Test Report

No.: ETR25403107 Date: 21-Apr-2025

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

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

Sample Submitted By	:	HD MICROSYSTEMS
Sample Name	:	POLYBENZOXAZOLE PRECURSOR
Style/Item No.	:	HD8820

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Sample Receiving Date	:	14-Apr-2025
Testing Period	:	14-Apr-2025 to 18-Apr-2025

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.

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

PIN CODE: B29CC38C

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Test Part Description

No.1 : TRANSPARENT BROWN PASTE

Test Result(s)

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

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Test Item(s)	Method	Unit	MDL	Result
				No.1
Butyl benzyl phthalate (BBP)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.
Dibutyl phthalate (DBP)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.
Di-(2-ethylhexyl) phthalate (DEHP)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.
Diisobutyl phthalate (DIBP)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.
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.
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.
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.
Fluorine (F) (CAS No.: 14762-94-8)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	52500
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	782
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α- HBCDD, β- HBCDD, γ- 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.

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Test Item(s)	Method	Unit	MDL	Result
				No.1
Perfluorooctane sulfonates and its salts (PFOS and its salts) (CAS No.: 1763-23-1 and its salts)	Modified EN 17681-1: 2022 & EN 17681-2: 2022, analysis was performed by LC/MS/MS.	mg/kg	0.01	n.d.
Perfluorooctanoic acid and its salts (PFOA and its salts) (CAS No.: 335-67-1 and its salts)	Modified EN 17681-1: 2022 & EN 17681-2: 2022, 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 US EPA 3550C: 2007, analysis was performed by LC/MS/MS.	mg/kg	10	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.
PFHxS and its salts				
Perfluorohexane sulfonate and its salts (PFHxS and its salts) (CAS No.: 355-46-4 and its salts)	Modified EN 17681-1: 2022 & EN 17681-2: 2022, analysis was performed by LC/MS/MS.	mg/kg	0.01	n.d.
Bisphenol A (CAS No.: 80-05-7)	With reference to RSTS-CHEM-239-1, analysis was performed by LC/MS/MS.	mg/kg	1	n.d.
Formaldehyde (CAS No.: 50-00-0)	With reference to ISO 17226-1: 2021, analysis was performed by LC/DAD.	mg/kg	3	n.d.
Polychlorinated biphenyls (PCBs)	With reference to US EPA 3550C: 2007, analysis was performed by GC/MS.	mg/kg	0.5	n.d.
Polychlorinated naphthalene (PCNs)	With reference to US EPA 3550C: 2007, analysis was performed by GC/MS.	mg/kg	5	n.d.
Polychlorinated terphenyls (PCTs)	With reference to US EPA 3550C: 2007, analysis was performed by GC/MS.	mg/kg	0.5	n.d.
Short Chain Chlorinated Paraffins(C10-C13) (SCCP) (CAS No.: 85535-84-8)	With reference to ISO 18219-1: 2021, analysis was performed by GC/MS.	mg/kg	50	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.

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Test Item(s)	Method	Unit	MDL	Result No.1
AZO Dyes				
4-aminobiphenyl (CAS No.: 92-67-1)	With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.	mg/kg	3	n.d.
Benzidine (CAS No.: 92-87-5)	With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.	mg/kg	3	n.d.
4-chloro-o-toluidine (CAS No.: 95-69-2)	With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.	mg/kg	3	n.d.
2-naphthylamine (CAS No.: 91-59-8)	With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.	mg/kg	3	n.d.
o-aminoazotoluene (CAS No.: 97-56-3)	With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.	mg/kg	3	n.d.
5-nitro-o-toluidine (CAS No.: 99-55-8)	With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.	mg/kg	3	n.d.
4-chloroaniline (CAS No.: 106-47-8)	With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.	mg/kg	3	n.d.
2,4-diaminoanisole (CAS No.: 615-05-4)	With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.	mg/kg	3	n.d.
4,4'-diaminodiphenylmethane (MDA) (CAS No.: 101-77-9)	With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.	mg/kg	3	n.d.
3,3'-dichlorobenzidine (CAS No.: 91-94-1)	With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.	mg/kg	3	n.d.
3,3'-dimethoxybenzidine (CAS No.: 119-90-4)	With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.	mg/kg	3	n.d.

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Test Item(s)	Method	Unit	MDL	Result
				No.1
3,3'-dimethylbenzidine (CAS No.: 119-93-7)	With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.	mg/kg	3	n.d.
3,3'-dimethyl-4,4'-diaminodiphenylmethane (CAS No.: 838-88-0)	With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.	mg/kg	3	n.d.
2-methoxy-5-methylaniline (CAS No.: 120-71-8)	With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.	mg/kg	3	n.d.
4,4'-methylene-bis-(2-chloroaniline) (CAS No.: 101-14-4)	With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.	mg/kg	3	n.d.
4,4'-oxydianiline (CAS No.: 101-80-4)	With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.	mg/kg	3	n.d.
4,4'-thiodianiline (CAS No.: 139-65-1)	With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.	mg/kg	3	n.d.
o-toluidine (CAS No.: 95-53-4)	With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.	mg/kg	3	n.d.
2,4-diaminotoluene (CAS No.: 95-80-7)	With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.	mg/kg	3	n.d.
2,4,5-trimethylaniline (CAS No.: 137-17-7)	With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.	mg/kg	3	n.d.
o-anisidine (CAS No.: 90-04-0)	With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.	mg/kg	3	n.d.
4-aminoazobenzene (CAS No.: 60-09-3)	With reference to EN ISO 14362-1: 2017 or/and EN ISO 14362-3: 2017, analysis was performed by GC/MS & HPLC/DAD.	mg/kg	3	n.d.

