

Test Report

No. 5176412-CH01-R2

Date: May 30, 2024

Page 1 of 23

Palm Commodities International LLC
1717 JP Hennessy Drive
LaVergne, TN 37086
United States

This report supersedes all previous documents bearing the test report number 5176412-CH01-R1.

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

Nickel Sulfamate Solution
Lot: NIM1-240409

Sample Received Date: **05/16/2024**

Testing Period: **05/17/2024 – 05/24/2024**

Revision Date : R1: 05/30/2024
R2: 06/10/2024

Revision Summary : R1: Date on report updated.
R2: PFAS Content added. Chlorine content revised following retest.

Test Requested : Please refer to the result summary.

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

Result Summary :

Test Requested	Conclusion
1. RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU	PASS
2. Organotin Content	PASS
3. Hexabromocyclododecane (HBCDD) Content	See Test Results
4. Phthalate Content (As requested by Client)	See Test Results
5. US California Proposition 65 – Bisphenol A (BPA) Content	See Test Results
6. Halogen Content	See Test Results
7. Element Analysis (As requested by Client)	See Test Results
8. Flame Retardant Content (As requested by Client)	See Test Results
9. PVC Identification	See Test Results
10. Persistent, Bioaccumulative, and Toxic (PBT) Chemicals under US EPA Toxic Substances Control Act (TSCA) Section 6(h)	PASS
11. PFAS target analysis [EU + Switzerland Restricted PFAS	PASS

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

Signed for and on behalf of SGS North America, Inc.

Prepared By:



Brian Murphy
Laboratory supervisor, Chemistry laboratory

Suzie Banik
Technical Report Writer, Chemistry Laboratory

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

Test Report

No. 5176412-CH01-R2

Date: May 30, 2024

Page 3 of 23

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

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

Sample Description:

1. Nickel Sulfamate Solution

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

Note:

- (a) mg/kg = ppm ; 0.1wt% = 1000ppm
- (b) ND= not detected
- (c) MDL = Method Detection Limit
- (d) - = not regulated
- (e) * = Total Chromium analysis by ICP-MS and/or ICP-OES was not detected in submitted sample. Therefore, Hexavalent Chromium determination using UV-Visible Spectroscopy was not performed.
- (f) IEC 62321 series is equivalent to EN 62321 series
http://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

2. Organotin Content

Test Method: With reference to ISO 17353. Analysis was conducted by GC-MS.

Organotin	Results (% by Weight of Tin)	Recommended Max. Limit (% by Weight of Tin)
	1	
Triphenyltin (TPhT) calculated as tin	ND	---
Tricyclohexyltin (TCyT) calculated as tin	ND	---
Total	ND	0.1
Conclusion	PASS	

Organotin	Results (% by Weight of Tin)	Recommended Max. Limit (% by Weight of Tin)
	1	
Dibutyltin (DBT) calculated as tin	ND	0.1
Diocetyl tin (DOT) calculated as tin	ND	0.1
n-butyltin trichloride (MBT)* calculated as tin	ND	---
Tetra-n-butyltin (TeBT)* calculated as tin	ND	---
n-Octyltin trichloride (MOT)* calculated as tin	ND	---
Diphenyltin (DPhT)* calculated as tin	ND	---
Monophenyltin (MPhT)* calculated as tin	ND	---
Conclusion	PASS	

Sample Description:

1. Nickel Sulfamate Solution

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

Remark: Recommended Max Limit with reference to Entry 20 of Regulation (EC) No 276-2010 amending Annex XVII of REACH Regulation (EC) No 1907/2006
*client's request test

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

3. Hexabromocyclododecane (HBCDD) Content

Test Method: In-House test method. Analysis performed by GC-MS.

Test Item	Result (mg/kg)	Detection Limit (mg/kg)
	1	
Hexabromocyclododecane (HBCDD)	ND	5

Sample Description:

1. Nickel Sulfamate Solution

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

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

4. Phthalate Content (As requested by Client)

Test Method : With reference to CPSC-CH-C1001-09.4 and/or SGS In-House Method. Analysis was performed by GC-MS.

