Test Report

No.: EKR26A01220M01 Date: 02-Nov-2026

HERAEUS MATERIALS MALAYSIA SDN BHD
NO. 6, JALAN I-PARK 1/1, KAWASAN PERINDUSTRIAN I-PARK, BANDAR INDAHPURA, 81000 KULAI, JOHOR, MALAYSIA

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

Sample Submitted By	:	HERAEUS MATERIALS MALAYSIA SDN BHD
Sample Name	:	COPPER BONDING WIRE
Style/Item No.	:	iCu, MaxSoft, MaxSoft2, MaxSoftLD, MaxSoftHR, DHF, RelCu
PO No.	:	4001607742

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Sample Receiving Date	:	20-Oct-2026
Testing Period	:	20-Oct-2026 to 02-Nov-2026

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 Results : Please refer to following pages.

Conclusion :

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

(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 3)「Other consumer products」as set by German Committee on Product Safety (AfPS) GS PAHs.

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

CHECK REPORT
PIN CODE: 3754B008

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Test Part Description

No.1 : COPPER BONDING WIRE - EKR26A01218
No.2 : COPPER BONDING WIRE - EKR26A01220

Test Result(s)

Test Item(s)	Method	Unit	MDL	Result		Limit
				No.1	No.2	
Cadmium (Cd)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	2	n.d.	---	100
Lead (Pb)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	2	n.d.	---	1000
Mercury (Hg)	With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES.	mg/kg	2	n.d.	---	1000
Hexavalent Chromium Cr(VI) (#2)	With reference to IEC 62321-7-1: 2015, analysis was performed by UV-VIS.	μg/cm²	0.1	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.	---	-
Hexavalent Chromium Cr(VI) (CAS No.: 18540-29-9)	With reference to ISO 3613: 2021, analysis was performed by UV-VIS.	μg/cm²	0.02	n.d.	---	-
Hexavalent Chromium Cr(VI) (CAS No.: 18540-29-9)	With reference to US EPA 3060A: 1996, analysis was performed by UV-Vis.	mg/kg	2	n.d.	---	-
Monobromobiphenyl	With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.	mg/kg	5	n.d.	---	-
Dibromobiphenyl		mg/kg	5	n.d.	---	-
Tribromobiphenyl		mg/kg	5	n.d.	---	-
Tetrabromobiphenyl		mg/kg	5	n.d.	---	-
Pentabromobiphenyl		mg/kg	5	n.d.	---	-
Hexabromobiphenyl		mg/kg	5	n.d.	---	-
Heptabromobiphenyl		mg/kg	5	n.d.	---	-
Octabromobiphenyl		mg/kg	5	n.d.	---	-
Nonabromobiphenyl		mg/kg	5	n.d.	---	-
Decabromobiphenyl		mg/kg	5	n.d.	---	-
Sum of PBBs		mg/kg	-	n.d.	---	1000

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Test Item(s)	Method	Unit	MDL	Result		Limit
				No.1	No.2	
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.	---	1000
Butyl benzyl phthalate (BBP)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	---	1000
Dibutyl phthalate (DBP)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	---	1000
Diisobutyl phthalate (DIBP)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	---	1000
Di-(2-ethylhexyl) phthalate (DEHP)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	---	1000
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.	---	-
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.	---	-
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-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.	---	-
Bis(2-methoxyethyl) phthalate (DMEP) (CAS No.: 117-82-8)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	---	-
Di-pentyl phthalate (DPP) (CAS No.: 131-18-0)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	---	-
Tetrabromobisphenol A (TBBP-A) (CAS No.: 79-94-7)	With reference to RSTS-E&E-121, analysis was performed by LC/MS.	mg/kg	10	n.d.	---	-

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Test Item(s)	Method	Unit	MDL	Result		Limit
				No.1	No.2	
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: 2008, analysis was performed by GC/MS.	mg/kg	5	n.d.	---	-
Perfluorooctane sulfonates and its salts (PFOS and its salts) (CAS No.: 1763-23-1 and its salts)	Modified EN 17681-1: 2025, 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: 2025, analysis was performed by LC/MS/MS.	mg/kg	0.01	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.	---	-
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.	---	-
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	---	-

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Test Item(s)	Method	Unit	MDL	Result		Limit
				No.1	No.2	
Polycyclic Aromatic Hydrocarbons (PAHs)						
Benzo[a]pyrene (CAS No.: 50-32-8)	With reference to AfPS GS 2019:01 PAK, analysis was performed by GC/MS.	mg/kg	0.2	n.d.	---	Δ
Benzo[e]pyrene (CAS No.: 192-97-2)		mg/kg	0.2	n.d.	---	Δ
Benzo[a]anthracene (CAS No.: 56-55-3)		mg/kg	0.2	n.d.	---	Δ
Benzo[b]fluoranthene (CAS No.: 205-99-2)		mg/kg	0.2	n.d.	---	Δ
Benzo[j]fluoranthene (CAS No.: 205-82-3)		mg/kg	0.2	n.d.	---	Δ
Benzo[k]fluoranthene (CAS No.: 207-08-9)		mg/kg	0.2	n.d.	---	Δ
Chrysene (CAS No.: 218-01-9)		mg/kg	0.2	n.d.	---	Δ
Dibenzo[a,h]anthracene (CAS No.: 53-70-3)		mg/kg	0.2	n.d.	---	Δ
Benzo[g,h,i]perylene (CAS No.: 191-24-2)		mg/kg	0.2	n.d.	---	Δ
Indeno[1,2,3-c,d]pyrene (CAS No.: 193-39-5)		mg/kg	0.2	n.d.	---	Δ
Anthracene (CAS No.: 120-12-7)		mg/kg	0.2	n.d.	---	Δ
Fluoranthene (CAS No.: 206-44-0)		mg/kg	0.2	n.d.	---	Δ
Phenanthrene (CAS No.: 85-01-8)		mg/kg	0.2	n.d.	---	Δ
Pyrene (CAS No.: 129-00-0)		mg/kg	0.2	n.d.	---	Δ
Naphthalene (CAS No.: 91-20-3)		mg/kg	0.2	n.d.	---	Δ
Sum of 15 PAHs		mg/kg	-	n.d.	---	Δ
Acenaphthylene (CAS No.: 208-96-8)	With reference to AfPS GS 2019:01 PAK, analysis was performed by GC/MS.	mg/kg	0.2	n.d.	---	-
Acenaphthene (CAS No.: 83-32-9)		mg/kg	0.2	n.d.	---	-
Fluorene (CAS No.: 86-73-7)		mg/kg	0.2	n.d.	---	-
Dimethyl fumarate (DMFu) (CAS No.: 624-49-7)	With reference to US EPA 3550C: 2007, analysis was performed by GC/MS.	mg/kg	0.1	n.d.	---	-
Polyvinyl chloride (PVC)	With reference to ASTM E1252: 2021, analysis was performed by FT-IR and Flame Test.	**	-	Negative	---	-