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Test Item(s)	Method	Unit	MDL	Result
				No.1
2,4-xylidine (CAS No.: 95-68-1)	With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.	mg/kg	3	n.d.
2,6-xylidine (CAS No.: 87-62-7)	With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.	mg/kg	3	n.d.
Polyvinyl chloride (PVC)	With reference to ASTM E1252: 2021, analysis was performed by FT-IR and Flame Test.	**	-	Negative
Asbestos				
Actinolite (CAS No.: 77536-66-4)	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
Anthophyllite (CAS No.: 77536-67-5)		-	-	Negative
Chrysotile (CAS No.: 12001-29-5)		-	-	Negative
Crocidolite (CAS No.: 12001-28-4)		-	-	Negative
Tremolite (CAS No.: 77536-68-6)		-	-	Negative
Tributyl tin (TBT)	With reference to ISO 17353: 2004, analysis was performed by GC/FPD.	mg/kg	0.03	n.d.
Bis(tributyltin) oxide (TBTO) (CAS No.: 56-35-9)	Calculated from the result of Tributyl Tin (TBT).	mg/kg	0.03▲	n.d.
Triphenyl tin (TPT)	With reference to ISO 17353: 2004, analysis was performed by GC/FPD.	mg/kg	0.03	n.d.
Dibutyl tin (DBT)	With reference to ISO 17353: 2004, analysis was performed by GC/FPD.	mg/kg	0.03	n.d.
Dioctyl tin (DOT)	With reference to ISO 17353: 2004, analysis was performed by GC/FPD.	mg/kg	0.03	n.d.
Chlorofluorocarbons (CFCs)				
CFC-13	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
CFC-111	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
CFC-112	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
CFC-211	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.

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Test Item(s)	Method	Unit	MDL	Result
				No.1
CFC-212	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
CFC-213	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
CFC-214	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
CFC-215	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
CFC-216	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
CFC-217	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
CFC-12	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
CFC-11	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
CFC-115	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
CFC-114	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
CFC-113	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
Hydrochlorofluorocarbons (HCFCs)				
HCFC-21	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-22	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-31	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-121	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-122	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-123	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.

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Test Item(s)	Method	Unit	MDL	Result
				No.1
HCFC-124	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-131	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-142b	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-221	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-222	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-223	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-224	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-225ca	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-225cb	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-226	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-231	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-232	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-233	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-234	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-235	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-241	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-242	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-244	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.

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Test Item(s)	Method	Unit	MDL	Result
				No.1
HCFC-251	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-252	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-261	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-262	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-271	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-141b	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-243	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-253	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-141	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-142	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-151	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-225	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-133	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HCFC-132	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.

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Test Item(s)	Method	Unit	MDL	Result No.1
Halons				
Halon-1211 (CAS No.: 353-59-3)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
Halon-1301 (CAS No.: 75-63-8)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
Halon-2402 (CAS No.: 124-73-2)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
Halon-1202 (CAS No.: 75-61-6)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
Methyl Bromide (CAS No.: 74-83-9)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
Hydrobromofluorocarbons (HBFCs)				
HBFC-271B1	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-262B1	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-261B2	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-253B1	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-252B2	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-244B1	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-243B2	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-242B3	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-241B4	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-235B1	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-234B2	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-233B3	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.

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Test Item(s)	Method	Unit	MDL	Result
				No.1
HBFC-232B4	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-231B5	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-226B1	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-225B2	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-224B3	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-223B4	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-222B5	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-221B6	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-151B1	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-142B1	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-141B2	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-133B1	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-132B2	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-131B3	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-124B1	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-123B2	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-122B3	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-121B4	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.

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Test Item(s)	Method	Unit	MDL	Result
				No.1
HBFC-31B1	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-22B1	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-21B2	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HBFC-251B1	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
Chlorinate hydrocarbon (CHCs)				
1,1-Dichloropropene (CAS No.: 563-58-6)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
1,2-Dichloroethane (CAS No.: 107-06-2)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
2,2-Dichloropropane (CAS No.: 594-20-7)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
Carbon tetrachloride (CAS No.: 56-23-5)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
Chloromethane (CAS No.: 74-87-3)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
cis-1,2-Dichloroethene (CAS No.: 156-59-2)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
cis-1,3-Dichloropropene (CAS No.: 10061-01-5)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
Hexachlorobutadiene (CAS No.: 87-68-3)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
trans-1,2-Dichloroethene (CAS No.: 156-60-5)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
trans-1,3-Dichloropropene (CAS No.: 10061-02-6)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
Dichloromethane (CAS No.: 75-09-2)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
1,2-Dichloropropane (CAS No.: 78-87-5)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
1,1,1,2-Tetrachloroethane (CAS No.: 630-20-6)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.

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Test Item(s)	Method	Unit	MDL	Result
				No.1
1,1,1-Trichloroethane (CAS No.: 71-55-6)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
1,1,2-Trichloroethane (CAS No.: 79-00-5)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
1,1,2,2-Tetrachloroethane (CAS No.: 79-34-5)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
1,1-Dichloroethylene (CAS No.: 75-35-4)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
1,1-Dichloroethane (CAS No.: 75-34-3)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
Chloroethane (CAS No.: 75-00-3)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
Tetrachloroethene (CAS No.: 127-18-4)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
Trichloroethylene (CAS No.: 79-01-6)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
1,3-Dichloropropane (CAS No.: 142-28-9)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
Chloroform (CAS No.: 67-66-3)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
1,2,3-Trichloropropane (CAS No.: 96-18-4)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
Hydrofluorocarbon (HFCs)				
HFC-23	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HFC-32	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HFC-41	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HFC-43-10mee	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HFC-125	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HFC-134	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.

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Test Item(s)	Method	Unit	MDL	Result
				No.1
HFC-134a	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HFC-143	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HFC-143a	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HFC-152a	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HFC-227ea	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HFC-236fa	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HFC-245ca	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HFC-245fa	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HFC-365mfc	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HFC-236ea	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HFC-236cb	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HFC-161	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
HFC-152	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.

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Test Item(s)	Method	Unit	MDL	Result
				No.1
Perfluorocarbon (PFCs)				
2-Perfluoromethylpentane (CAS No.: 355-04-4)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
Decafluorobutane (CAS No.: 355-25-9)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
Freon-14 (CAS No.: 75-73-0)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
Fluorocarbon 116 (CAS No.: 76-16-4)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
Freon 218 (CAS No.: 76-19-7)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
Freon C318 (CAS No.: 115-25-3)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
Perfluorohexane (CAS No.: 355-42-0)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
Perfluoro-n-pentane (CAS No.: 678-26-2)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
Perfluorodecalin (CAS No.: 306-94-5)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
Sulfur hexafluoride (CAS No.: 2551-62-4)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
Bromochloromethan (CAS No.: 74-97-5)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.
2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320) (CAS No.: 3846-71-7)	With reference to US EPA 3550C: 2007, analysis was performed by GC/MS.	mg/kg	5	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.
Beryllium (Be) (CAS No.: 7440-41-7)	With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.	mg/kg	2	n.d.
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.
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.

