

Test Report

No.: SHAEC23012421402

Date: Sep 22, 2023

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Client Name: Shanghai JA Solar Technology Co., Ltd

Client Address: No 118,Lane 3111,West Huangcheng Road,Fengxian District, 201401 Shanghai,P.R.China.

Sample Name: Mono crystalline silicon photovoltaic (PV) module

Model No.: JAM72D40-585/LB

Client Ref. Information: See the attachment

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

SGS Job No.: TIC10202307200937005MWV

Sample Receiving Date: Aug 14, 2023

Testing Period: Aug 14, 2023 ~ Sep 20, 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
Total Fluorine Screening for Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) Content	See result
European Regulation POPs (EU) 2020/784 amending to Regulation (EU) 2019/1021 - PFOA and its salts, PFOA-Related Substances, PFOS and its derivatives	Pass
Entry 68 of Regulation (EU) 2021/1297 amending Annex XVII of REACH Regulation (EC) No 1907/2006- C9-C14 PFCA, their salts and C9-C14 PFCA-related substances	Pass
Targeted 221 Perfluoroalkyl and polyfluoroalkyl substances (PFAS) Content	Pass

Signed for and on behalf of
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

Dora Hu

Dora Hu

Approved Signatory

scan to see the report



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Test Result(s):

Photo of Submitted Sample



SHA23-0124214

SGS authenticate the photo on original report only

Test Part Description:

SN ID	Sample No.	SGS Sample ID	Description
SN1	A1	SHA23-0124214-0001.C001	Black plastic
SN2	A2	SHA23-0124214-0001.C002	Black plastic
SN3	A3	SHA23-0124214-0001.C003	Black rubber
SN4	A4	SHA23-0124214-0001.C004	Black plastic
SN5	A5	SHA23-0124214-0001.C005	White plastic
SN6	A6	SHA23-0124214-0001.C006	Black plastic
SN7	A7	SHA23-0124214-0001.C007	Black plastic
SN8	A8	SHA23-0124214-0001.C008	Black plastic
SN9	A9	SHA23-0124214-0001.C009	White adhesive
SN10	A10	SHA23-0124214-0001.C010	Black plastic
SN11	A11	SHA23-0124214-0001.C011	Black plastic
SN12	A12	SHA23-0124214-0001.C012	Beige adhesive
SN13	A13	SHA23-0124214-0001.C013	White adhesive
SN14	A14	SHA23-0124214-0001.C014	Black IC
SN15	A15	SHA23-0124214-0001.C015	Black plastic
SN16	A16	SHA23-0124214-0001.C016	Red rubber
SN17	A17	SHA23-0124214-0001.C017	Black IC
SN18	A18	SHA23-0124214-0001.C018	Silvery adhesive plastic
SN19	A19	SHA23-0124214-0001.C019	Colorful adhesive plastic
SN20	A20	SHA23-0124214-0001.C020	Blue sensitive plate



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SN ID	Sample No.	SGS Sample ID	Description
SN21	A21	SHA23-0124214-0001.C021	White adhesive

Remarks:

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

Total Fluorine Screening for Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) Content

Test Method: With reference to IEC 62321-3-2:2020.

Test Item(s)	Limit	Unit(s)	MDL	A1	A2	A3
PFAS (expressed as Fluorine)	50	mg/kg	20	466 [#]	465 [#]	ND
Conclusion				See result	See result	Pass

Test Item(s)	Limit	Unit(s)	MDL	A4	A5	A6
PFAS (expressed as Fluorine)	50	mg/kg	20	393 [#]	ND	ND
Conclusion				See result	Pass	Pass

Test Item(s)	Limit	Unit(s)	MDL	A7	A8	A9
PFAS (expressed as Fluorine)	50	mg/kg	20	ND	ND	ND
Conclusion				Pass	Pass	Pass

Test Item(s)	Limit	Unit(s)	MDL	A10	A11	A12
PFAS (expressed as Fluorine)	50	mg/kg	20	ND	ND	ND
Conclusion				Pass	Pass	Pass

Test Item(s)	Limit	Unit(s)	MDL	A13	A14	A15
PFAS (expressed as Fluorine)	50	mg/kg	20	ND	ND	ND
Conclusion				Pass	Pass	Pass

Test Item(s)	Limit	Unit(s)	MDL	A16	A17	A18
PFAS (expressed as Fluorine)	50	mg/kg	20	ND	ND	ND
Conclusion				Pass	Pass	Pass

Test Item(s)	Limit	Unit(s)	MDL	A19	A20	A21
PFAS (expressed as Fluorine)	50	mg/kg	20	ND	ND	ND
Conclusion				Pass	Pass	Pass

Notes:

- (1) The maximum permissible limit is quoted from the client requirement.
- (2) In case positive results(s) is/are obtained, it cannot be ruled out that fluorine content comes from organic and/or inorganic sources. Retesting on individual PFAS has been carried out as requested to determine the compliance to the requirement.