Phthalates	CAS No.	Results (ppm)	Reporting Limit (ppm)	Permissible Limit (ppm)
		1		
Dibutyl Phthalate (DBP)	84-74-2	ND	150	1000
Benzylbutyl Phthalate (BBP)	85-68-7	ND	150	1000
Bis-(2-ethylhexyl) Phthalate (DEHP)	117-81-7	ND	150	1000
Diisononyl Phthalate (DINP)	28553-12-0 / 68515-49-1	ND	150	1000
Diisobutyl Phthalate (DIBP)	84-69-5	ND	150	1000
Di-n-hexyl Phthalate (DnHP)	84-75-3	ND	150	1000
Diisodecyl Phthalate (DIDP)	26761-40-0 / 68515-49-1	ND	150	1000
Di-n-octyl Phthalate (DNOP)	117-84-0	ND	150	1000
Conclusion		PASS	--	--

Sample Description:
1. Nickel Sulfamate Solution

- Note:
1. ppm = parts per million
 2. mg/kg = ppm
 3. 1% = 10000 ppm (mg/kg)
 4. ND = Not Detected

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

5. US California Proposition 65 – Bisphenol A (BPA) Content

Test Method: Solvent extraction followed by analysis with High Performance Liquid Chromatography – Mass Selective Detector (HPLC-MSD).

Test Item	CAS No.	Result (ppm)	Reporting Limit (ppm)
		1	
Bisphenol A (BPA)	80-05-07	ND	0.1
Conclusion		--	--

Sample Description:

1. Nickel Sulfamate Solution

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

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

6. Halogen Content

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

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

Sample Description:

1. Nickel Sulfamate Solution

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

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

7. Element Analysis (As requested by Client)

Method: Analysis performed by ICP-MS.

Test Item		Result (mg/kg)	Detection Limit (mg/kg)
		1	
Beryllium	(Be)	ND	2
Iron	(Fe)	ND	10
Arsenic	(As)	ND	2
Antimony	(Sb)	ND	2

Sample Description:

1. Nickel Sulfamate Solution

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

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

8. Flame Retardant Content (As requested by Client)

Test Method: In-house Method. Analysis was performed by GC-MS or LC-MS.

Flame Retardants	Results (ppm)	Reporting Limit (ppm)	Client Limit (ppm)
	1		
Tetrabromobisphenol A (TBBPA)	ND	5	25
Comment	PASS	--	--

Sample Description:

1. Nickel Sulfamate Solution

Note: 1. mg/kg = milligram per kilogram

2. mg/kg = ppm

3. 1% = 10000 mg/kg (ppm)

4. ND = Not Detected, reported when the reading is less than the reporting limit value.

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

9. PVC Identification
a) Beilstein Test:

Test Method: PVC: With reference to Health Canada – Product Safety Bureau Reference Manual Book5 – Laboratory Policies and Procedures, Method C-28 “Beilstein Test”.

Test Results:

Test Items	PVC Result
1. Nickel Sulfamate Solution	Negative (No Green Flame)

b) FTIR Test Results:

Test Method: Testing was performed using Fourier Transform Infrared Spectroscopy (FTIR) analytical instrumentation.

Sample	Identification
1. Nickel Sulfamate Solution	PVC Not Present

“This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only.”

10. Persistent, Bioaccumulative, and Toxic (PBT) Chemicals under US EPA Toxic Substances Control Act (TSCA) Section 6(h)

Test Method: With reference to US EPA Method 3550C:2007, analysis was performed by GC-MS.

Test Item	CAS-No.	Results (mg/kg)	Report Limit (mg/kg)	Limit (mg/kg)
		1		
Decabromodiphenyl ether (Deca-BDE)	1163-19-5	ND	5	Prohibited
Isopropylated triphenyl phosphate (PIP 3:1)	68937-41-7	ND	5	Prohibited
2,4,6-Tris(tert-butyl)phenol (2,4,6-TTBP)	732-26-3	ND	5	3000
Hexachlorobutadiene (HCBd)	87-68-3	ND	5	Prohibited
Pentachlorothiophenol (PCTP)	133-49-3	ND	5	10000
Conclusion	--	PASS	--	--

Sample Description:

1. Nickel Sulfamate Solution

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

Remark

The regulation is available at the following link.