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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. 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. ▲：The MDL was evaluated for element / tested substance.
   Conversion Formula：AX = A × F

AX	A	F
Bis(tributyltin)oxide (TBTO)	Tributyl Tin (TBT)	1.0276

Parameter Conversion Table： https://eecloud.sgs.com/Region_TW/DocDownload.aspx?name=Others

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PFAS Remark：

The quantitative technology of PFAS is to analyze the specific structure of PFAS substances. However, PFAS acid and its salts with the same carbon number group have the same specific structure that can be identified. The tested results of the analyzed specific structure cannot be distinguished to identify the contribution from PFAS acid or its salts. Therefore, the tested results display the sum of concentrations of PFAS acids and its salts with the same carbon number group. The concentration of PFAS substances in the below table have been included in the tested results, please refer to the table for relevant information: (The listed PFAS substances are examples only, it do not include all PFAS salts with the same carbon number group.)

Group Name	Substance Name	CAS No.
PFHxS, its salts & derivatives	Perfluorohexane sulfonate (PFHxS)	355-46-4
	Perfluorohexanesulfonate Na-salt (PFHxS-Na)	82382-12-5
	Perfluorohexanesulfonate K-salt (PFHxS-K)	3871-99-6
	Ammonium perfluorohexanesulfonate (PFHxS-NH_4)	68259-08-5
	Perfluorohexanesulfonate Li-salt (PFHxS-Li)	55120-77-9
	Perfluorohexanesulfonate Zn-salt (PFHxS-Zn)	70136-72-0
	Perflurohexane sulphonyl fluoride (PFHxS-F)	423-50-7
	Phosphonium, triphenyl(phenylmethyl)-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)	1000597-52-3
	N,N,N-tributylbutan-1-aminium tridecafluorohexane-1-sulfonate	108427-54-9
	N,N,N-triethylethanaminium tridecafluorohexane-1-sulfonate (1:1)	108427-55-0
	1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, compd. With pyrrolidine (1:1)	1187817-57-7
	Ethanaminium, N-[4-[[4-(diethylamino)phenyl][4-(ethylamino)-1-naphthalenyl]methylene]-2,5-cyclohexadien-1-ylidene]-N-ethyl-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)	1310480-24-0
	Methanaminium, N-[4-[[4-(dimethylamino)phenyl][4-(ethylamino)-1-naphthalenyl]methylene]-2,5-cyclohexadien-1-ylidene]-N-methyl-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)	1310480-27-3
	Methanaminium, N-[4-[[4-(dimethylamino)phenyl][4-(phenylamino)-1-naphthalenyl]methylene]-2,5-cyclohexadien-1-ylidene]-N-methyl-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)	1310480-28-4
	Beta-Cyclodextrin, compd. with 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonic acid ion(1-) (1:1)	1329995-45-0

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Group Name	Substance Name	CAS No.
PFHxS, its salts & derivatives	Gamma-Cyclodextrin, compd. with 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonic acid ion(1-) (1:1)	1329995-69-8
	Sulfonium, triphenyl-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)	144116-10-9
	Quinolinium, 1-(carboxymethyl)-4-[2-[4-[4-(2,2-diphenylethenyl)phenyl]-1,2,3,3a,4,8b-hexahydrocyclopent[b]indol-7-yl]ethenyl]-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)	1462414-59-0
	Iodonium, diphenyl-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)	153443-35-7
	Methanaminium, N,N,N-trimethyl-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonic acid (1:1)	189274-31-5
	1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, compd.with 2-methyl-2-propanamine (1:1)	202189-84-2
	Iodonium, bis[4-(1,1-dimethylethyl)phenyl]-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)	213740-81-9
	1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, gallium salt (9CI)	341035-71-0
	Sulfonium, bis(4-methylphenyl)phenyl-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)	341548-85-4
	1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, scandium(3+) salt (3:1) (PFHxS-Sc)	350836-93-0
	1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, neodymium(3+) salt (3:1) (PFHxS-Nd)	41184-65-0
	1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, yttrium(3+) salt (3:1) (PFHxS-Y)	41242-12-0
	Sulfonium, (thiodi-4,1-phenylene)bis[diphenyl-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonic acid (1:2)	421555-73-9
	Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonic acid	421555-74-0
	Sulfonium, tris[4-(1,1-dimethylethyl)phenyl]-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)	425670-70-8

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Group Name	Substance Name	CAS No.
PFHxS, its salts & derivatives	Tridecafluorohexanesulphonic acid, compound with 2,2'-iminodiethanol (1:1)	70225-16-0
	1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, compd. with N,N-diethylethanamine (1:1)	72033-41-1
	Iodonium, bis[(1,1-dimethylethyl)phenyl]-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonic acid (1:1) (9CI)	866621-50-3
	Sulfonium, (4-methylphenyl)diphenyl-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)	910606-39-2
	Sulfonium, [4-[(2-methyl-1-oxo-2-propen-1-yl)oxy]phenyl]diphenyl-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)	911027-68-4
	1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, cesium salt (1:1) (PFHxS-CsH)	92011-17-1
	Dibenzo[k,n][1,4,7,10,13]tetraoxathiacyclopentadecinium, 19-[4-(1,1-dimethylethyl)phenyl]-6,7,9,10,12,13-hexahydro-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)	928049-42-7
	Perfluorohexylsulfonyl chloride (PFHxS-Cl)	55591-23-6
	Sulfonium, [4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]diphenyl-, salt with1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonic acid (1:1), polymer with 2-ethyltricyclo[3.3.1.13,7]dec-2-yl 2-methyl-2-propenoate, 3-hydroxytricyclo[3.3.1.13,7]dec-1-yl 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate	911027-69-5
	Perfluorohexane sulfonate (anion)	108427-53-8
	Tetrabutylphosphonium tridecafluorohexane-1-sulfonate (PFHxS-P (C4H9)4))	2310194-12-6

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Group Name	Substance Name	CAS No.
PFOS, its salts & derivatives	Perfluorooctane sulfonates (PFOS)	1763-23-1
	Potassium perfluorooctanesulfonate (PFOS-K)	2795-39-3
	Perfluorooctanesulfonic acid, lithium salt (PFOS-Li)	29457-72-5
	Perfluorooctanesulfonic acid, ammonium salt (PFOS-NH_4)	29081-56-9
	Perfluorooctane sulfonate diethanolamine salt (PFOS-NH(C2H4OH)2)	70225-14-8
	Perfluorooctanesulfonic acid,tetraethylammonium salt (PFOS-$N(C_2H_5)_4$)	56773-42-3
	N-decyl-N,N-dimethyldecan-1-aminium 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluorooctane-1-sulfonate (PFOS-DDA)	251099-16-8
	TetrabutylAmmonium perfluorooctanesulfonate (PFOS-$N(C_4H_9)_4$)	111873-33-7
	Perfluorooctane sulfonyl fluoride (POSF)	307-35-7
	Perfluorooctanesulfonic acid, magnesium salt (PFOS-Mg)	91036-71-4
	Perfluorooctanesulfonic acid, sodium salt (PFOS-Na)	4021-47-0
	Piperidine 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluorooctanesulfonate	71463-74-6