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European Regulation POPs (EU) 2020/784 amending to Regulation (EU) 2019/1021 - PFOA and its salts, PFOA-Related Substances, PFOS and its derivatives

Test Method: With reference to CEN/TS 15968:2010, analysis was performed by LC-MS or LC-MS/MS and GC-MS.

Test Item(s)	CAS No.	Limit	Unit(s)	MDL	A1	A2	A4
PFOS, its salts and related compounds							
Perfluorooctane sulfonates (PFOS) ^{Note (1)}	1763-23-1	-	mg/kg	0.010	ND	ND	ND
N-ethylperfluoro-1-octanesulfonamide (N-EtFOSA)	4151-50-2	-	mg/kg	0.010	ND	ND	ND
N-methylperfluoro-1-octanesulfonamide (N-MeFOSA)	31506-32-8	-	mg/kg	0.010	ND	ND	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol (N-EtFOSE)	1691-99-2	-	mg/kg	0.010	ND	ND	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	24448-09-7	-	mg/kg	0.010	ND	ND	ND
Perfluorooctane Sulfonamide (PFOSA) ^{Note (25)}	754-91-6	-	mg/kg	0.010	ND	ND	ND
Sum of Perfluorooctane sulfonates (PFOS) and its derivatives	-	1000	mg/kg	-	ND	ND	ND
PFOA, its salts							
Perfluorooctanoic acid (PFOA) ^{Note (2)}	335-67-1	0.025	mg/kg	0.010	ND	ND	ND
PFOA-related compounds							
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 FTS) ^{Note (3)}	39108-34-4	-	mg/kg	0.010	ND	ND	ND



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Test Item(s)	CAS No.	Limit	Unit(s)	MDL	A1	A2	A4
Methyl perfluorooctanoate (Me-PFOA)	376-27-2	-	mg/kg	0.1	ND	ND	ND
Ethyl perfluorooctanoate (Et-PFOA)	3108-24-5	-	mg/kg	0.1	ND	ND	ND
1H,1H,2H,2H-Perfluoro-1-decanol (8:2 FTOH) ^{Note (3)}	678-39-7	-	mg/kg	0.1	ND	ND	ND
1H,1H,2H,2H-Perfluorodecyl acrylate (8:2 FTA) ^{Note (3)}	27905-45-9	-	mg/kg	0.1	ND	ND	ND
1H,1H,2H,2H-Perfluorodecyl methacrylate (8:2 FTMA) ^{Note (3)}	1996-88-9	-	mg/kg	0.1	ND	ND	ND
Perfluoro-1-iodooctane (PFOI)	507-63-1	-	mg/kg	0.1	ND	ND	ND
2H,2H-Perfluorodecane Acid (H2PFDA/8:2 FTCA) ^{Note (3), Note (11)}	27854-31-5	-	mg/kg	0.010	ND	ND	ND
Sum of PFOA-related compounds	-	1.0	mg/kg	-	ND	ND	ND
Conclusion					Pass	Pass	Pass

Entry 68 of Regulation (EU) 2021/1297 amending Annex XVII of REACH Regulation (EC) No 1907/2006- C9-C14 PFCA, their salts and C9-C14 PFCA-related substances

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

Test Item(s)	CAS No.	Limit	Unit(s)	MDL	A1	A2	A4
C9-C14 PFCA, their salts							
Perfluorononane Acid (PFNA) ^{Note (4)}	375-95-1	-	mg/kg	0.010	ND	ND	ND
Perfluorodecane Acid (PFDA) ^{Note (4)}	335-76-2	-	mg/kg	0.010	ND	ND	ND
Perfluoroundecanoic Acid (PFUnDA) ^{Note (22)}	2058-94-8	-	mg/kg	0.010	ND	ND	ND