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Test Item(s)	Method	Unit	MDL	Result		Limit
				No.1	No.2	
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.	---	-
4-Methoxy-m-phenylenediamine / 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 (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		Limit
				No.1	No.2	
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.	---	-
4,4'-Methylenedi-o-toluidine (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.	---	-
6-Methoxy-m-toluidine (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-chloro-Aniline) (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.	---	-
2-Methoxyaniline (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 and EN ISO 14362-3: 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		Limit
				No.1	No.2	
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.	---	-
Perchlorate (CAS No.: 14797-73-0)	Analysis was performed by IC.	µg/g	0.006	n.d.	---	-
Chromium (Cr) (CAS No.: 7440-47-3)	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.	---	-
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.	---	-
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.	---	-
Barium (Ba) (CAS No.: 7440-39-3)	With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.	mg/kg	2	n.d.	---	-
Selenium (Se) (CAS No.: 7782-49-2)	With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.	mg/kg	2	n.d.	---	-
TBBP-A-bis (CAS No.: 21850-44-2)	With reference to US EPA 3550C: 2007, analysis was performed by GC/MS.	mg/kg	5	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.	---	-
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.	---	-

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HERAEUS MATERIALS MALAYSIA SDN BHD
NO. 6, JALAN I-PARK 1/1, KAWASAN PERINDUSTRIAN I-PARK, BANDAR INDAHPURA, 81000 KULAI, JOHOR, MALAYSIA

Test Item(s)	Method	Unit	MDL	Result		Limit
				No.1	No.2	
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.	---	-
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.	---	-

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HERAEUS MATERIALS MALAYSIA SDN BHD
NO. 6, JALAN I-PARK 1/1, KAWASAN PERINDUSTRIAN I-PARK, BANDAR INDAHPURA, 81000 KULAI, JOHOR, MALAYSIA

Test Item(s)	Method	Unit	MDL	Result		Limit
				No.1	No.2	
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.	---	-
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.	---	-

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HERAEUS MATERIALS MALAYSIA SDN BHD
NO. 6, JALAN I-PARK 1/1, KAWASAN PERINDUSTRIAN I-PARK, BANDAR INDAHPURA, 81000 KULAI, JOHOR, MALAYSIA

Test Item(s)	Method	Unit	MDL	Result		Limit
				No.1	No.2	
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-132	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.	---	-
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.	---	-
Bromomethane (CAS No.: 74-83-9)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.	---	-

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HERAEUS MATERIALS MALAYSIA SDN BHD
NO. 6, JALAN I-PARK 1/1, KAWASAN PERINDUSTRIAN I-PARK, BANDAR INDAHPURA, 81000 KULAI, JOHOR, MALAYSIA

Test Item(s)	Method	Unit	MDL	Result		Limit
				No.1	No.2	
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.	---	-
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.	---	-

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HERAEUS MATERIALS MALAYSIA SDN BHD
NO. 6, JALAN I-PARK 1/1, KAWASAN PERINDUSTRIAN I-PARK, BANDAR INDAHPURA, 81000 KULAI, JOHOR, MALAYSIA

Test Item(s)	Method	Unit	MDL	Result		Limit
				No.1	No.2	
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.	---	-
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.	---	-

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NO. 6, JALAN I-PARK 1/1, KAWASAN PERINDUSTRIAN I-PARK, BANDAR INDAHPURA, 81000 KULAI, JOHOR, MALAYSIA

Test Item(s)	Method	Unit	MDL	Result		Limit
				No.1	No.2	
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.	---	-
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.	---	-

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NO. 6, JALAN I-PARK 1/1, KAWASAN PERINDUSTRIAN I-PARK, BANDAR INDAHPURA, 81000 KULAI, JOHOR, MALAYSIA

Test Item(s)	Method	Unit	MDL	Result		Limit
				No.1	No.2	
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.	---	-
Perfluorocarbon (PFCs)						
Perfluorohexane (CAS No.: 355-42-0)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.	---	-
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.	---	-
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.	---	-
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.	---	-
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 218 (CAS No.: 76-19-7)	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-14 (CAS No.: 75-73-0)	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.	---	-
Chlorinate hydrocarbon (CHCs)						
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.	---	-
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.	---	-
1,1,1,2-Tetrachloroethane (CAS No.: 630-20-6)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.	---	-
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.	---	-
1,1,2-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-Dichloroethane (CAS No.: 75-34-3)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.	---	-

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HERAEUS MATERIALS MALAYSIA SDN BHD
NO. 6, JALAN I-PARK 1/1, KAWASAN PERINDUSTRIAN I-PARK, BANDAR INDAHPURA, 81000 KULAI, JOHOR, MALAYSIA

Test Item(s)	Method	Unit	MDL	Result		Limit
				No.1	No.2	
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-Dichloropropene (CAS No.: 563-58-6)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.	---	-
1,2,3-Trichloropropane (CAS No.: 96-18-4)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.	---	-
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.	---	-
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.	---	-
1,3-Dichloropropane (CAS No.: 142-28-9)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.	---	-
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.	---	-
Chloroform (CAS No.: 67-66-3)	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.	---	-
Dichloromethane (CAS No.: 75-09-2)	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.	---	-
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.	---	-
Trichloroethylene (CAS No.: 79-01-6)	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.	---	-
Hexachlorobutadiene (CAS No.: 87-68-3)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.	---	-

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HERAEUS MATERIALS MALAYSIA SDN BHD
NO. 6, JALAN I-PARK 1/1, KAWASAN PERINDUSTRIAN I-PARK, BANDAR INDAHPURA, 81000 KULAI, JOHOR, MALAYSIA

Test Item(s)	Method	Unit	MDL	Result		Limit
				No.1	No.2	
Bromochloromethane (CAS No.: 74-97-5)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.	---	-
Sulphur hexafluoride (SF6) (CAS No.: 2551-62-4)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.	---	-
1-Bromopropane (CAS No.: 106-94-5)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.	---	-
Bromoethane (CAS No.: 74-96-4)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.	---	-
Trifluoroiodomethane (CAS No.: 2314-97-8)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.	---	-
2-Bromo-3,3,3-trifluoroprop-1-ene (CAS No.: 1514-82-5)	With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.	mg/kg	1	n.d.	---	-
Fluorine (F) (CAS No.: 14762-94-8)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	n.d.	---	-
Chlorine (Cl) (CAS No.: 22537-15-1)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	n.d.	---	-
Bromine (Br) (CAS No.: 10097-32-2)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	n.d.	---	-
Iodine (I) (CAS No.: 14362-44-8)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	n.d.	---	-
Tributyl tin (TBT)	With reference to ISO 17353: 2004, analysis was performed by GC/MS.	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/MS.	mg/kg	0.03	n.d.	---	-
Dioctyl tin (DOT)	With reference to ISO 17353: 2004, analysis was performed by GC/MS.	mg/kg	0.03	n.d.	---	-
Dibutyl tin (DBT)	With reference to ISO 17353: 2004, analysis was performed by GC/MS.	mg/kg	0.03	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.	-