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Group Name	Substance Name	CAS No.
PFOS, its salts & derivatives	Perfluorooctanesulfonate (anion)	45298-90-6
	1-Octanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-, compd. with N,N-diethylethanamine (1:1) (PFOS-N(C_2H_5)$_3$)	54439-46-2
	Methanaminium, N,N,N-trimethyl-, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonate (1:1) (PFOS-N(CH_3)$_4$)	56773-44-5
	1-Pentanaminium, N,N,N-tripropyl-, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonate (1:1) (PFOS-N(C_3H_7)$_3$(C_5H_{11}))	56773-56-9
	1-Butanaminium, N,N-dibutyl-N-methyl-, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonate (1:1) (PFOS-N(C_4H_9)$_3$(CH_3))	124472-68-0
	Iodonium, bis[4-(1,1-dimethylethyl)phenyl]-, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonate (1:1)	213740-80-8
	Sulfonium, diphenyl(2,4,6-trimethylphenyl)-, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonate (1:1)	258341-99-0
	Pyridinium, 1-hexadecyl-, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonate (1:1)	334529-63-4
	1-Decanaminium, N,N,N-triethyl-, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonate (1:1)	773895-92-4
	Tetrabutylphosphonium perfluorooctane sulfonate (PFOS-P(C_4H_9)$_4$))	2185049-59-4
	Perfluorooctanesulfonic acid diethylamine salt (PFOS-$C_4H_{11}N$)	2205029-08-7
	Heptyldimethyl{2-[(2-methylprop-2-enoyl)oxy]ethyl}azanium perfluorooctanesulfonate (PFOS-$C_{15}H_{30}NO_2$)	1203998-97-3
	1-Octanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-, 1,1'-anhydride (PFOSAN)	423-92-7

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

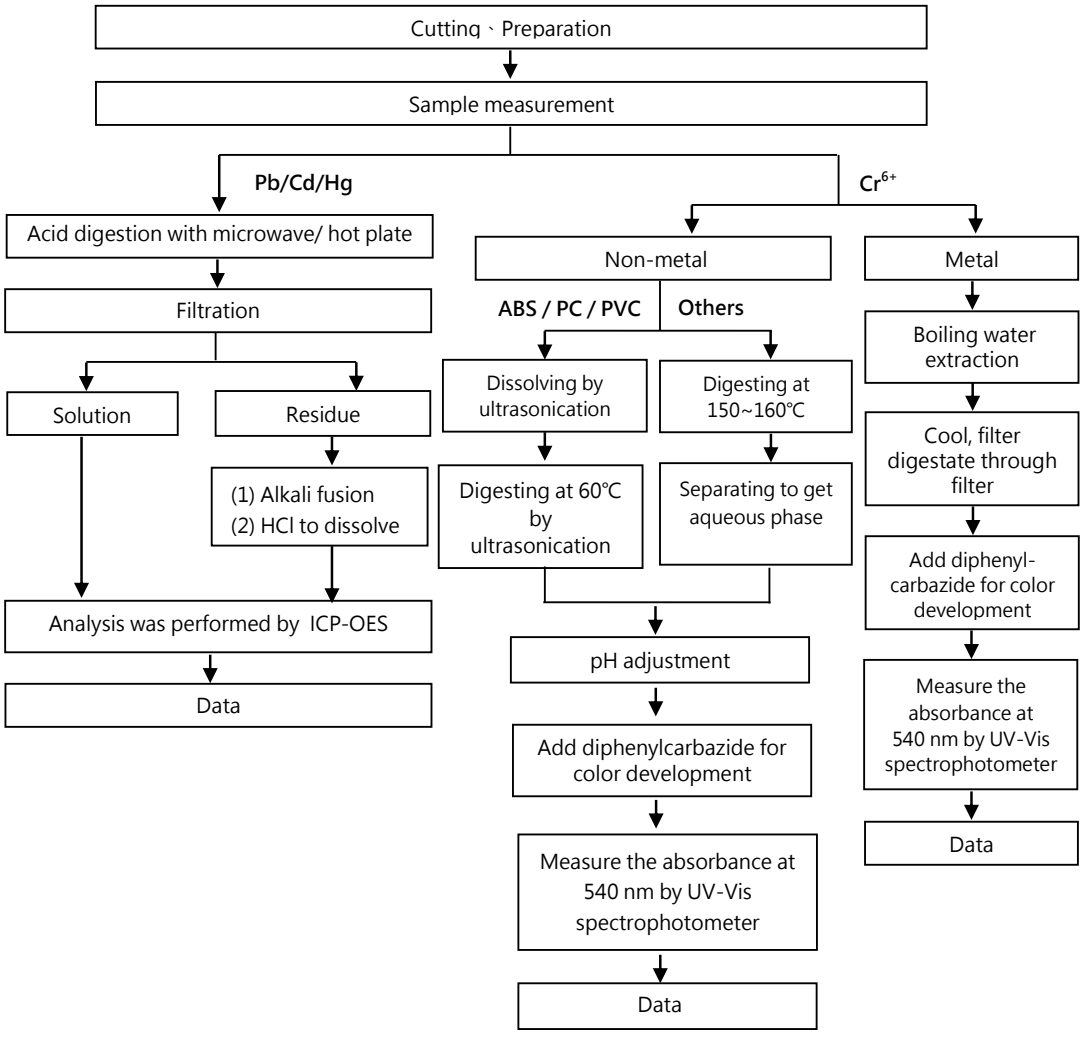
Group Name	Substance Name	CAS No.
PFOA, its salts & derivatives	Perfluorooctanoic acid (PFOA)	335-67-1
	Sodium perfluorooctanoate (PFOA-Na)	335-95-5
	Potassium perfluorooctanoate (PFOA-K)	2395-00-8
	Silver perfluorooctanote (PFOA-Ag)	335-93-3
	Perfluorooctanoyl fluoride (PFOA-F)	335-66-0
	Ammonium pentadecafluorooctanoate (APFO)	3825-26-1
	Lithium perfluorooctanoate (PFOA-Li)	17125-58-5
	Cobalt perfluorooctanoate (PFOA-Co)	35965-01-6
	Cesium perfluorooctanoate (PFOA-Cs)	17125-60-9
	Octanoic acid, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluoro-, chromium(3+) (PFOA-Cr(3^+))	68141-02-6
	Pentadecafluorooctanoic acid--piperazine (2/1)PFOA-NH($C_4H_{10}N$)	423-52-9
	Pentadecafluorooctanoate (anion)	45285-51-6
	Perfluorooctanoic Anhydride	33496-48-9
	Ethanaminium, N,N,N-triethyl-, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluorooctanoate (1:1)	98241-25-9
	Tetramethylammoniumperfluoroctanoat	32609-65-7
	1-Propanaminium, N,N,N-tripropyl-, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluorooctanoate (1:1)	277749-00-5
	Octanoic acid, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluoro-, potassium salt, hydrate (1:1:2) (PFOA-K(H_2O)$_2$)	98065-31-7
	Octanoic acid, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluoro-, compd. with ethanamine (1:1) (PFOA-C_2H_7N)	1376936-03-6
	Octanoic acid, pentadecafluoro-, compd. with pyridine (1:1) (9CI) (PFOA-C_5H_5N)	95658-47-2
	Pentadecafluorooctanoic acid- 1-phenylpiperazine(1:1) (PFOA-$C_{10}H_{14}N_2$)	1514-68-7
	1-Octanaminium, N,N,N-trimethyl-, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluorooctanoate (1:1) (PFOA- $C_{11}H_{26}N$)	927835-01-6