<https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/persistent-bioaccumulative-and-toxic-pbt-chemicals-under>

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

11. Perfluorinated and Polyfluorinated Chemicals (PFAS) - All Materials

Test Method: With reference to EN ISO 23702-1:2023, EN 17681-1:2022 and EN 17681-2:2022.
Analysis was conducted by HPLC-MS/MS and GC-MS.

Test Item(s)	CAS-No.	Result (mg/kg)
		1
PFOS, its salts and related compounds	--	--
Perfluorooctanesulfonic acid (PFOS), its salts [#]	1763-23-1	ND
N-ethylperfluoro-1-octanesulfonamide (N-EtFOSA)	4151-50-2	ND
N-methylperfluoro-1-octanesulfonamide (N-MeFOSA)	31506-32-8	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol (N-EtFOSE)	1691-99-2	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	24448-09-7	ND
Perfluorooctane sulfonamide (PFOSA), its salts [#]	754-91-6	ND
Sum of PFOS, its salts and related compounds	-	ND

Test Item(s)	CAS-No.	Result (mg/kg)
		1
PFOA, its salts	--	--
Perfluorooctanoic acid (PFOA), its salts [#]	335-67-1	ND
PFOA-related compounds	--	--
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 FTS) @ its salts [#]	39108-34-4	ND
Methyl perfluorooctanoate (Me-PFOA)	376-27-2	ND
Ethyl perfluorooctanoate (Et-PFOA)	3108-24-5	ND
1H,1H,2H,2H-Perfluorodecyl acrylate (8:2 FTA) @	27905-45-9	ND
1H,1H,2H,2H-Perfluorodecyl methacrylate (8:2 FTMA) @	1996-88-9	ND
Perfluoro-1-iodooctane (PFOI)	507-63-1	ND
2H,2H Perfluorodecane Acid (H ₂ PFDA / 8:2 FTCA) @, its salts [#]	27854-31-5	ND
1H,1H,2H,2H-Perfluorodecan-1-ol (8:2 FTOH) @	678-39-7	ND
1-Iodo-1H,1H,2H,2H-perfluorodecane (8:2 FTI) @	2043-53-0	ND
1H,1H,2H,2H-Perfluorodecyltriethoxysilane (8:2 FTSi(OC ₂ H ₅) ₃) @	101947-16-4	ND

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

Test Report

No. 5176412-CH01-R2

Date: May 30, 2024

Page 15 of 23

bis(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluorodecyl) hydrogen phosphate (8:2 diPAP) @ its salts #	678-41-1	ND
2H,2H,3H,3H-Perfluoroundecanoic Acid (H ₄ PFUnDA / 8:3 FTCA) @ its salts #	34598-33-9	ND
1H,1H,2H-Heptadecafluoro-1-decene (PFDE) @	21652-58-4	ND
3-Perfluoroheptyl propanoic acid (7:3 FTCA)	812-70-4	ND
Sum of PFOA-related compounds	-	ND

Test Item(s)	CAS-No.	Result (mg/kg)
		1
C9-C14 PFCA, its salts	--	--
Perfluorononane Acid (PFNA), its salts#	375-95-1	ND
Perfluorodecane Acid (PFDA), its salts#	335-76-2	ND
Perfluoroundecanoic Acid (PFUnDA), its salts#	2058-94-8	ND
Perfluorododecanoic Acid (PFDoDA), its salts#	307-55-1	ND
Perfluorotridecanoic Acid (PFTrDA), its salts#	72629-94-8	ND
Perfluorotetradecanoic Acid (PFTDA)	376-06-7	ND
Perfluoro-3,7-dimethyloctanoic Acid (PF-3,7-DMOA)	172155-07-6	ND
Sum of C9-C14 PFCA, its salts	-	ND
C9-C14 PFCA-related substances	--	--
Perfluorodecane sulfonic Acid (PFDS), its salts#	335-77-3	ND
1H,1H,2H,2H-Perfluoro-1-dodecanol (10:2 FTOH)	865-86-1	ND
1H,1H,2H,2H-Perfluorododecylacrylate (10:2 FTA)	17741-60-5	ND
1H,1H,2H,2H-Perfluorododecyl methacrylate (10:2 FTMA)	2144-54-9	ND
1H,1H,2H,2H-perfluorotetradecan-1-ol (12:2 FTOH)	39239-77-5	ND
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0	ND
1H,1H,2H,2H-Perfluorododecyl iodide (10:2 FTI)	2043-54-1	ND
1H,1H,2H,2H-Perfluorotetradecyl iodide (12:2 FTI)	30046-31-2	ND
Perfluorononane sulfonic acid (PFNS), its salts#	68259-12-1	ND
Perfluoroundecane sulfonic acid (PFUnDS)	749786-16-1 / 441296-91-9 (anion)	ND