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NO. 6, JALAN I-PARK 1/1, KAWASAN PERINDUSTRIAN I-PARK, BANDAR INDAHPURA, 81000 KULAI, JOHOR, MALAYSIA

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. "---" = Not Conducted
6. **= Qualitative analysis (No Unit)
7. Negative = Undetectable ; Positive = Detectable
8. 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".
9. (#2) =
   a. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13 μg/cm². The sample coating is considered to contain Cr(VI).
   b. The sample is negative for Cr(VI) if Cr(VI) is n.d. (concentration less than 0.10 μg/cm²). The coating is considered a non-Cr(VI) based coating
   c. The result between 0.10 μg/cm² and 0.13 μg/cm² is considered to be inconclusive - unavoidable coating variations may influence the determination.
10. ▲ : 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
11. Unless otherwise stated , the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (w=0) stated in ILAC-G8:09/2019. According to this rule, the judgement of conformity is based on the comparing test results with limits.
12. This report is combined with reports of EKR26A01218 and EKR26A01220.

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PAHs Remark：

Δ 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.		Materials not covered by Category 1 or 2, with intended or foreseeable short-term skin contact (≦30 seconds).	
		a. Use by children under 14	b. Other consumer products	a. Use by children under 14	b. Other consumer products
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

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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.
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
	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-NH(C_2H_5)$_3$)	54439-46-2

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NO. 6, JALAN I-PARK 1/1, KAWASAN PERINDUSTRIAN I-PARK, BANDAR INDAHPURA, 81000 KULAI, JOHOR, MALAYSIA

Group Name	Substance Name	CAS No.
PFOS, its salts & derivatives	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
	Perfluoro-1-octanesulfonyl chloride (PFOS-Cl)	423-60-9
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 perfluorooctanoate (PFOA-Ag)	335-93-3

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HERAEUS MATERIALS MALAYSIA SDN BHD
NO. 6, JALAN I-PARK 1/1, KAWASAN PERINDUSTRIAN I-PARK, BANDAR INDAHPURA, 81000 KULAI, JOHOR, MALAYSIA

Group Name	Substance Name	CAS No.
PFOA, its salts & derivatives	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
	Pentadecafluorooctanoyl chloride (PFOA-Cl)	335-64-8
	Perfluorooctanoyl Bromide (PFOA-Br)	222037-87-8

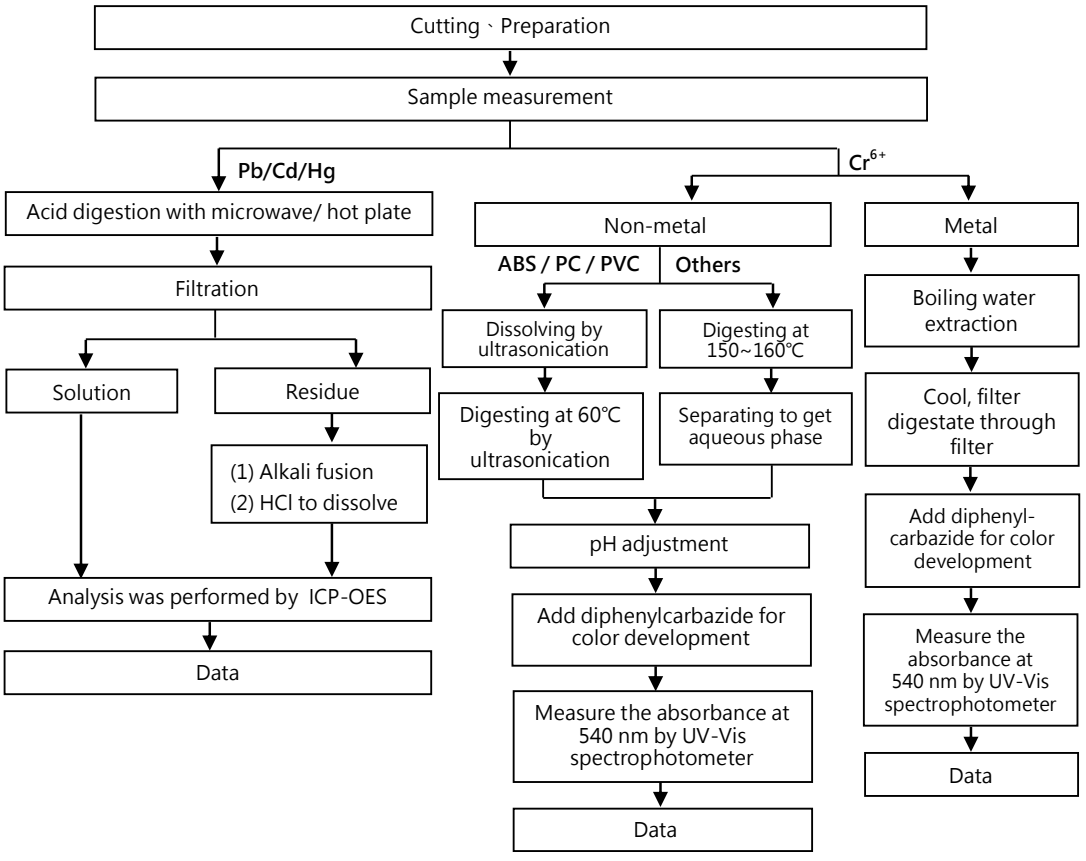
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Analytical flow chart of heavy metal

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

(Cr^{6+} test method excluded)

