

Test Report

No.: CANEC23009279811

Date: Sep 14, 2023

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Client Name: STARZEON ELECTRONICS (DONGGUAN) CO.,LTD.

Client Address: XIN XING INDUSTRIAL AREA,XING FA SOUTH ROAD,WU SHA VILLAGE, CHANG AN TOWN,DONGGUAN,GUANDDONG PROVINCE,PR CHINA

Sample Name: Solid Capacitor

Model No.: X-CON

The above sample(s) and information were provided by the client.

SGS Job No.: SZP23-017464

Sample Receiving Date: Sep 04, 2023

Testing Period: Sep 04, 2023 ~ Sep 13, 2023

Test Requested: Select test(s) as requested by the client.

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

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

Test Requirement	Conclusion
EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU- Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)	Pass
EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU- Lead, Mercury, Cadmium and Hexavalent chromium	Pass
European Regulation POPs (EU) 2020/784 amending to Regulation (EU) 2019/1021 - Perfluorooctanoic acid (PFOA) and its salts, Perfluorooctane sulfonates (PFOS) and its derivatives	Pass
Halogen	See Results
Element(s)	See Results
Red Phosphorus	See Results
Flame Retardants	See Results

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

Kelly Qu

Kelly Qu
Approved Signatory

scan to see the report



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Guangzhou Branch, Chemical Laboratory

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Test Result(s):

Test Part Description:

SN ID	Sample No.	SGS Sample ID	Description
SN1	A1	CAN23-0092798-0001.C001	Black rubber
SN2	A2	CAN23-0092798-0001.C002	Black material
SN3	A3	CAN23-0092798-0001.C003	Gray metal foil
SN4	A4	CAN23-0092798-0001.C004	Silver-white metal with pink printing
SN5	A5	CAN23-0092798-0001.C005	Silvery metal pin

Remarks:

- (1) 1 mg/kg = 1 ppm = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) “-” = Not Regulated

EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU- Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)

Test Method: With reference to IEC 62321-4:2013+AMD1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017, IEC 62321-6:2015 and IEC 62321-8:2017, analysis was performed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit(s)	MDL	A1	A2
Cadmium (Cd)	100	mg/kg	2	ND	ND
Lead (Pb)	1000	mg/kg	2	ND	ND
Mercury (Hg)	1000	mg/kg	2	ND	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	8	ND	ND
Polybromobiphenyl (PBBs)	1000	mg/kg	-	ND	ND
Monobromobiphenyl (MonoBB)	-	mg/kg	5	ND	ND
Dibromobiphenyl (DiBB)	-	mg/kg	5	ND	ND
Tribromobiphenyl (TriBB)	-	mg/kg	5	ND	ND
Tetrabromobiphenyl (TetraBB)	-	mg/kg	5	ND	ND
Pentabromobiphenyl (PentaBB)	-	mg/kg	5	ND	ND
Hexabromobiphenyl (HexaBB)	-	mg/kg	5	ND	ND
Heptabromobiphenyl (HeptaBB)	-	mg/kg	5	ND	ND
Octabromobiphenyl (OctaBB)	-	mg/kg	5	ND	ND
Nonabromobiphenyl (NonaBB)	-	mg/kg	5	ND	ND
Decabromobiphenyl (DecaBB)	-	mg/kg	5	ND	ND
Polybromodiphenyl ether (PBDEs)	1000	mg/kg	-	ND	ND
Monobromodiphenylether (MonoBDE)	-	mg/kg	5	ND	ND
Dibromodiphenylether (DiBDE)	-	mg/kg	5	ND	ND
Tribromodiphenylether (TriBDE)	-	mg/kg	5	ND	ND
Tetrabromodiphenylether (TetraBDE)	-	mg/kg	5	ND	ND
Pentabromodiphenylether (PentaBDE)	-	mg/kg	5	ND	ND
Hexabromodiphenylether (HexaBDE)	-	mg/kg	5	ND	ND
Heptabromodiphenylether (HeptaBDE)	-	mg/kg	5	ND	ND
Octabromodiphenylether (OctaBDE)	-	mg/kg	5	ND	ND



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Test Item(s)	Limit	Unit(s)	MDL	A1	A2
Nonabromodiphenylether (NonaBDE)	-	mg/kg	5	ND	ND
Decabromodiphenylether (DecaBDE)	-	mg/kg	5	ND	ND
Dibutyl Phthalate(DBP)	1000	mg/kg	50	ND	ND
Benzyl Butyl Phthalate(BBP)	1000	mg/kg	50	ND	ND
Bis-(2-ethylhexyl) Phthalate(DEHP)	1000	mg/kg	50	ND	ND
Diisobutyl Phthalate(DIBP)	1000	mg/kg	50	ND	ND

Notes:

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
- (2) IEC 62321 series is equivalent to EN 62321 series.
- (3) The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.

EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU- Lead, Mercury, Cadmium and Hexavalent chromium

Test Method: With reference to IEC 62321-4:2013+AMD1:2017, IEC 62321-5:2013 and IEC 62321-7-1:2015, analysis was performed by ICP-OES and UV-Vis .

Test Item(s)	Limit	Unit(s)	MDL	A3	A4	A5
Cadmium(Cd)	100	mg/kg	2	ND	ND	ND
Lead(Pb)	1000	mg/kg	2	2	11	ND
Mercury(Hg)	1000	mg/kg	2	ND	ND	ND
Hexavalent Chromium (Cr(VI)) ▼	-	µg/cm ²	0.10	ND	ND	ND

Notes:

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
- (2) IEC 62321 series is equivalent to EN 62321 series.
- (3) ▼ =
 - 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 ND (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.

Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

European Regulation POPs (EU) 2020/784 amending to Regulation (EU) 2019/1021 - Perfluorooctanoic acid (PFOA) and its salts, Perfluorooctane sulfonates (PFOS) and its derivatives

Test Method: With reference to CEN/TS15968:2010, analysis was performed by LC-MS or LC-MS/MS and GC-MS.



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Test Item(s)	CAS No.	Limit	Unit(s)	MDL	A1	A2
Perfluorooctanoic acid (PFOA) and its salts*	-	0.025	mg/kg	0.010	ND	ND
Perfluorooctane sulfonates (PFOS) and its derivatives	-	1000	mg/kg	-	ND	ND
Perfluorooctane sulfonates (PFOS) and its salts*	-	-	mg/kg	0.010	ND	ND
N-ethylperfluoro-1-octanesulfonamide (N-EtFOSA)	4151-50-2	-	mg/kg	0.010	ND	ND
N-methylperfluoro-1-octanesulfonamide (N-MeFOSA)	31506-32-8	-	mg/kg	0.010	ND	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol (N-EtFOSE)	1691-99-2	-	mg/kg	0.010	ND	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	24448-09-7	-	mg/kg	0.010	ND	ND
Perfluorooctane sulfonamide (PFOSA)	754-91-6	-	mg/kg	0.010	ND	ND
Conclusion					Pass	Pass

Notes:

- (1) Perfluorooctanoic acid (PFOA) and its salts* including PFOA (CAS No. 335-67-1), APFO (CAS No. 3825-26-1), PFOA-Na (CAS No. 335-95-5), PFOA-K (CAS No. 2395-00-8), PFOA-Ag (CAS No. 335-93-3) and PFOA-F (CAS No. 335-66-0). The result of PFOA is used to represent PFOA and its salts.
- (2) Perfluorooctane sulfonates (PFOS) and its salts* including PFOS (CAS No. 1763-23-1), POSF (CAS No. 307-35-7), PFOS-K (CAS No. 2795-39-3), PFOS-NH₄ (CAS No. 29081-56-9), PFOS-N(C₁₀H₂₁)₂(CH₃)₂ (CAS No. 251099-16-8), PFOS-NH₂(C₂H₄OH)₂ (CAS No. 70225-14-8), PFOS-Li (CAS No. 29457-72-5), PFOS-N(C₂H₅)₄ (CAS No. 56773-42-3) and PFOS-Na (CAS No. 4021-47-0). The result of PFOS is used to represent PFOS and its salts.

Halogen

Test Method: With reference to EN 14582:2016, analysis was performed by IC.

Test Item(s)	Unit(s)	MDL	A1	A2
Fluorine(F)	mg/kg	20	ND	ND
Chlorine(Cl)	mg/kg	50	ND	ND
Bromine(Br)	mg/kg	50	ND	ND
Iodine(I)	mg/kg	50	ND	ND

Element(s)

Test Method: With reference to US EPA 3050B:1996, analysis was performed by ICP-OES/AAS.



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Test Item(s)	Unit(s)	MDL	A3	A4	A5
Beryllium(Be)	mg/kg	5	ND	ND	ND

Test Method: With reference to US EPA 3052:1996, analysis was performed by ICP-OES/AAS.

Test Item(s)	Unit(s)	MDL	A1	A2
Antimony(Sb)	mg/kg	10	ND	ND

Red Phosphorus

Test Method: SGS In-house method (SGS-CCL-TOP-215-01), analysis was performed by PY-GC/MS/ICP-OES / GC-MS.