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

Perfluorododecane sulfonic acid (PFDoDS), its salts [#]	79780-39-5	ND
Perfluorotridecane sulfonic acid (PFTrDS), its salts [#]	791563-89-8	ND
10:2 Fluortelomerphosphatediester (10:2 diPAP)	1895-26-7	ND
Perfluorodecyl iodide (PFDI)	423-62-1	ND
Perfluorododecyl iodide (PFDoDI)	307-60-8	ND
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 FTS) [@]	39108-34-4	ND
1H,1H,2H,2H-Perfluorodecyl acrylate (8:2 FTA) [@]	27905-45-9	ND
1H,1H,2H,2H-Perfluorodecyl methacrylate (8:2 FTMA) [@]	1996-88-9	ND
2H,2H Perfluorodecane Acid (H ₂ PFDA / 8:2 FTCA) [@] , its salts [#]	27854-31-5	ND
1H,1H,2H,2H-Perfluorodecan-1-ol (8:2 FTOH) [@]	678-39-7	ND
1-Iodo-1H,1H,2H,2H-perfluorodecane (8:2 FTI) [@]	2043-53-0	ND
1H,1H,2H,2H-Perfluorodecyltriethoxysilane (8:2 FTSi(OC ₂ H ₅) ₃) [@]	101947-16-4	ND
bis(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptafluorodecyl) hydrogen phosphate (8:2 diPAP) [#] [@]	678-41-1	ND
2H,2H,3H,3H-Perfluoroundecanoic Acid (H ₄ PFUnDA / 8:3 FTCA) [#] [@]	34598-33-9	ND
1H,1H,2H-Heptafluoro-1-decene (PFDE) [@]	21652-58-4	ND
Sum of C9-C14-related substances	-	ND
Conclusion	--	PASS

Sample Description:

- Nickel Sulfamate Solution

Note:

n.d. = not detected

[@] PFAS classified as both PFOA-related compounds and C9-C14 PFCA-related substances

[#] Substances refer to its salts/derivative listed in Appendix 1

[~] Substances refer to its possible sources listed in Appendix 2

^{^^}Compound is hydrolysed and releases related PFAS substances when extracted by methanol/sodium hydroxide solution

* = Exceeds the limit

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

Reporting limit:

PFOS, its salts and related compounds = 1 mg/kg

PFOA, its salts = 10 ppb = 0.01 mg/kg

PFOA-related compounds = 100 ppb (each) = 0.10 mg/kg (each), except 8:2

FTOH=200 ppb=0.20 mg/kg

C9-C14 PFCA, their salts = 10 ppb (each) = 0.01 mg/kg (each)

C9-C14 PFCA-related substances = 100 ppb (each) = 0.10 mg/kg (each), except

8:2 FTOH=200 ppb=0.20 mg/kg, 10:2 FTOH=200 ppb=0.20 mg/kg, 12:2 FTOH=200
ppb=0.20 mg/kg

Requirement:

PFOS, its salts and related compounds

Textile or other materials 1 mg/kg

Recommended requirement with reference to commission regulation (EU)

2019/1021 ; and Switzerland ORRChem Annex 1.16 of Art. 3 in SR 814.81

PFOA, its salts 25 ppb (0.025 mg/kg)