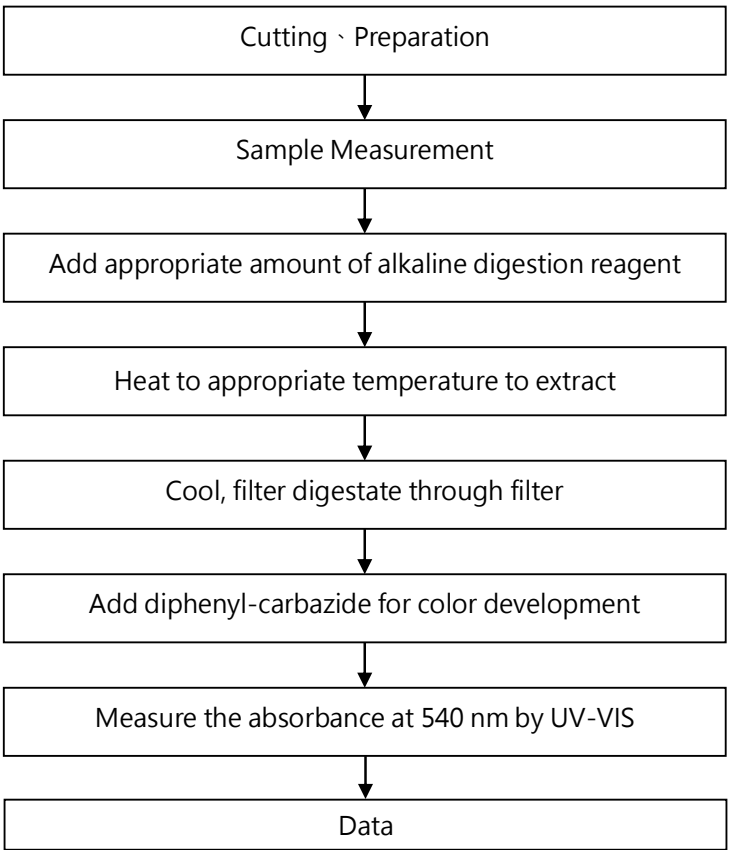


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HERAEUS MATERIALS MALAYSIA SDN BHD
NO. 6, JALAN I-PARK 1/1, KAWASAN PERINDUSTRIAN I-PARK, BANDAR INDAHPURA, 81000 KULAI, JOHOR, MALAYSIA

Analytical flow chart - Hexavalent Chromium Cr(VI)

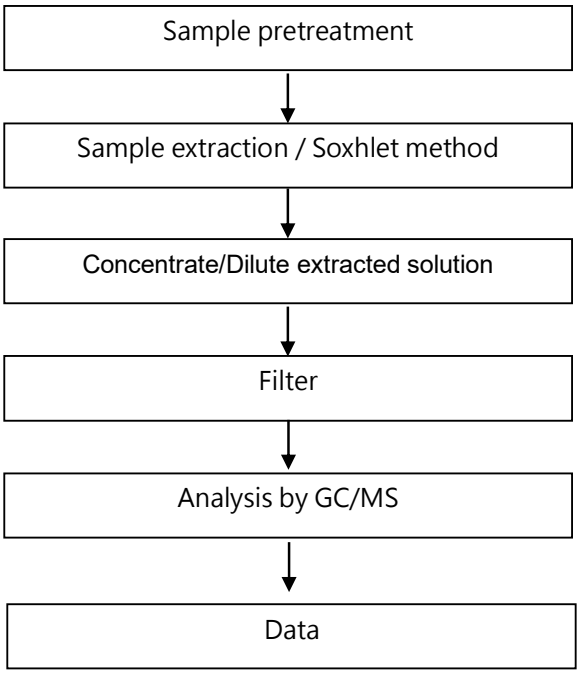
Test method: EPA 3060A



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NO. 6, JALAN I-PARK 1/1, KAWASAN PERINDUSTRIAN I-PARK, BANDAR INDAHPURA, 81000 KULAI, JOHOR, MALAYSIA

PBB/PBDE analytical FLOW CHART

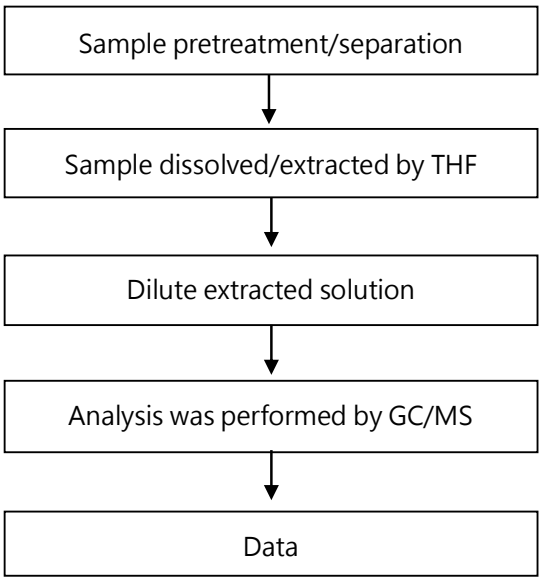


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NO. 6, JALAN I-PARK 1/1, KAWASAN PERINDUSTRIAN I-PARK, BANDAR INDAHPURA, 81000 KULAI, JOHOR, MALAYSIA

Analytical flow chart of phthalate content

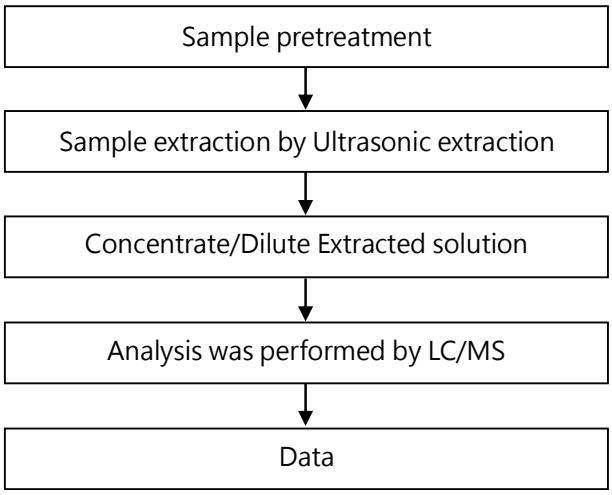
【Test method: IEC 62321-8】



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NO. 6, JALAN I-PARK 1/1, KAWASAN PERINDUSTRIAN I-PARK, BANDAR INDAHPURA, 81000 KULAI, JOHOR, MALAYSIA