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

Analytical flow chart of heavy metal

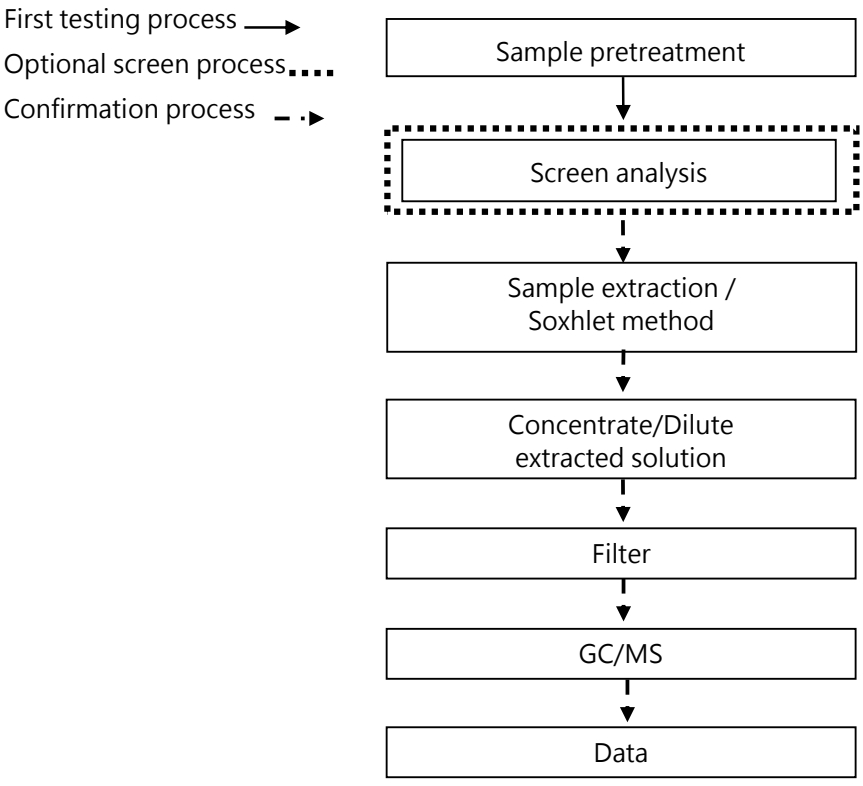
These samples were dissolved totally by pre-conditioning method according to below flow chart.

(Cr^{6+} test method excluded)