PFOA-related compounds 1 mg/kg (each or total)

Recommended requirement with reference to Regulation (EU) 2020/784 amending
Annex I to Regulation (EU) 2019/1021; and Switzerland ORRChem Annex 1.16 of
Art. 3 in SR 814.81

C9-C14 PFCA, their salts 25 ppb (0.025 mg/kg) (total)

C9-C14 PFCA-related substances 260 ppb (0.26 mg/kg) (total)

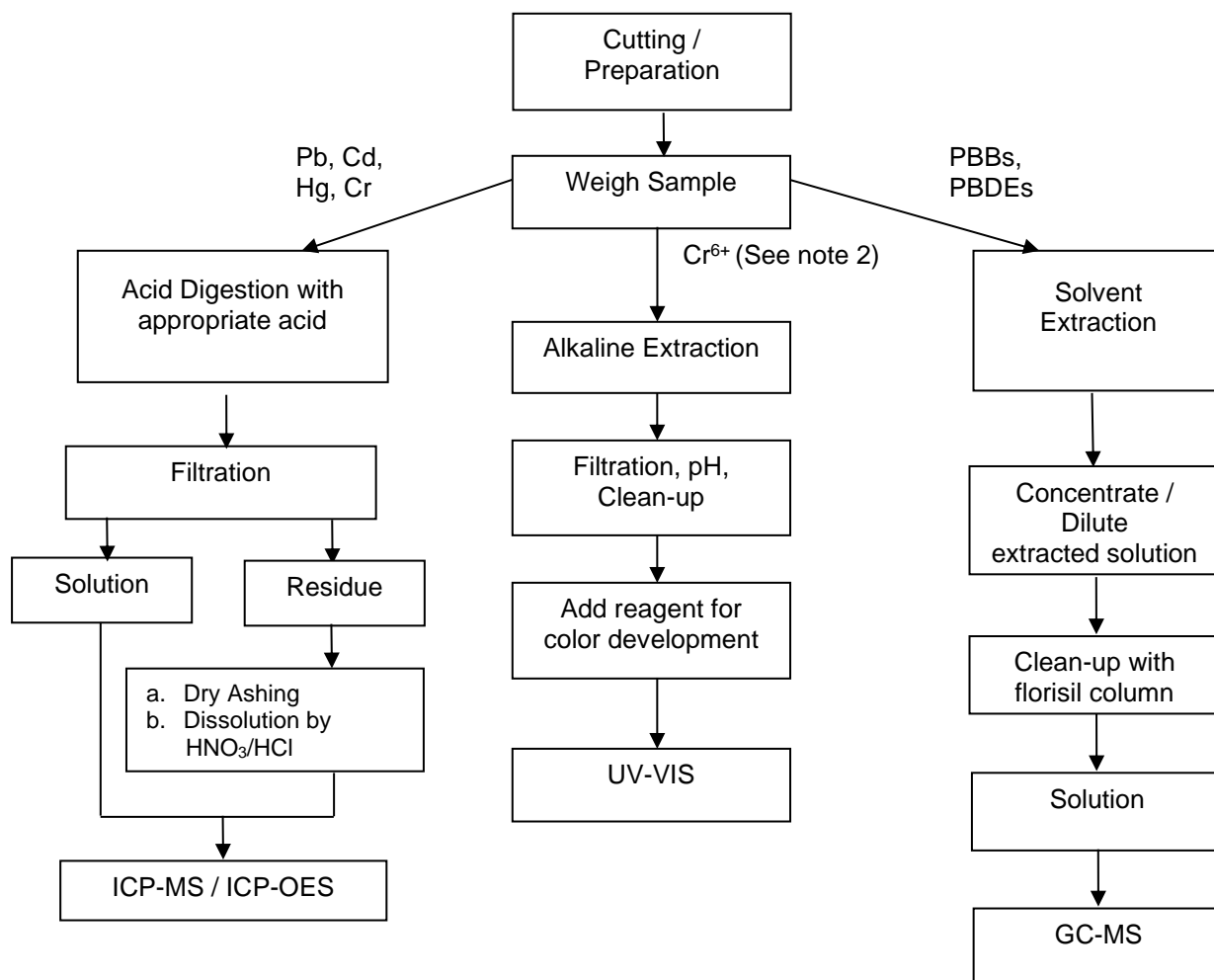
Recommended requirement with reference to commission regulation (EU)