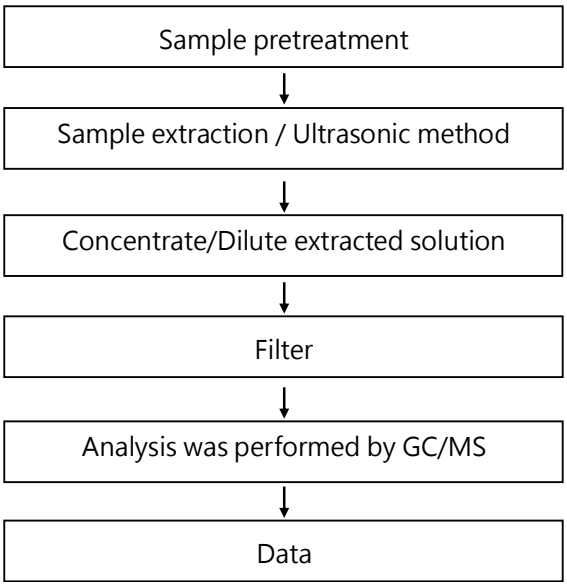
TBBP-A analytical flow chart



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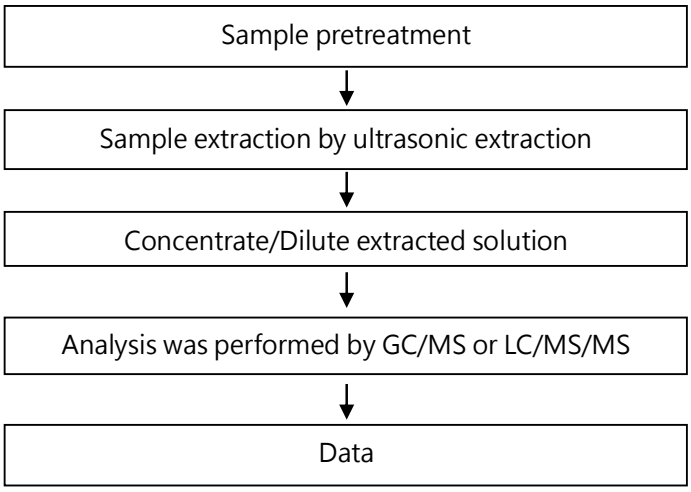
Analytical flow chart - HBCDD



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HERAEUS MATERIALS MALAYSIA SDN BHD
NO. 6, JALAN I-PARK 1/1, KAWASAN PERINDUSTRIAN I-PARK, BANDAR INDAHPURA, 81000 KULAI, JOHOR, MALAYSIA

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

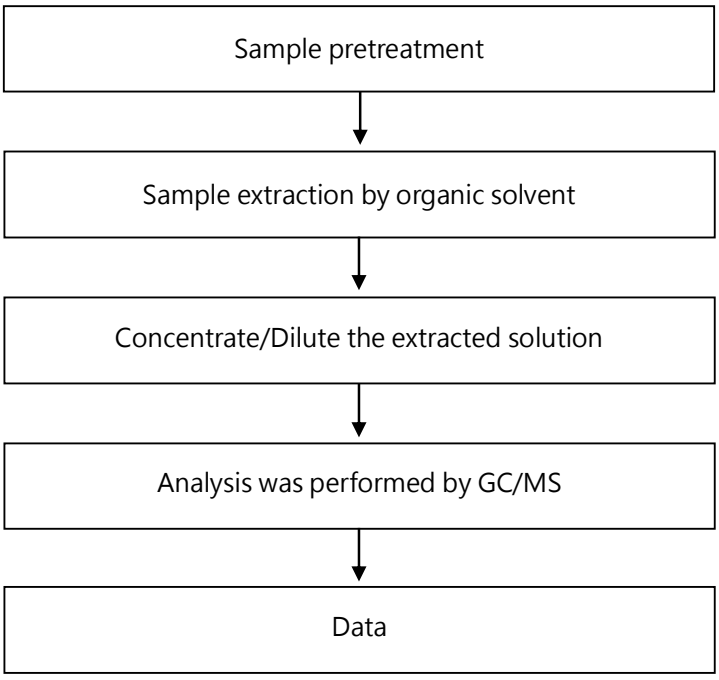


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NO. 6, JALAN I-PARK 1/1, KAWASAN PERINDUSTRIAN I-PARK, BANDAR INDAHPURA, 81000 KULAI, JOHOR, MALAYSIA

Analytical flow chart

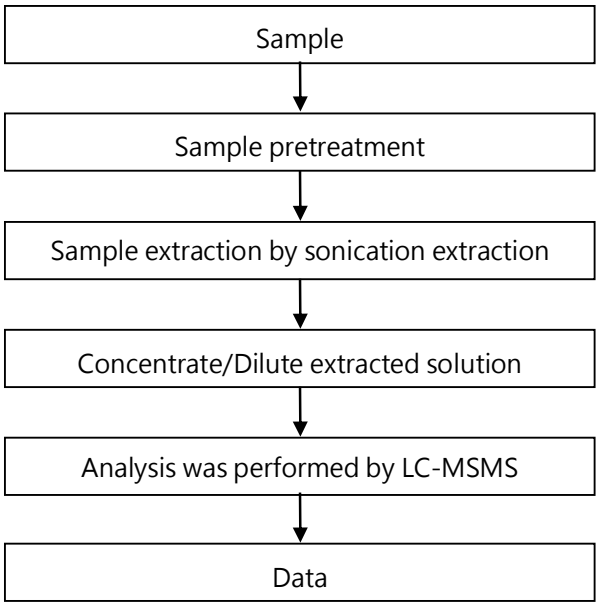
* Apply to: PCBs, PCNs, PCTs, Mirex, Chlorinated Paraffins, DBBT



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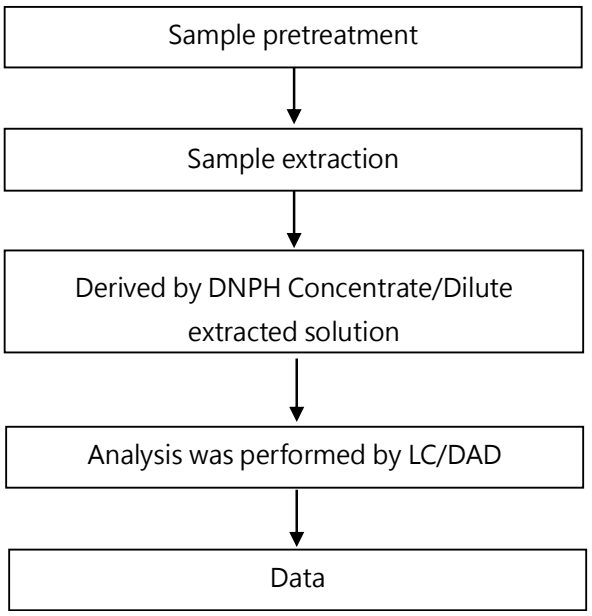
BPA analytical flow chart



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HERAEUS MATERIALS MALAYSIA SDN BHD
NO. 6, JALAN I-PARK 1/1, KAWASAN PERINDUSTRIAN I-PARK, BANDAR INDAHPURA, 81000 KULAI, JOHOR, MALAYSIA