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

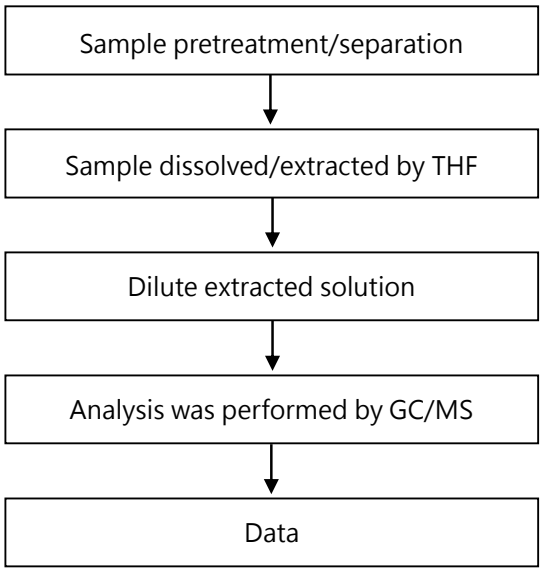
Analytical flow chart – PBBs / PBDEs



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

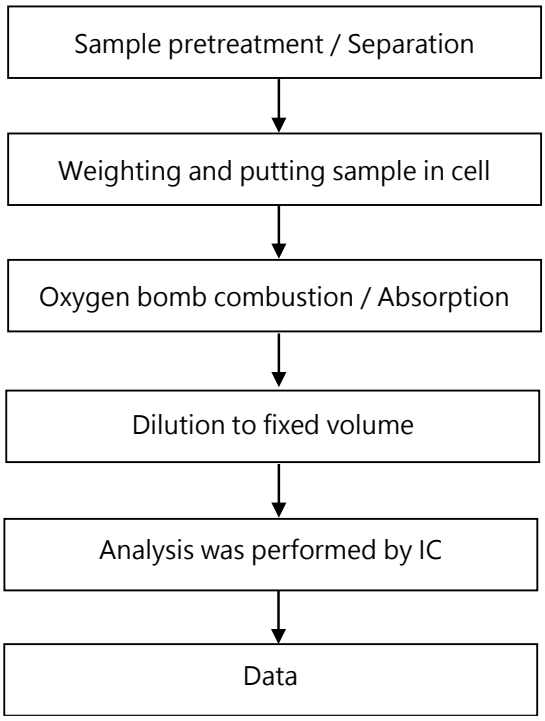
Analytical flow chart - Phthalate

【Test method: IEC 62321-8】



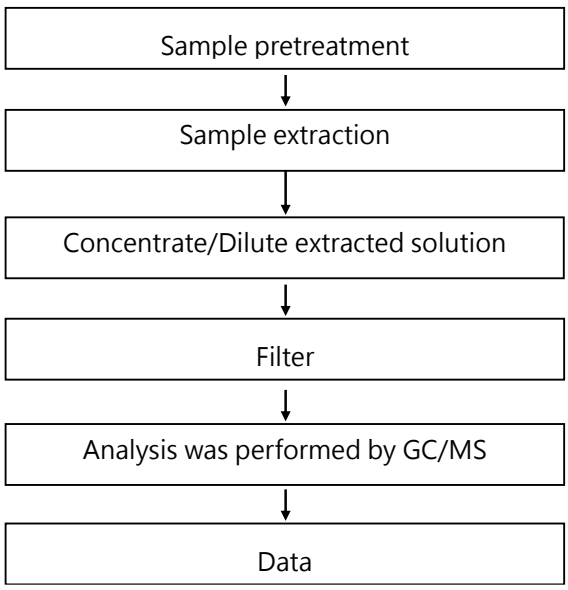
HD MICROSYSTEMS
13-1, HIGASHI-CHO, 4-CHOME, HITACHI-SHI, IBARAKI 317-8555 JAPAN

Analytical flow chart - Halogen



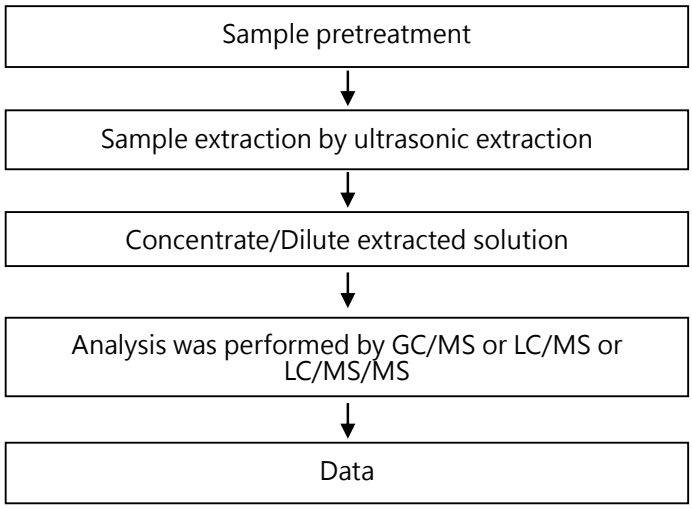
HD MICROSYSTEMS
13-1, HIGASHI-CHO, 4-CHOME, HITACHI-SHI, IBARAKI 317-8555 JAPAN

Analytical flow chart - HBCDD



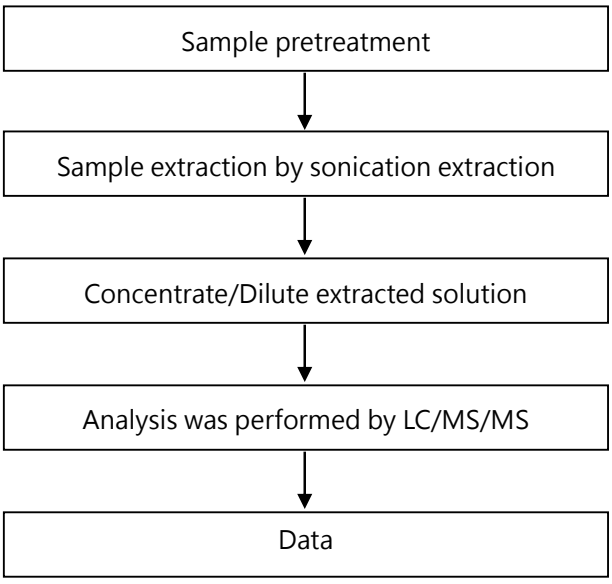
HD MICROSYSTEMS
13-1, HIGASHI-CHO, 4-CHOME, HITACHI-SHI, IBARAKI 317-8555 JAPAN

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