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Test Item(s)	CAS No.	Limit	Unit(s)	MDL	A1	A2	A4
Perfluorododecanoic Acid (PFDoDA) ^{Note (4)}	307-55-1	-	mg/kg	0.010	ND	ND	ND
Perfluorotridecanoic Acid (PFTrDA) ^{Note (24)}	72629-94-8	-	mg/kg	0.010	ND	ND	ND
Perfluorotetradecanoic Acid (PFTDA)	376-06-7	-	mg/kg	0.010	ND	ND	ND
Perfluoro-3,7-dimethyloctanoic Acid (PF-3,7-DMOA)	172155-07-6	-	mg/kg	0.010	ND	ND	ND
Sum of C9-C14 PFCAs and its salts	-	0.025	mg/kg	-	ND	ND	ND
C9-C14 PFCA-related substances							
Perfluorodecane Sulfonate (PFDS) ^{Note (10)}	335-77-3	-	mg/kg	0.010	ND	ND	ND
1H,1H,2H,2H-Perfluoro-1-dodecanol (10:2 FTOH)	865-86-1	-	mg/kg	0.1	ND	ND	ND
1H,1H,2H,2H-Perfluorododecyl acrylate (10:2 FTA)	17741-60-5	-	mg/kg	0.1	ND	ND	ND
1-Iodo-1H,1H,2H,2H-perfluorodecane (8:2 FTI)	2043-53-0	-	mg/kg	0.1	ND	ND	ND
1H,1H,2H,2H-Perfluorodecyltriethoxysilane (8:2 FTSi(OC ₂ H ₅) ₃)	101947-16-4	-	mg/kg	0.1	ND	ND	ND
2H,2H,3H,3H-Perfluoroundecanoic acid (H ₄ PFUnDA/ 8:3 FTCA) ^{Note (12)}	34598-33-9	-	mg/kg	0.010	ND	ND	ND
1H,1H,2H,2H-Perfluorododecyl methacrylate (10:2 FTMA)	2144-54-9	-	mg/kg	0.1	ND	ND	ND
1H,1H,2H,2H-perfluorotetradecan-1-ol (12:2 FTOH)	39239-77-5	-	mg/kg	0.1	ND	ND	ND
1H,1H,2H,2H-Perfluorododecan	120226-60-0	-	mg/kg	0.010	ND	ND	ND



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Test Item(s)	CAS No.	Limit	Unit(s)	MDL	A1	A2	A4
e sulfonic acid (10:2 FTS)							
1,1,2,2-Tetrahydroperfluorododecyl iodide (10:2 FTI)	2043-54-1	-	mg/kg	0.1	ND	ND	ND
1H,1H,2H,2H-Perfluorotetradecyl iodide (12:2 FTI)	30046-31-2	-	mg/kg	0.1	ND	ND	ND
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 FTS) ^{Note (3)}	39108-34-4	-	mg/kg	0.010	ND	ND	ND
1H,1H,2H,2H-Perfluorodecyl acrylate (8:2 FTA) ^{Note (3)}	27905-45-9	-	mg/kg	0.1	ND	ND	ND
1H,1H,2H,2H-Perfluorodecyl methacrylate (8:2 FTMA) ^{Note (3)}	1996-88-9	-	mg/kg	0.1	ND	ND	ND
2H,2H-Perfluorodecane Acid (H2PFDA/8:2 FTCA) ^{Note (3), Note (11)}	27854-31-5	-	mg/kg	0.010	ND	ND	ND
1H,1H,2H,2H-Perfluoro-1-decanol (8:2 FTOH) ^{Note (3)}	678-39-7	-	mg/kg	0.1	ND	ND	ND
Sum of C9-C14 PFCA-related substances	-	0.260	mg/kg	-	ND	ND	ND
Conclusion					Pass	Pass	Pass

Targeted 221 Perfluoroalkyl and polyfluoroalkyl substances (PFAS) Content

Test Method: With reference to CEN/TS 15968:2010, analysis was performed by LC-MS or LC-MS/MS and GC-MS.

Test Item(s)	CAS No.	Limit	Unit(s)	MDL	A1	A2	A4
PFOS, its salts and related compounds							
Perfluorooctane sulfonates (PFOS) ^{Note (1)}	1763-23-1	Prohibited	mg/kg	0.010	ND	ND	ND
N-ethylperfluoro-1-	4151-50-2	Prohibited	mg/kg	0.010	ND	ND	ND



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Test Item(s)	CAS No.	Limit	Unit(s)	MDL	A1	A2	A4
octanesulfonamide (N-EtFOSA)							
N-methylperfluoro-1-octanesulfonamide (N-MeFOSA)	31506-32-8	Prohibited	mg/kg	0.010	ND	ND	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol (N-EtFOSE)	1691-99-2	Prohibited	mg/kg	0.010	ND	ND	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	24448-09-7	Prohibited	mg/kg	0.010	ND	ND	ND
Perfluorooctane Sulfonamide (PFOSA) ^{Note (25)}	754-91-6	Prohibited	mg/kg	0.010	ND	ND	ND
PFOA, its salts							
Perfluorooctanoic acid (PFOA) ^{Note (2)}	335-67-1	Prohibited	mg/kg	0.010	ND	ND	ND
PFOA-related compounds							
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 FTS) ^{Note (3)}	39108-34-4	Prohibited	mg/kg	0.010	ND	ND	ND
Methyl perfluorooctanoate (Me-PFOA)	376-27-2	Prohibited	mg/kg	0.1	ND	ND	ND
Ethyl perfluorooctanoate (Et-PFOA)	3108-24-5	Prohibited	mg/kg	0.1	ND	ND	ND
1H,1H,2H,2H-Perfluoro-1-decanol (8:2FTOH) ^{Note (3)}	678-39-7	Prohibited	mg/kg	0.1	ND	ND	ND
1H,1H,2H,2H-Perfluorodecyl acrylate (8:2 FTA) ^{Note (3)}	27905-45-9	Prohibited	mg/kg	0.1	ND	ND	ND
1H,1H,2H,2H-Perfluorodecyl methacrylate (8:2 FTMA) ^{Note (3)}	1996-88-9	Prohibited	mg/kg	0.1	ND	ND	ND
Perfluoro-1-iodooctane (PFOI)	507-63-1	Prohibited	mg/kg	0.1	ND	ND	ND