Test Item(s)	CAS No.	Unit(s)	MDL	A1	A2
Red Phosphorus	7723-14-0	mg/kg	500	ND	ND

Flame Retardants

Test Method: With reference to US EPA 3550C:2007 and US EPA 8270D:2014, analysis was performed by GC-MS.

Test Item(s)	CAS No.	Unit(s)	MDL	A1	A2
Hexabromocyclododecane (HBCDD)	134237-50-6 /134237-51-7 /134237-52-8 /25637-99-4 /3194-55-6	mg/kg	5	ND	ND

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.



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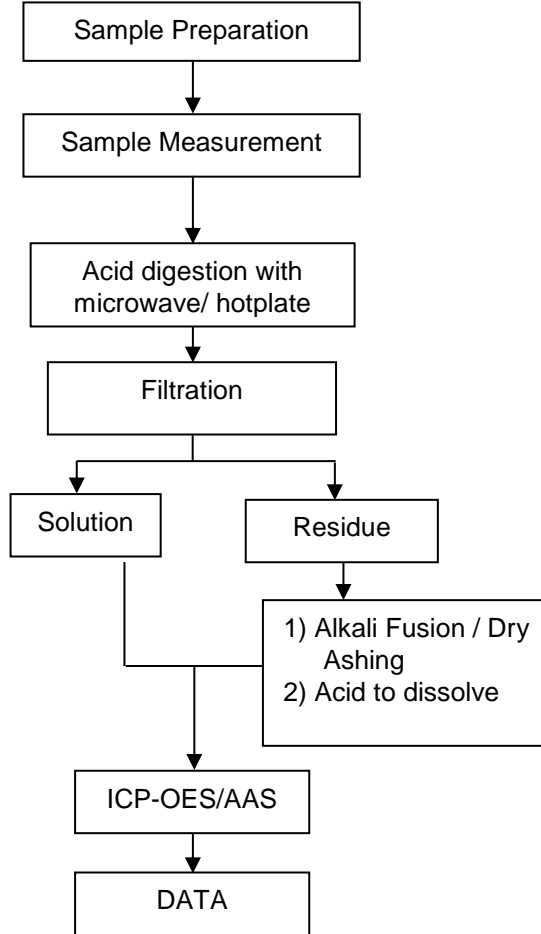
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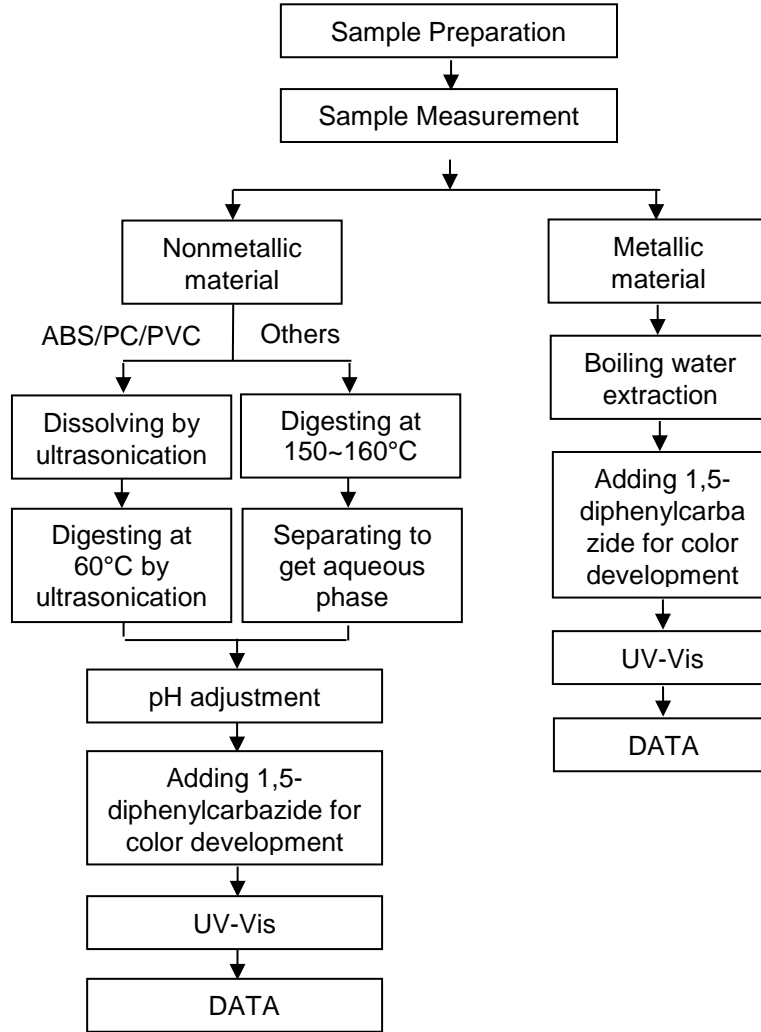
Elements Testing Flow Chart