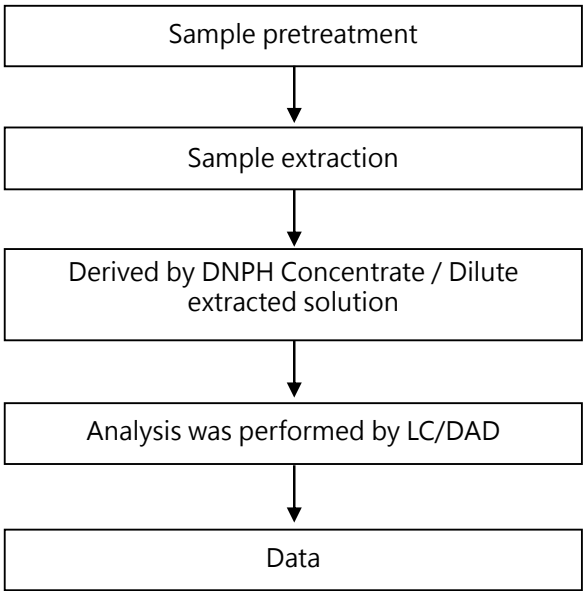
HD MICROSYSTEMS
13-1, HIGASHI-CHO, 4-CHOME, HITACHI-SHI, IBARAKI 317-8555 JAPAN

Analytical flow chart - Bisphenol A



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

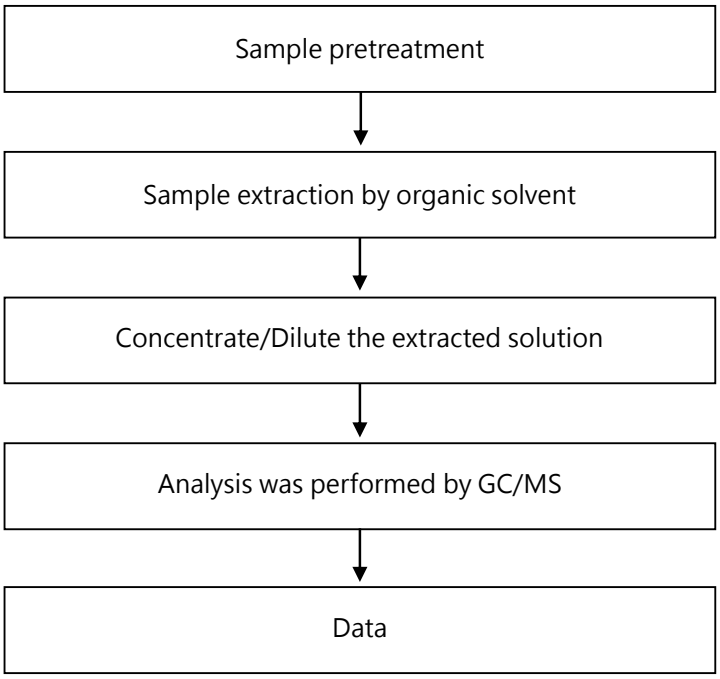
Analytical flow chart - Formaldehyde



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

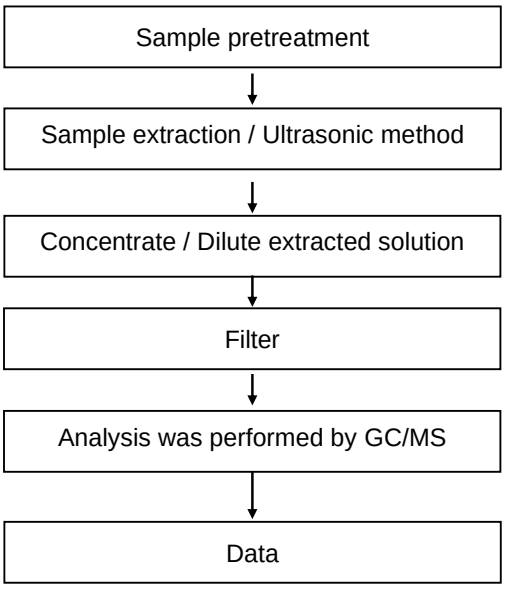
Analytical flow chart

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



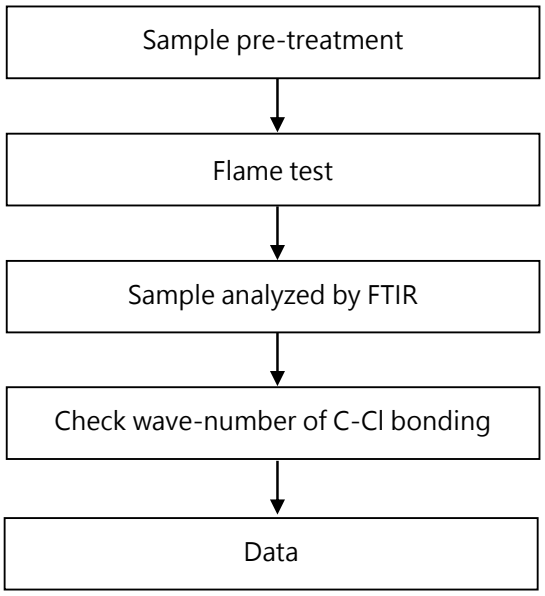
HD MICROSYSTEMS
13-1, HIGASHI-CHO, 4-CHOME, HITACHI-SHI, IBARAKI 317-8555 JAPAN

Analytical flow chart - Dimethyl Fumarate



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

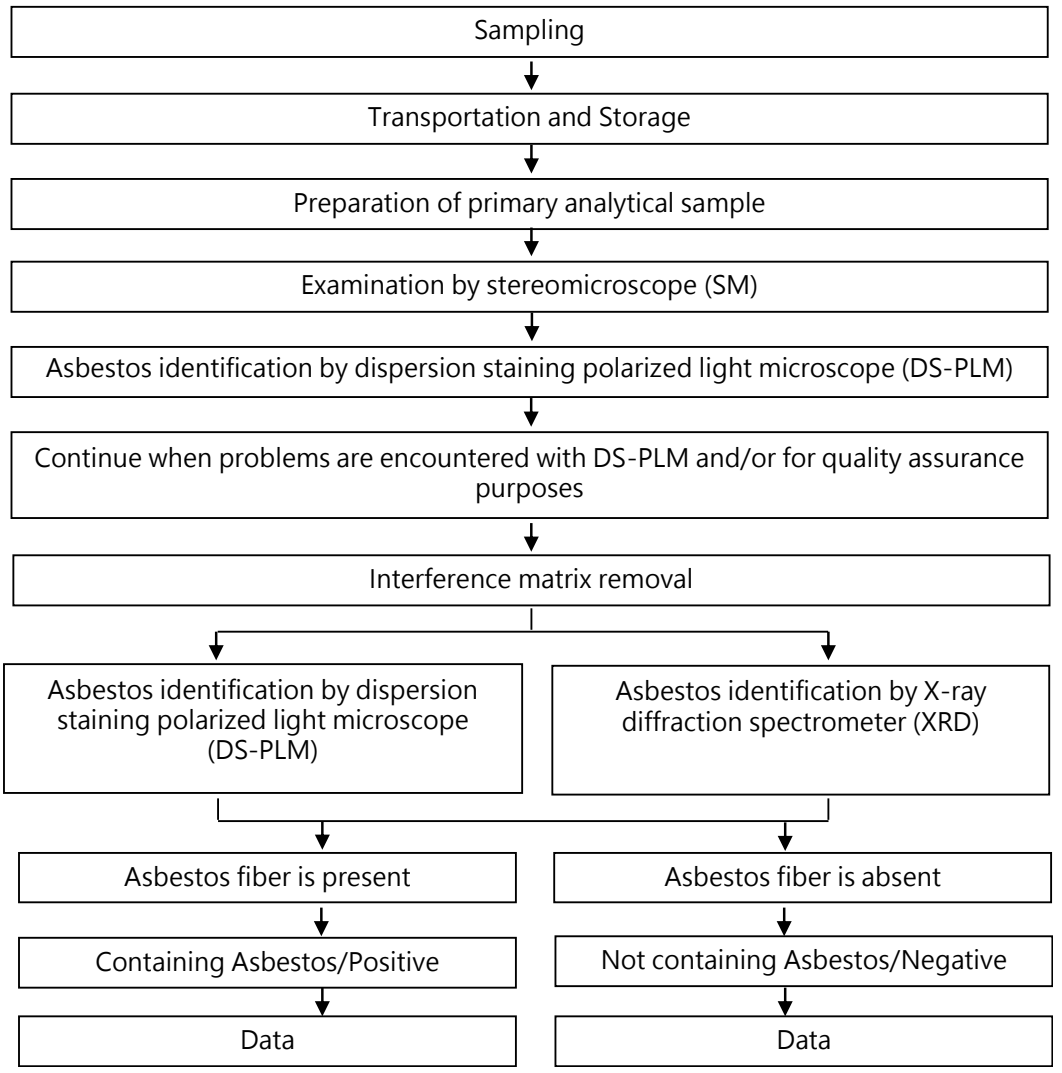
Analysis flow chart - PVC