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Test Item(s)	CAS No.	Limit	Unit(s)	MDL	A1	A2	A4
2H,2H-Perfluorodecane Acid (H2PFDA/8:2 FTCA) ^{Note (3), Note (11)}	27854-31-5	Prohibited	mg/kg	0.010	ND	ND	ND
C9-C14 PFCA, their salts							
Perfluorononane Acid (PFNA) ^{Note (4)}	375-95-1	Prohibited	mg/kg	0.010	ND	ND	ND
Perfluorodecane Acid (PFDA) ^{Note (4)}	335-76-2	Prohibited	mg/kg	0.010	ND	ND	ND
Perfluoroundecanoic Acid (PFUnDA) ^{Note (22)}	2058-94-8	Prohibited	mg/kg	0.010	ND	ND	ND
Perfluorododecanoic Acid (PFDoDA) ^{Note (4)}	307-55-1	Prohibited	mg/kg	0.010	ND	ND	ND
Perfluorotridecanoic Acid (PFTrDA) ^{Note (24)}	72629-94-8	Prohibited	mg/kg	0.010	ND	ND	ND
Perfluorotetradecanoic Acid (PFTDA)	376-06-7	Prohibited	mg/kg	0.010	ND	ND	ND
Perfluoro-3,7-dimethyloctanoic Acid (PF-3,7-DMOA)	172155-07-6	Prohibited	mg/kg	0.010	ND	ND	ND
C9-C14 PFCA-related substances							
Perfluorodecane Sulfonate (PFDS) ^{Note (10)}	335-77-3	Prohibited	mg/kg	0.010	ND	ND	ND
1H,1H,2H,2H-Perfluoro-1-dodecanol (10:2 FTOH)	865-86-1	Prohibited	mg/kg	0.1	ND	ND	ND
1H,1H,2H,2H-Perfluorododecyl acrylate (10:2 FTA)	17741-60-5	Prohibited	mg/kg	0.1	ND	ND	ND
1-Iodo-1H,1H,2H,2H-perfluorodecane (8:2 FTI)	2043-53-0	Prohibited	mg/kg	0.1	ND	ND	ND
1H,1H,2H,2H-Perfluorodecyltriethoxysilane (8:2 FTSi(OC ₂ H ₅) ₃)	101947-16-4	Prohibited	mg/kg	0.1	ND	ND	ND
2H,2H,3H,3H-Perfluoroundecanoic acid	34598-33-9	Prohibited	mg/kg	0.010	ND	ND	ND



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Test Item(s)	CAS No.	Limit	Unit(s)	MDL	A1	A2	A4
(H ₄ PFUnDA/ 8:3 FTCA) ^{Note (12)}							
1H,1H,2H,2H-Perfluorododecyl methacrylate (10:2 FTMA)	2144-54-9	Prohibited	mg/kg	0.1	ND	ND	ND
1H,1H,2H,2H-perfluorotetradecan-1-ol (12:2 FTOH)	39239-77-5	Prohibited	mg/kg	0.1	ND	ND	ND
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0	Prohibited	mg/kg	0.010	ND	ND	ND
1,1,2,2-Tetrahydroperfluorododecyl iodide (10:2 FTI)	2043-54-1	Prohibited	mg/kg	0.1	ND	ND	ND
1H,1H,2H,2H-Perfluorotetradecyl iodide (12:2 FTI)	30046-31-2	Prohibited	mg/kg	0.1	ND	ND	ND
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 FTS) ^{Note (3)}	39108-34-4	Prohibited	mg/kg	0.010	ND	ND	ND
1H,1H,2H,2H-Perfluoro-1-decanol (8:2 FTOH) ^{Note (3)}	678-39-7	Prohibited	mg/kg	0.1	ND	ND	ND
1H,1H,2H,2H-Perfluorodecyl acrylate (8:2 FTA) ^{Note (3)}	27905-45-9	Prohibited	mg/kg	0.1	ND	ND	ND
1H,1H,2H,2H-Perfluorodecyl methacrylate (8:2 FTMA) ^{Note (3)}	1996-88-9	Prohibited	mg/kg	0.1	ND	ND	ND
2H,2H-Perfluorodecane Acid (H ₂ PFDA/8:2 FTCA) ^{Note (3), Note (11)}	27854-31-5	Prohibited	mg/kg	0.010	ND	ND	ND
PFHxS, its salts							
Perfluorohexane Sulfonate (PFHxS) ^{Note (7)}	355-46-4	Prohibited	mg/kg	0.010	ND	ND	ND
PFHxS-related compounds							