2021/1297 amending Annex XVII to Regulation (EC) 1907/2006. (Effective date:

25th February 2023); and Switzerland ORRChem Annex 1.16 of Art. 3 in SR 814.81

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

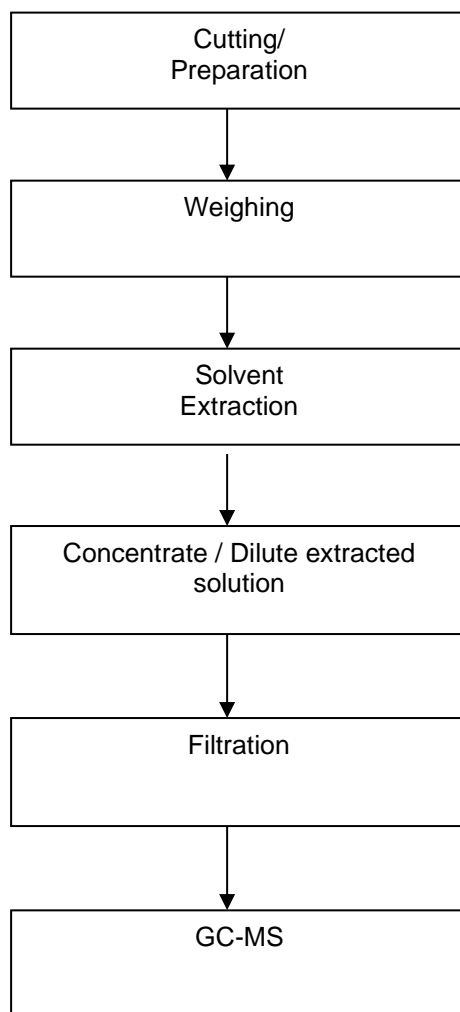
Flowchart for RoHS:



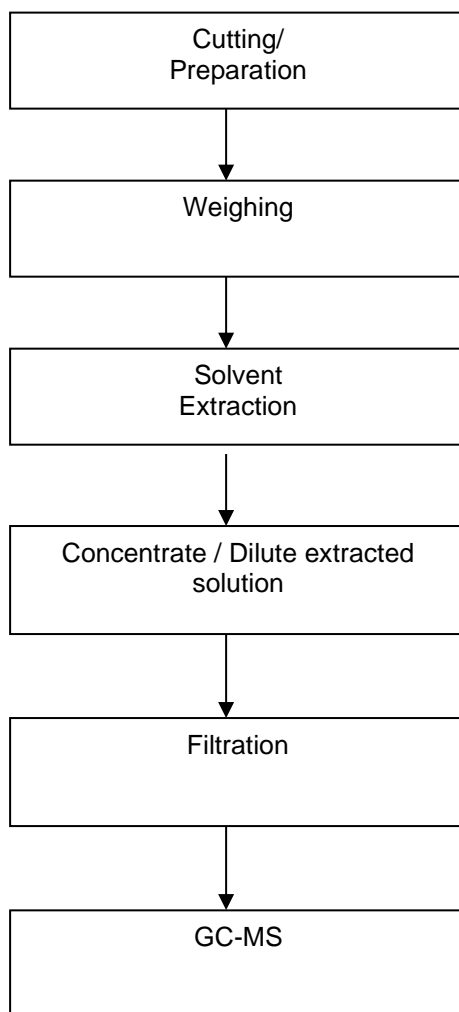
- Note : 1. The Cr, Cd, Pb and Hg contents test on polymeric samples were dissolved totally by pre-conditioning method according to above flow chart.
2. Cr⁶⁺ is performed only when total Cr is detected