Analytical flow chart - Formaldehyde

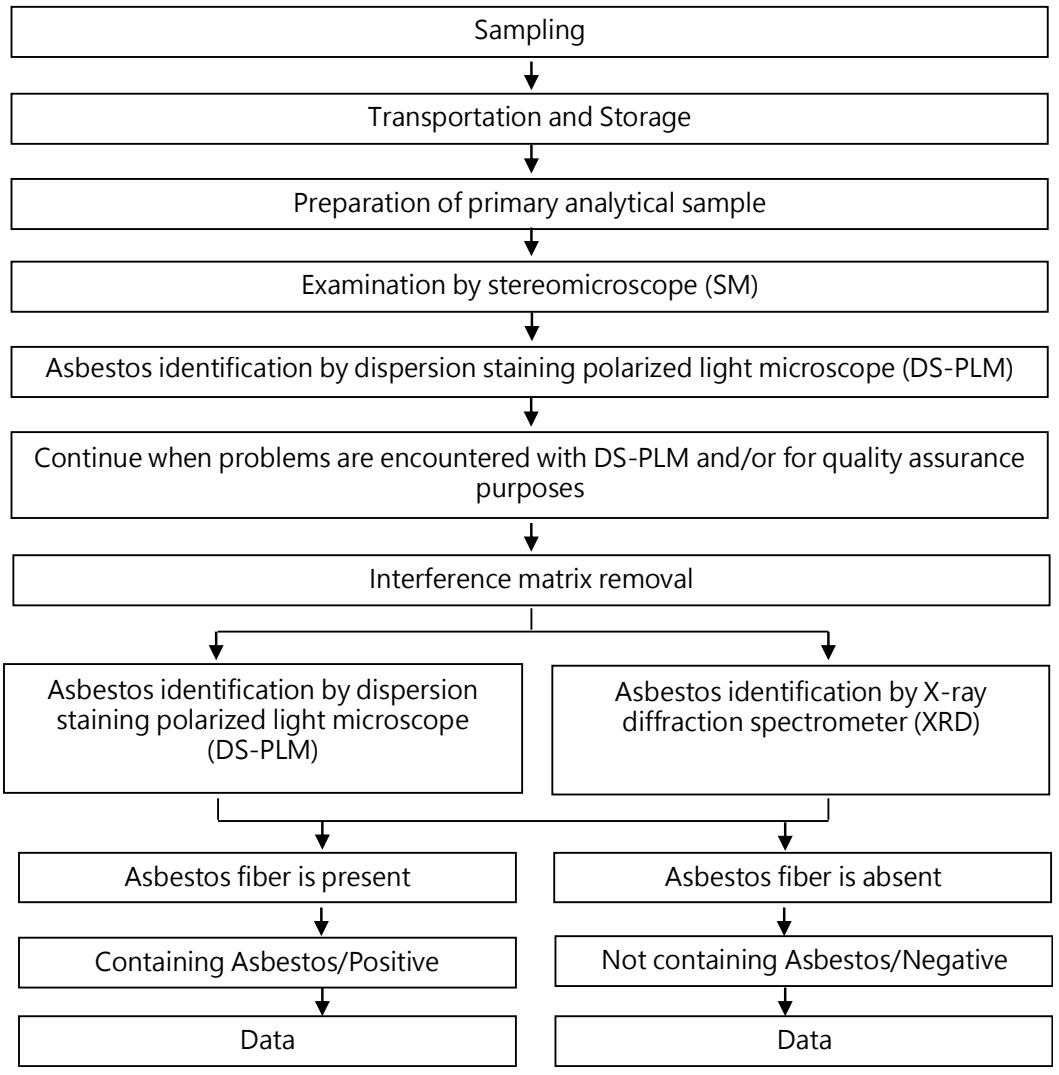


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NO. 6, JALAN I-PARK 1/1, KAWASAN PERINDUSTRIAN I-PARK, BANDAR INDAHPURA, 81000 KULAI, JOHOR, MALAYSIA

Analysis flow chart for determination of Asbestos

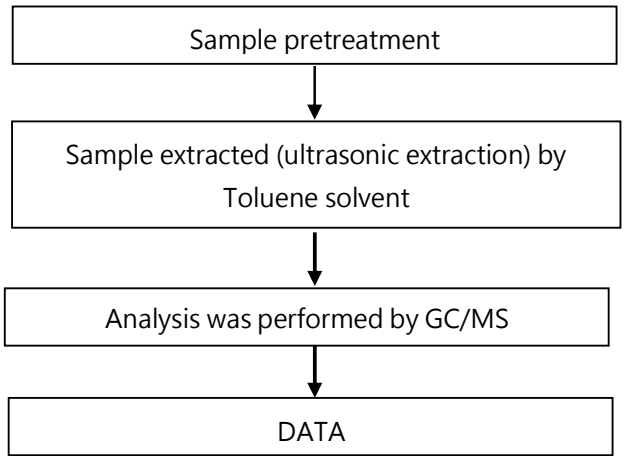
【Reference method: EPA 600/R-93/116】



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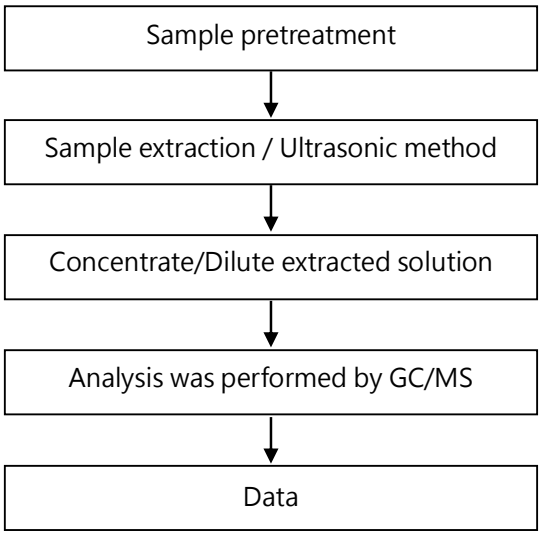
PAHs (PolyAromaticHydrocarbons) analytical flow chart



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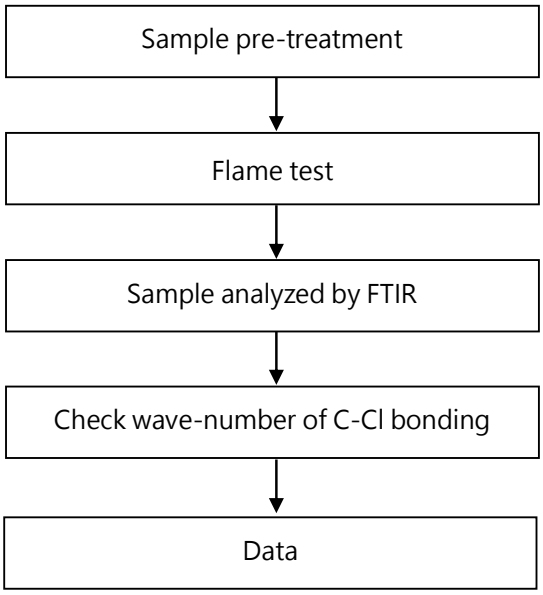
Analytical flow chart of Dimethyl Fumarate