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Test Item(s)	CAS No.	Limit	Unit(s)	MDL	A1	A2	A4
N-Methylperfluoro-1-hexanesulfonamide (N-Me-PFHxSA)	68259-15-4	Prohibited	mg/kg	0.010	ND	ND	ND
Perfluorohexane sulfonamide (PFHxSA)	41997-13-1	Prohibited	mg/kg	0.010	ND	ND	ND
N-[3-(dimethylamino)propyl]tridecafluorohexanesulphonamide (N-AP-FHxSA)	50598-28-2	Prohibited	mg/kg	0.010	ND	ND	ND
2-[methyl[(tridecafluorohexyl)sulphonyl]amino]ethyl acrylate)) (N-MeFHSEA)	67584-57-0	Prohibited	mg/kg	0.5	ND	ND	ND
Other PFAS							
Perfluorobutane Acid (PFBA) ^{Note (13)}	375-22-4	Prohibited	mg/kg	0.010	ND	ND	ND
Perfluorobutane Sulfonate (PFBS) ^{Note (5)}	375-73-5	Prohibited	mg/kg	0.010	ND	ND	ND
1,1,2,2,3,3,4,4,4-nonafluoro-N-(2-hydroxyethyl)-N-methylbutane-1-sulphonamide (PFBS-NC ₃ H ₈ O)	34454-97-2	Prohibited	mg/kg	0.010	ND	ND	ND
Perfluoropentane Acid (PFPeA) ^{Note (17)}	2706-90-3	Prohibited	mg/kg	0.010	ND	ND	ND
Perfluorohexane Acid (PFHxA) ^{Note (6)}	307-24-4	Prohibited	mg/kg	0.010	ND	ND	ND
Perfluoroheptane Acid (PFHpA) ^{Note (14)}	375-85-9	Prohibited	mg/kg	0.010	ND	ND	ND
Perfluoroheptane sulfonic Acid (PFHpS) ^{Note (8)}	375-92-8	Prohibited	mg/kg	0.010	ND	ND	ND
7H-Dodecafluorohexane Acid (7HPFHpA)	1546-95-8	Prohibited	mg/kg	0.010	ND	ND	ND



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Test Item(s)	CAS No.	Limit	Unit(s)	MDL	A1	A2	A4
1H,1H,2H,2H-Perfluorooctanesulphonic acid (6:2 FTS) ^{Note (26)}	27619-97-2	Prohibited	mg/kg	0.010	ND	ND	ND
1H,1H,2H,2H-Perfluorooctylacrylate (6:2 FTA)	17527-29-6	Prohibited	mg/kg	0.1	ND	ND	ND
1H,1H,2H,2H-Perfluoro-1-hexanol (4:2 FTOH)	2043-47-2	Prohibited	mg/kg	0.1	ND	ND	ND
1H,1H,2H,2H-Perfluoro-1-octanol (6:2 FTOH)	647-42-7	Prohibited	mg/kg	0.1	ND	ND	ND
2,3,3,3-tetrafluoro-2-(heptafluoropropoxy) propionic acid (HFPO-DA) ^{Note (9)}	13252-13-6	Prohibited	mg/kg	0.010	ND	ND	ND
Perfluorooctane sulfonamidoacetic Acid (FOSAA)	2806-24-8	Prohibited	mg/kg	0.010	ND	ND	ND
N-Methylperfluoro-1-octanesulfonamidoacetic Acid (N-MeFOSAA)	2355-31-9	Prohibited	mg/kg	0.010	ND	ND	ND
N-Ethylperfluorooctane sulfonamidoacetic Acid (N-EtFOSAA)	2991-50-6	Prohibited	mg/kg	0.010	ND	ND	ND
Perfluoropentane sulfonic acid (PFPeS) ^{Note (18)}	2706-91-4	Prohibited	mg/kg	0.010	ND	ND	ND
Perfluoro nonane sulfonic acid (PFNS) ^{Note (19)}	68259-12-1	Prohibited	mg/kg	0.010	ND	ND	ND
Perfluoroundecane sulfonic acid (PFUnDS) ^{Note (16)}	749786-16-1	Prohibited	mg/kg	0.010	ND	ND	ND
Perfluorododecanesulfonic acid (PFDoDS) ^{Note (20)}	79780-39-5	Prohibited	mg/kg	0.010	ND	ND	ND
Perfluorotridecanesulfonic acid (PFTrDS) ^{Note (21)}	791563-89-8	Prohibited	mg/kg	0.010	ND	ND	ND