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



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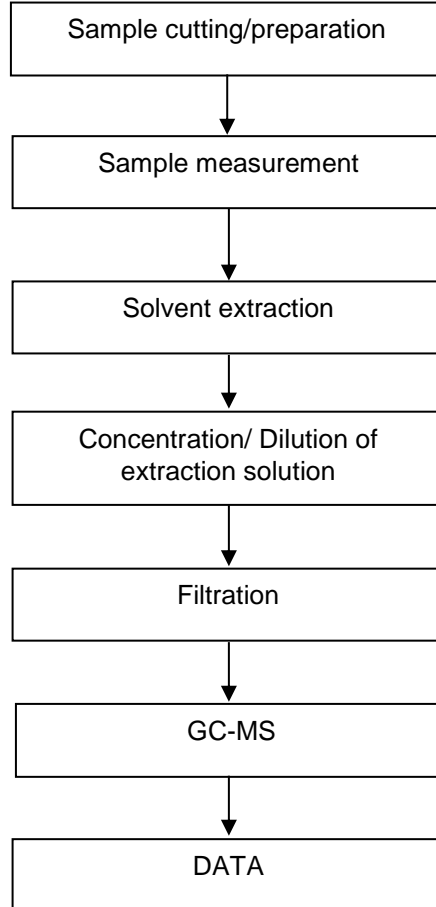
Hexavalent Chromium (Cr(VI)) Testing Flow Chart



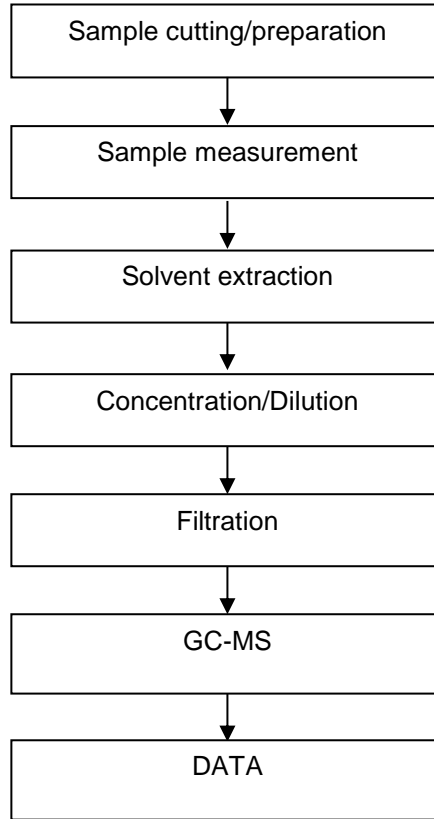
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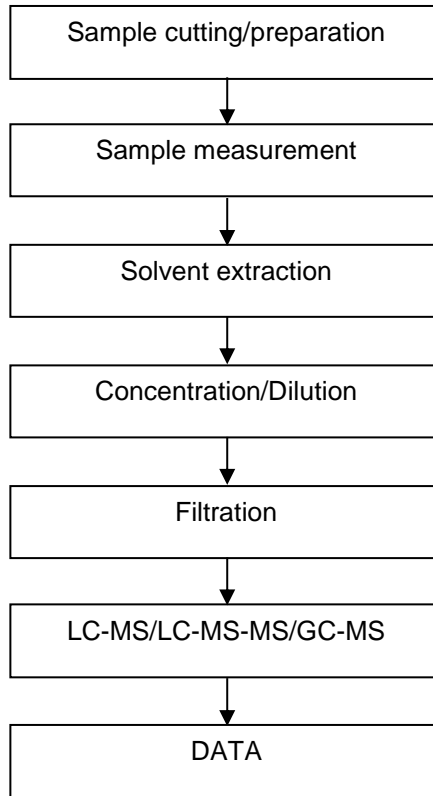
PBBs/PBDEs Testing Flow Chart



