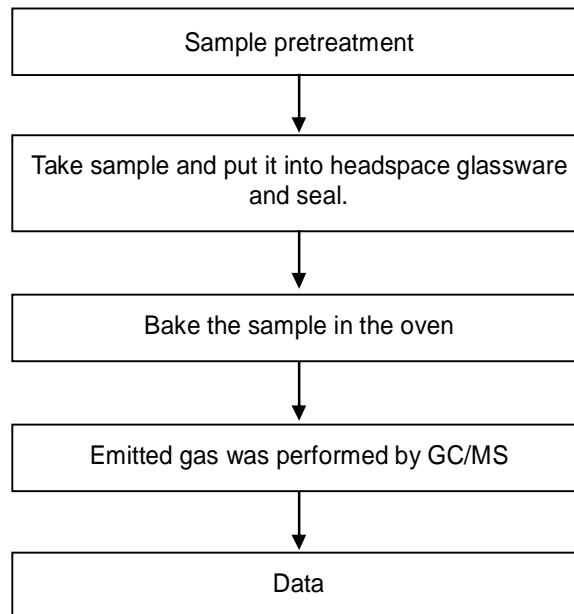


This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://twap.sgs.com/Terms-and-Conditions.html> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://twap.sgs.com/Terms-and-Conditions.html>.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

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS
4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

Analytical flow chart - volatile organic compounds (VOCs)

【Reference method : US EPA 5021, 5021A】



Test Report

No. : CE/2020/73878A

Date : 2020/07/27

Page : 32 of 32

HITACHI CHEMICAL CO., LTD. YAMAZAKI WORKS

4-13-1, HIGASHI-CHO, HITACHI-SHI, IBARAKI, 317-8555, JAPAN

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

CE/2020/73878



** 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.