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Test Item(s)	CAS No.	Limit	Unit(s)	MDL	A1	A2	A4
1H,1H,2H,2H-Perfluorohexanesulfonic acid (4:2 FTS)	757124-72-4	Prohibited	mg/kg	0.010	ND	ND	ND
2-Perfluorohexylethanoic acid (6:2 FTCA)	53826-12-3	Prohibited	mg/kg	0.010	ND	ND	ND
3-Perfluoropentylpropanoic acid (5:3 FTCA)	914637-49-3	Prohibited	mg/kg	0.010	ND	ND	ND
Perfluorohexadecanoic Acid (PFHxDA)	67905-19-5	Prohibited	mg/kg	0.010	ND	ND	ND
Perfluorooctadecanoic Acid (PFODA)	16517-11-6	Prohibited	mg/kg	0.010	ND	ND	ND
bis(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptafluorodecyl) hydrogen phosphate (8:2diPAP) ^{Note (15)}	678-41-1	Prohibited	mg/kg	0.010	ND	ND	ND
1H,1H,2H,2H-Perfluorooctylmethacrylate (6:2 FTMA)	2144-53-8	Prohibited	mg/kg	0.1	ND	ND	ND
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	Prohibited	mg/kg	0.010	ND	ND	ND
Perfluoro-3-methoxypropanoic acid (PFMPA)	377-73-1	Prohibited	mg/kg	0.010	ND	ND	ND
Perfluoro-4-methoxybutanoic acid (PFMBA)	863090-89-5	Prohibited	mg/kg	0.010	ND	ND	ND
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	151772-58-6	Prohibited	mg/kg	0.010	ND	ND	ND
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	Prohibited	mg/kg	0.010	ND	ND	ND
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	763051-92-9	Prohibited	mg/kg	0.010	ND	ND	ND



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Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	113507-82-7	Prohibited	mg/kg	0.010	ND	ND	ND
3-Perfluoropropyl propanoic acid (3:3 FTCA)	356-02-5	Prohibited	mg/kg	0.010	ND	ND	ND
3-Perfluoroheptyl propanoic acid (7:3 FTCA)	812-70-4	Prohibited	mg/kg	0.010	ND	ND	ND
Perfluoropentadecanoic Acid (PFPeDA)	141074-63-7	Prohibited	mg/kg	0.1	ND	ND	ND
1H,1H,2H,2H-Perfluorohexyl methacrylate (4:2 FTMA)	1799-84-4	Prohibited	mg/kg	0.1	ND	ND	ND
2-(N-ethylperfluorooctanesulfamido) ethyl acrylate (EtFOSAC)	423-82-5	Prohibited	mg/kg	0.1	ND	ND	ND
1H,1H,2H-Heptadecafluoro-1-decene (PFDE)	21652-58-4	Prohibited	mg/kg	0.1	ND	ND	ND
Perfluorooctyl triethoxysilane (POTS)	51851-37-7	Prohibited	mg/kg	0.1	ND	ND	ND
Perfluorododecyl iodide (PFDoDI)	307-60-8	Prohibited	mg/kg	0.1	ND	ND	ND
Perfluorodecyl iodide (PFDI)	423-62-1	Prohibited	mg/kg	0.1	ND	ND	ND
11H-Perfluoroundecanoic acid (11H-PFUnDA) Note (23)	1765-48-6	Prohibited	mg/kg	0.1	ND	ND	ND
Conclusion					Pass	Pass	Pass

Notes:

- (1) PFOS refer to its salts/derivative including
- PFOS-K CAS No.: 2795-39-3
 - PFOS-Li CAS No.: 29457-72-5
 - PFOS-Na CAS No.: 4021-47-0
 - PFOS-NH₄ CAS No.: 29081-56-9
 - PFOS-NH₂(C₂H₄OH)₂ CAS No.: 70225-14-8
 - PFOS-N(C₂H₅)₄ CAS No.: 56773-42-3
 - PFOS-N(C₁₀H₂₁)₂(CH₃)₂ CAS No.: 251099-16-8
 - POSF CAS No.: 307-35-7
 - POSF-Mg CAS No.: 91036-71-4
- (2) PFOA refer to its salts/derivative including