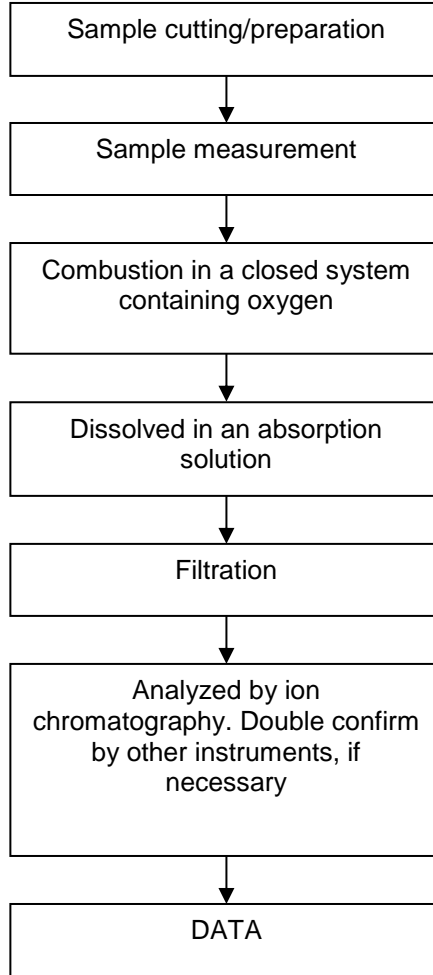
Phthalates Testing Flow Chart



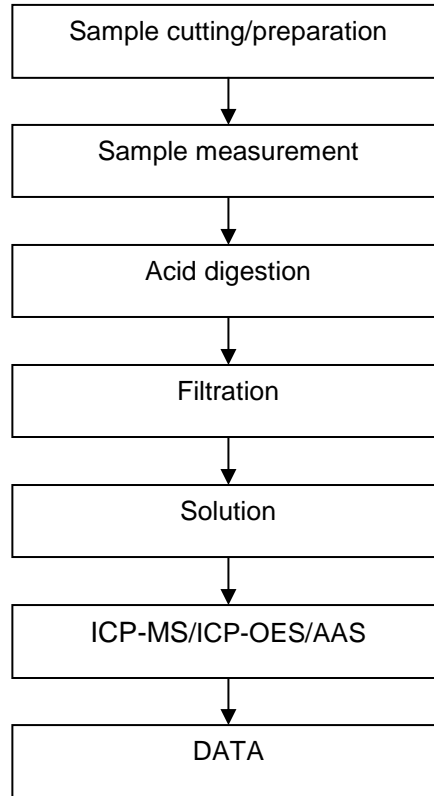
PFASs/ PFOS/PFOA Testing Flow Chart



Halogen Testing Flow Chart

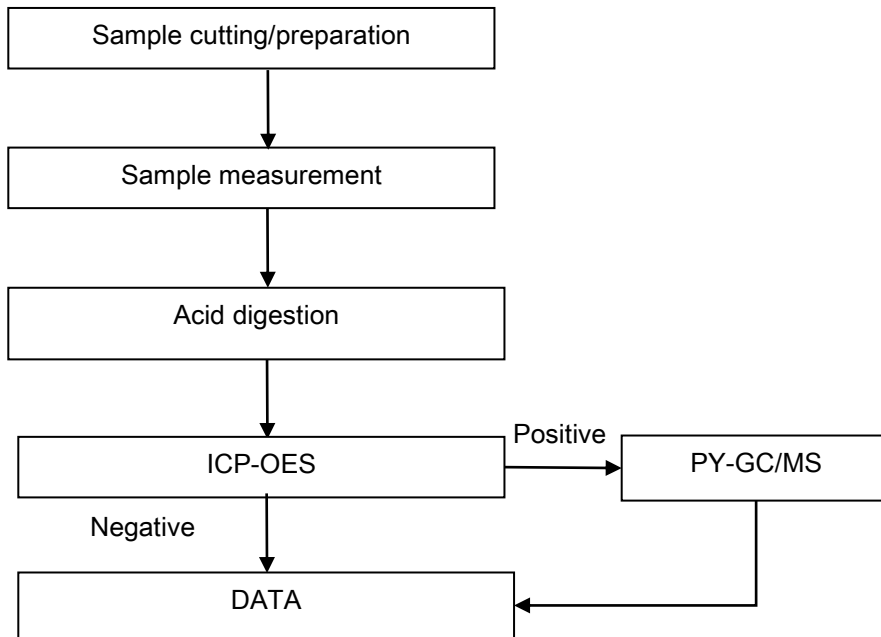


Elements Testing Flow Chart



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Red phosphorus Testing Flow Chart



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