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

Flowchart for Phthalates

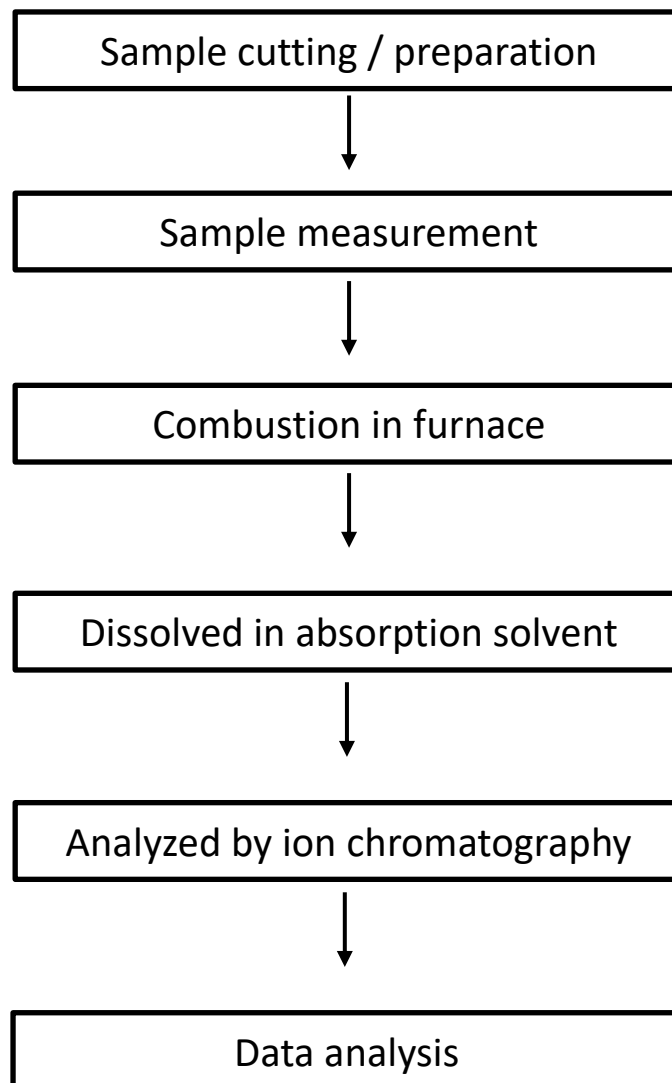


"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

Flowchart for Phthalates/HBCDD


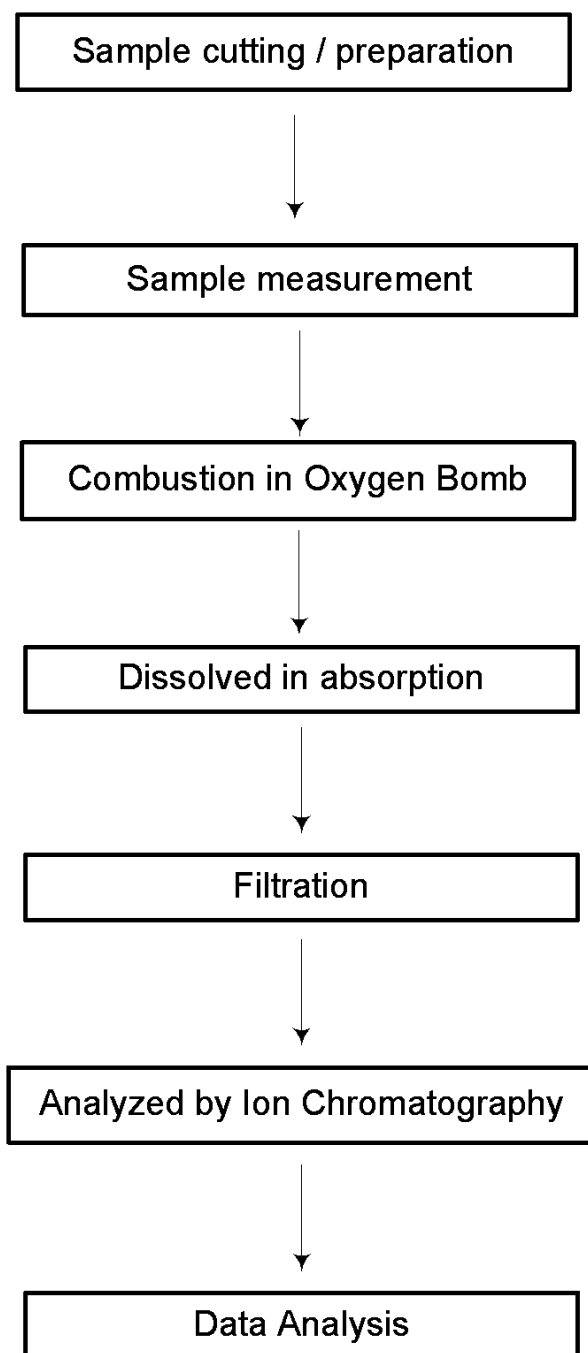
"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