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

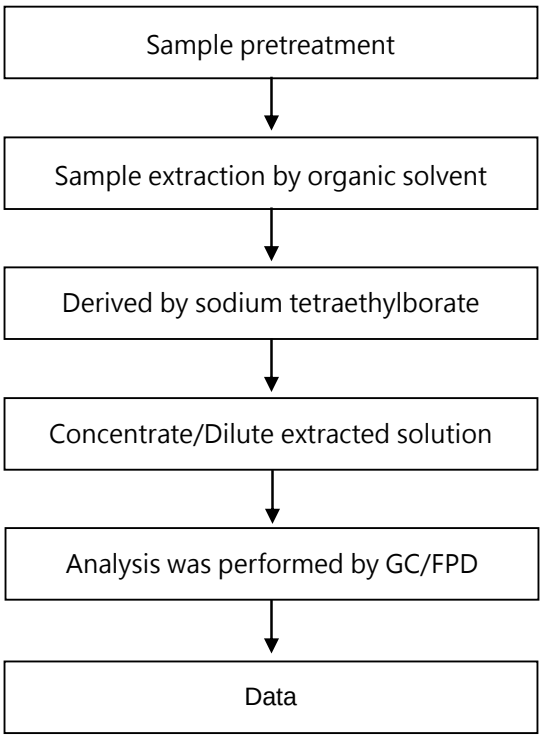
Analysis flow chart for determination of Asbestos

【Reference method: EPA 600/R-93/116】



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

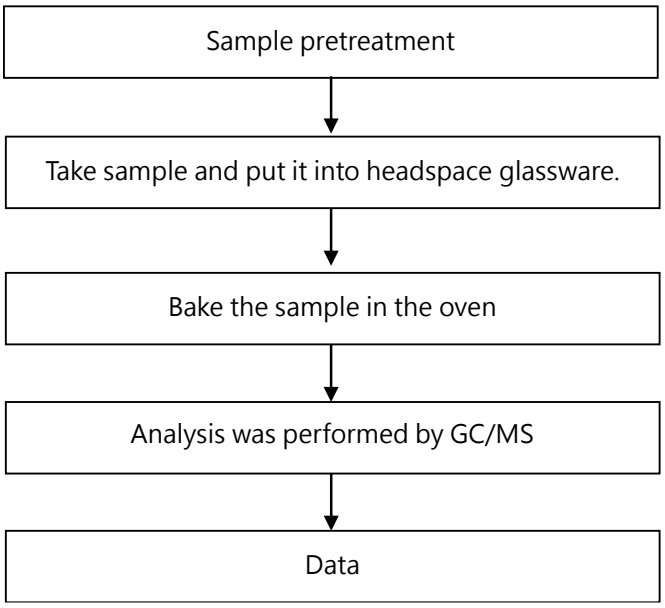
Analytical flow chart - Organic-Tin



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

Analytical flow chart of volatile organic compounds (VOCs)

【Reference method：US EPA 5021A】

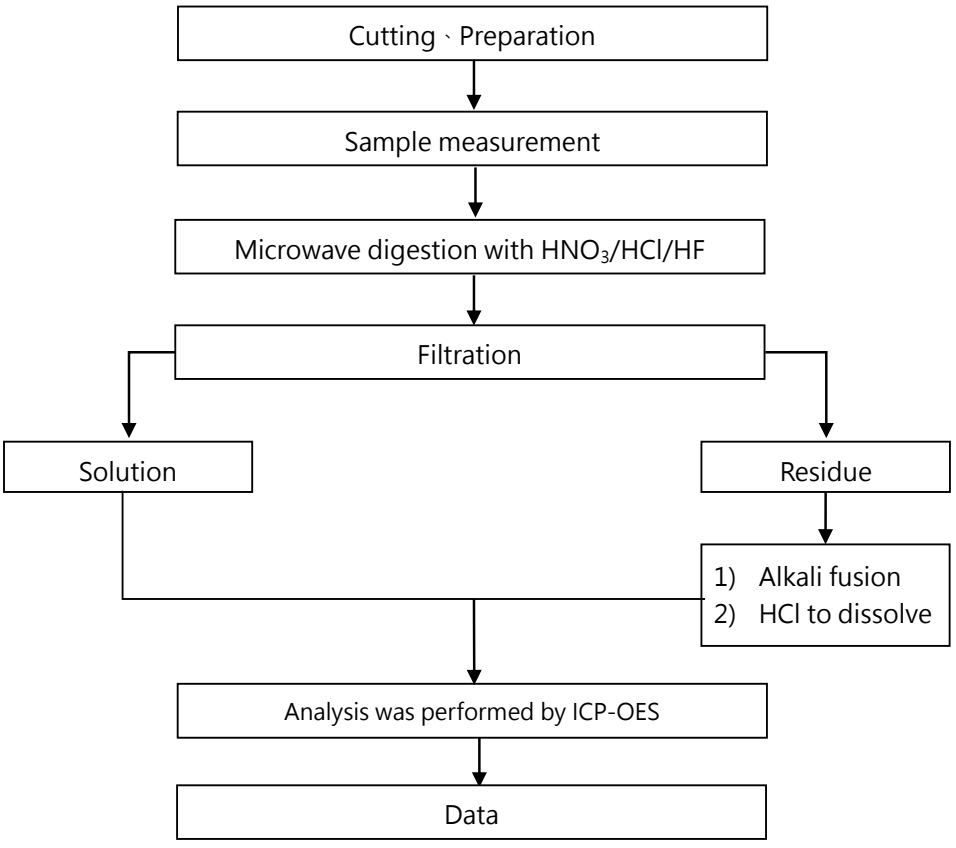


HD MICROSYSTEMS
13-1, HIGASHI-CHO, 4-CHOME, HITACHI-SHI, IBARAKI 317-8555 JAPAN

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.

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

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

ETR25403107

** End of Report **