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Analysis flow chart - PVC

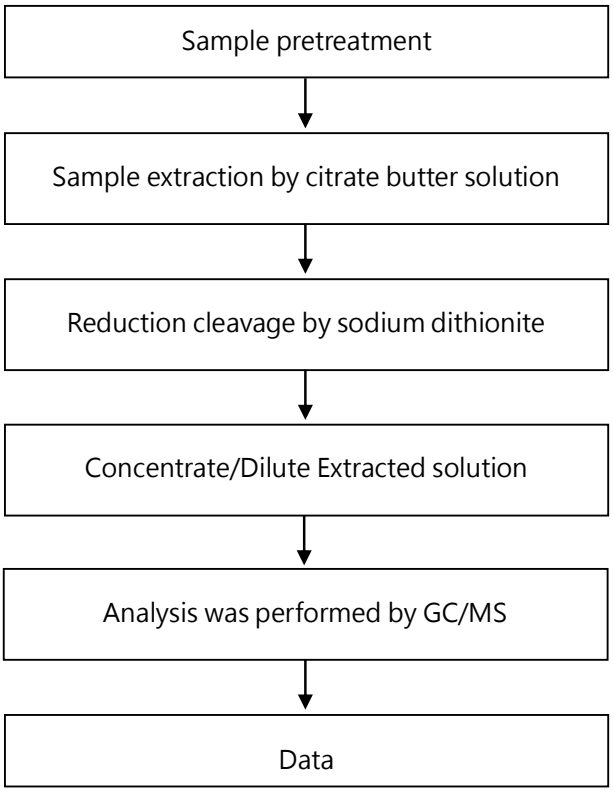


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Analytical flow chart of Azo dyes

【Test method: ISO 14362-1】



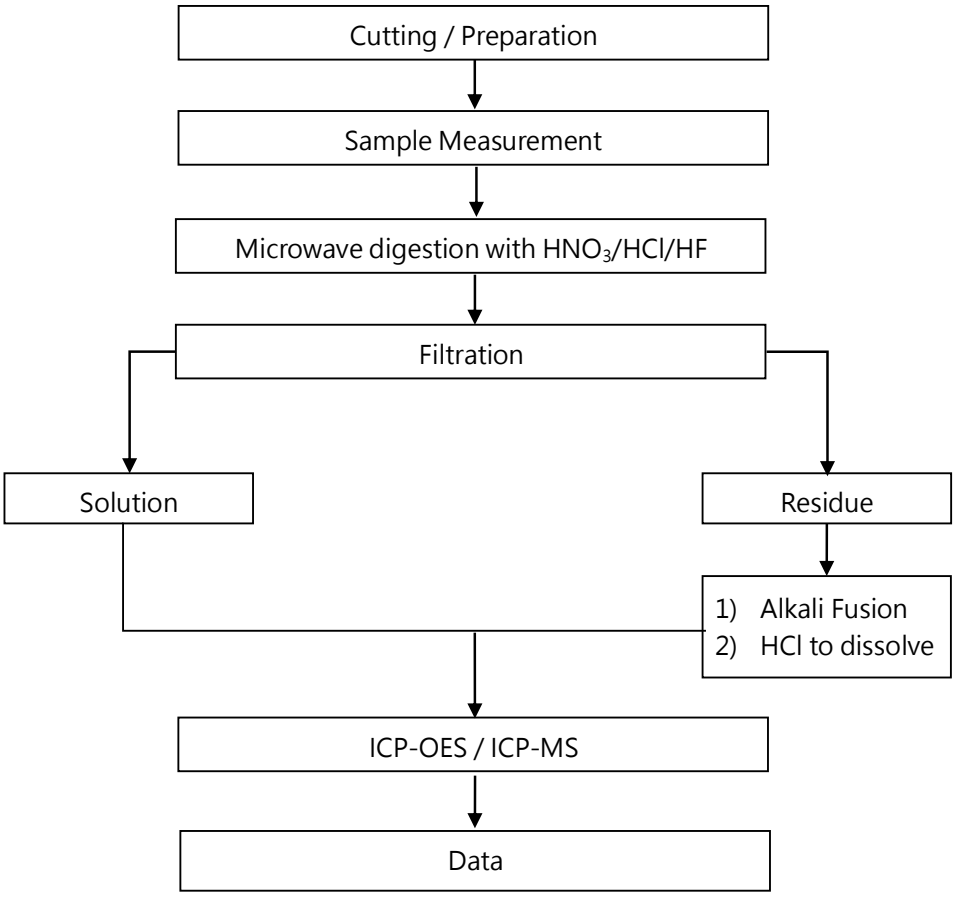
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NO. 6, JALAN I-PARK 1/1, KAWASAN PERINDUSTRIAN I-PARK, BANDAR INDAHPURA, 81000 KULAI, JOHOR, MALAYSIA

Analytical flow chart of Elements (Heavy metal included)

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

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

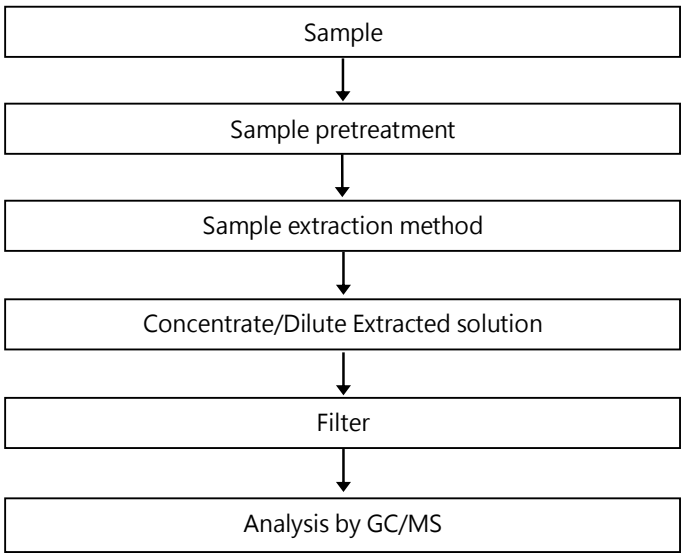


* US EPA 3051 method does not add HF.