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|---|----------------------|
| PFOA-Na | CAS No.: 335-95-5 |
| PFOA-K | CAS No.: 2395-00-8 |
| PFOA-Ag | CAS No.: 335-93-3 |
| PFOA-F | CAS No.: 335-66-0 |
| APFO | CAS No.: 3825-26-1 |
| PFOA-Li | CAS No.: 17125-58-5 |
| (3) PFAS classified as both PFOA-related compounds and C9-C14 PFCA-related substances. | |
| 8:2 FTS refer to its salts including | |
| 8:2 FTS-K | CAS No.: 438237-73-1 |
| 8:2 FTS-NH ₄ | CAS No.: 149724-40-3 |
| 8:2 FTS-Na | CAS No.: 27619-96-1 |
| (4) PFNA refer to its salts including | |
| PFNA-Na | CAS No.: 21049-39-8 |
| PFNA-NH ₄ | CAS No.: 4149-60-4 |
| PFNA-K | CAS No.: 21049-38-7 |
| PFNA-Li | CAS No.: 60871-92-3 |
| PFNA-Ag | CAS No.: 7358-16-9 |
| PFDA refer to its salts including | |
| PFDA-Na | CAS No. 3830-45-3 |
| PFDA-NH ₄ | CAS No: 3108-42-7 |
| PFDA-K | CAS No: 51604-85-4 |
| PFDA-Ag | CAS No: 5784-82-7 |
| PFDA-Li | CAS No: 84743-32-8 |
| PFDoDA refer to its salts including | |
| PFDoDA-NH ₄ | CAS No: 3793-74-6 |
| PFDoDA-Na | CAS No: 60872-01-7 |
| (5) PFBS refers to its salts/derivative including | |
| PFBS-K | CAS No.: 29420-49-3 |
| PFBS-H ₂ O | CAS No.: 59933-66-3 |
| PFBS-Li | CAS No.: 131651-65-5 |
| TPS-PFBS | CAS No.: 144317-44-2 |
| PFBS-S(CH ₃) ₂ C ₆ H ₅ | CAS No.: 220133-51-7 |
| PFBS-P(C ₄ H ₉) ₄ | CAS No.: 220689-12-3 |
| PFBS-N(C ₂ H ₅) ₄ | CAS No.: 25628-08-4 |
| PFBS-F | CAS No.: 375-72-4 |
| PFBS-NC ₄ H ₉ O | CAS No.: 503155-89-3 |
| PFBS-Mg | CAS No.: 507453-86-3 |
| PFBS-NH ₄ | CAS No.: 68259-10-9 |
| PFBS-SC ₁₈ H ₂₃ O | CAS No.: 209482-18-8 |
| PFBS-Cl | CAS No.: 2991-84-6 |
| PFBS-Na | CAS No.: 60453-92-1 |
| PFBS-I(C ₆ H ₄) ₂ (C ₄ H ₉) ₂ | CAS No.: 194999-85-4 |
| PFBS-NH(C ₂ H ₅ O) ₂ | CAS No.: 70225-18-2 |
| (6) PFHxA refers to its salt including | |
| APFHx | CAS No.: 21615-47-4 |
| PFHxA-Na | CAS No.: 2923-26-4 |
| PFHxA-K | CAS No.: 3109-94-2 |
| PFHxA-F | CAS No.: 355-38-4 |
| PFHxA-Ag | CAS No.: 336-02-7 |
| PFHxA-Li | CAS No.: 90430-61-8 |
| (7) PFHxS refers to its salts including | |
| PFHxS-Na | CAS No.: 82382-12-5 |