Flow Chart of Halogen Test by Combustion Ion Chromatography:



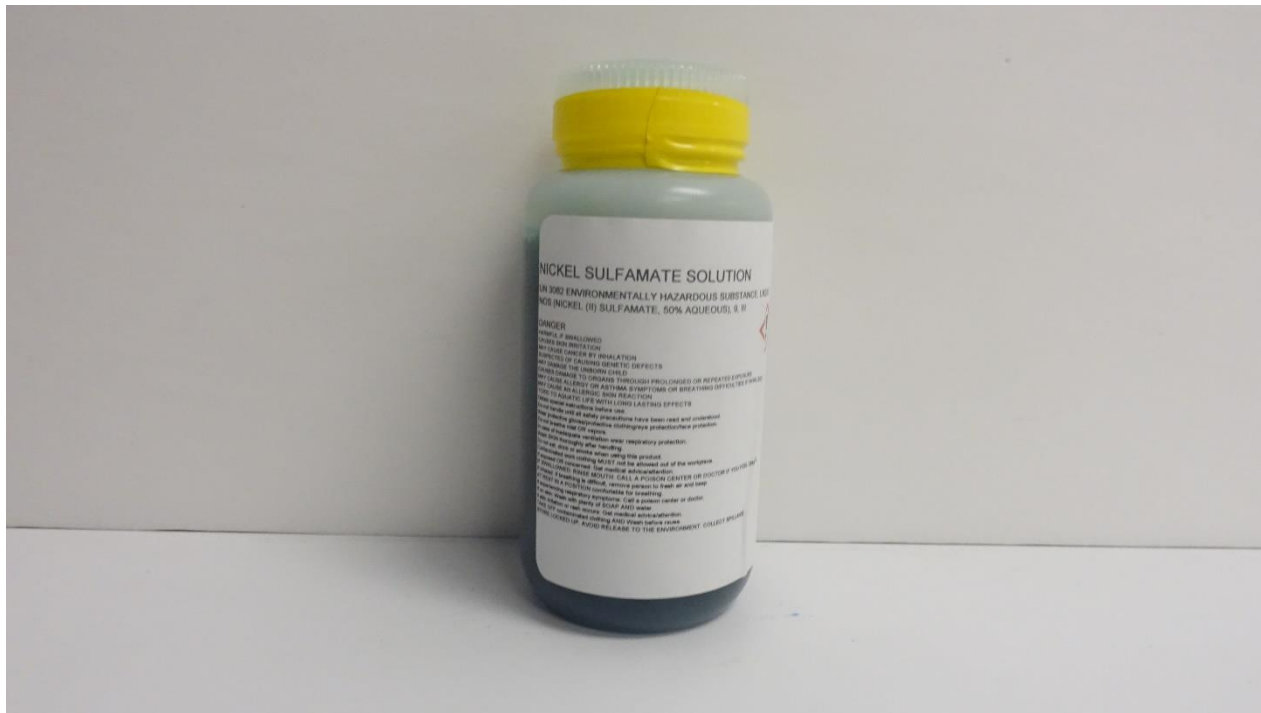
"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

Halogen Testing Flow Chart (EN 14582):



"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

Sample Photo(s):



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

*** End of Report ***

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."