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Analytical flow chart of TBBP-A-bis

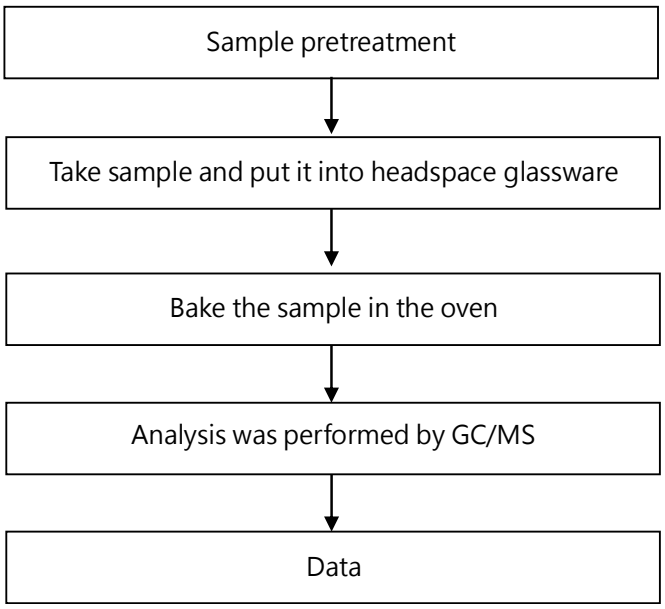


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Analytical flow chart of volatile organic compounds (VOCs)

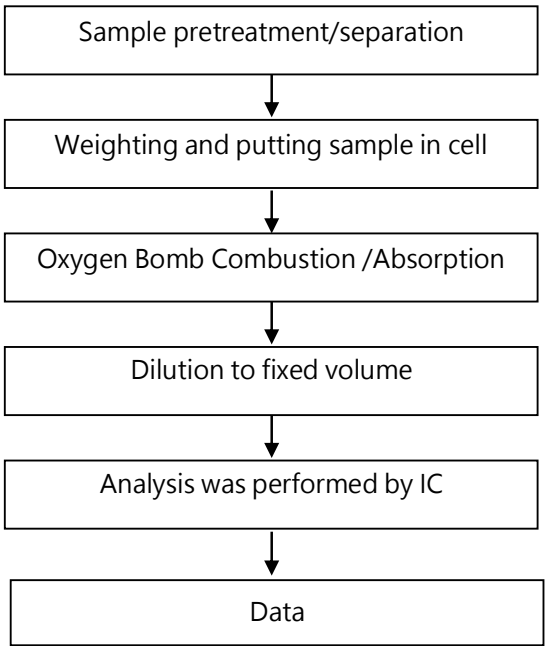
【Reference method：US EPA 5021A】



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HERAEUS MATERIALS MALAYSIA SDN BHD
NO. 6, JALAN I-PARK 1/1, KAWASAN PERINDUSTRIAN I-PARK, BANDAR INDAHPURA, 81000 KULAI, JOHOR, MALAYSIA

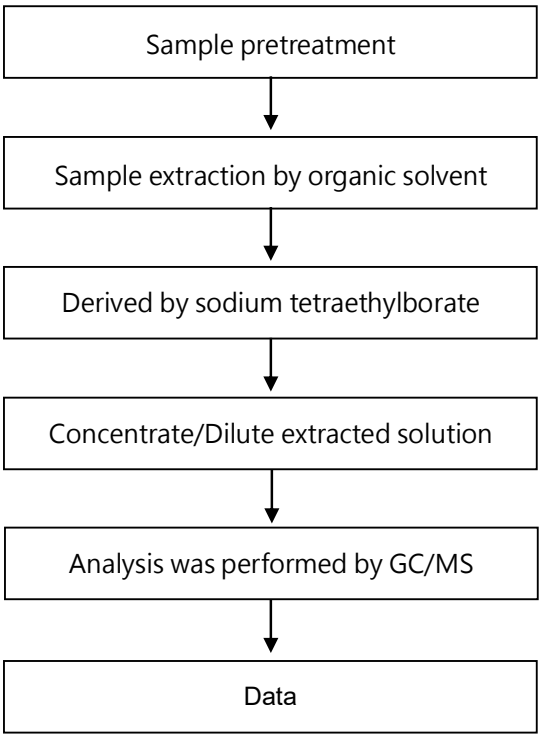
Analytical flow chart of Halogen



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Analytical flow chart - Organic-Tin



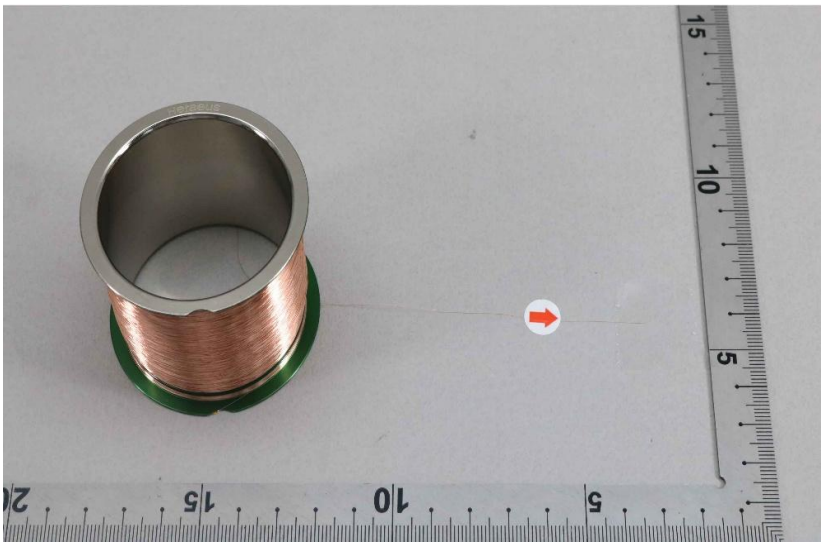
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*** The tested sample / part is marked by an arrow if it's shown on the photo. ***

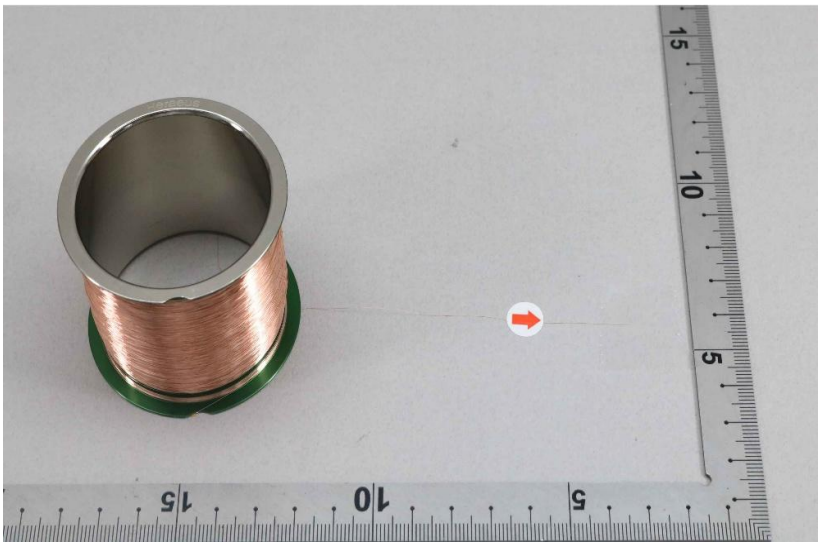
No.1

EKR26A01218



No.2

EKR26A01220



** End of Report **

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