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PFHxS-K	CAS No.: 3871-99-6
PFHxS-Li	CAS No.: 55120-77-9
PFHxS-NH ₄	CAS No.: 68259-08-5
PFHxS-BTPP	CAS No.: 1000597-52-3
PFHxS-N(C ₄ H ₉) ₄	CAS No.: 108427-54-9
PFHxS-N(C ₂ H ₅) ₄	CAS No.: 108427-55-0
PFHxS-NC ₄ H ₉	CAS No.: 1187817-57-7
PFHxS-(NC ₁₀ H ₁₄) ₃ C ₅ H ₄	CAS No.: 1310480-24-0
PFHxS-(NC ₈ H ₁₀) ₂ C ₁₃ H ₁₂	CAS No.: 1310480-27-3
PFHxS-(NC ₈ H ₁₀) ₂ C ₁₇ H ₁₂	CAS No.: 1310480-28-4
PFHxS-C ₄₂ H ₇₀ O ₃₅	CAS No.: 1329995-45-0
PFHxS-C ₄₈ H ₈₀ O ₄₀	CAS No.: 1329995-69-8
TPS-PFHxS	CAS No.: 144116-10-9
PFHxS-C ₄₄ H ₃₇ N ₂ O ₂	CAS No.: 1462414-59-0
PFHxS-I(C ₆ H ₅) ₂	CAS No.: 153443-35-7
PFHxS-TMA	CAS No.: 189274-31-5
PFHxS-NH ₂ (CH ₃) ₃	CAS No.: 202189-84-2
PFHxS-I(C ₆ H ₄) ₂ (C ₄ H ₉) ₂	CAS No.: 213740-81-9
PFHxS-Ga	CAS No.: 341035-71-0
PFHxS-S(C ₇ H ₇) ₂ C ₆ H ₅	CAS No.: 341548-85-4
PFHxS-Sc	CAS No.: 350836-93-0
PFHxS-Nd	CAS No.: 41184-65-0
PFHxS-Y	CAS No.: 41242-12-0
PFHxS-S ₃ (C ₆ H ₅) ₄ (C ₆ H ₄) ₂	CAS No.: 421555-73-9
PFHxS-I(C ₆ H ₄) ₂ (C ₅ H ₁₁) ₂	CAS No.: 421555-74-0
PFHxS-F	CAS No.: 423-50-7
PFHxS-S(C ₆ H ₄) ₃ (C ₄ H ₉) ₃	CAS No.: 425670-70-8
PFHxS-Zn	CAS No.: 70136-72-0
PFHxS-NH(C ₂ H ₅ O) ₂	CAS No.: 70225-16-0
PFHxS-N(C ₂ H ₅) ₃	CAS No.: 72033-41-1
PFHxS-I(C ₆ H ₄) ₂ (C ₄ H ₉) ₂	CAS No.: 866621-50-3
PFHxS-S(C ₆ H ₅) ₂ C ₇ H ₇	CAS No.: 910606-39-2
PFHxS-S(C ₆ H ₅) ₂ C ₁₀ H ₉ O ₂	CAS No.: 911027-68-4
PFHxS-Cs	CAS No.: 92011-17-1
PFHxS-SC ₂₈ H ₃₁ O ₄	CAS No.: 928049-42-7
PFHxS-Cl	CAS No.: 55591-23-6
PFHxS-Sulfonium, propenoate polymer	CAS No.: 911027-69-5
(8) PFHpS refers to its salts including	
PFHpS-Na	CAS No.: 21934-50-9
PFHpS-K	CAS No.: 60270-55-5
PFHpS-NH ₄	CAS No.: 68259-07-4
PFHpS-Li	CAS No.: 117806-54-9
(9) HFPO-DA refers to its salts including	
HFPO-DA-NH ₄	CAS No.: 62037-80-3
HFPO-DA-K	CAS No.: 67118-55-2
HFPO-DA-F	CAS No.: 2062-98-8
(10) PFDS refer to its salts including	
PFDS-Na	CAS No.: 2806-15-7
PFDS-K	CAS No.: 2806-16-8
PFDS-NH ₄	CAS No.: 67906-42-7
(11) H2PFDA / 8:2 FTCA refer to its salt/derivative including	
8:2 FTCA-P(C ₄ H ₉) ₄	CAS No.: 882489-14-7



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- (12)H4PFUnDA/ 8:3 FTCA refer to its salts including
H4PFUnDA-K CAS No.: 83310-58-1
- (13)PFBA refers to its salts including
PFBA-NH₄ CAS No.: 10495-86-0
PFBA-Na CAS No.: 2218-54-4
PFBA-K CAS No.: 2966-54-3
PFBA-Ag CAS No.: 3794-64-7
PFBA-Li CAS No.: 4146-76-3
- (14)PFHpA refers to its salts including
PFHpA-Na CAS No.: 20109-59-5
PFHpA-K CAS No.: 21049-36-5
PFHpA-NH₄ CAS No.: 6130-43-4
PFHpA-Cs CAS No.: 171198-24-6
PFHpA-Ag CAS No.: 424-05-5
PFHpA-Li CAS No.: 60871-90-1
- (15)8:2diPAP refers to its salts including
8:2diPAP-Na CAS No.: 114519-85-6
- (16)PFUnDS refers to its salts including
PFUnDS-Na CAS No.: 441296-91-9 (anion)
- (17)PFPeA refers to its salts including
PFPeA-Na CAS No.: 2706-89-0
PFPeA-K CAS No.: 336-23-2
PFPeA-NH₄ CAS No.: 68259-11-0
PFPeA-Li CAS No.: 198482-22-3
PFPeA-Ag CAS No.: 2795-30-4
- (18)PFPeS refers to its salts including
PFPeS-Na CAS No.: 630402-22-1
PFPeS-K CAS No.: 3872-25-1
PFPeS-NH₄ CAS No.: 68259-09-6
- (19)PFNS refers to its salts including
PFNS-Na CAS No.: 98789-57-2
PFNS-NH₄ CAS No.: 17202-41-4
PFNS-K CAS No.: 29359-39-5
- (20)PFDoDS refers to its salts including
PFDoDS-Na CAS No.: 1260224-54-1
- (21)PFTTrDS refers to its salts including
PFTTrDS-Na CAS No.: 174675-49-1
- (22)PFUnDA refers to its salts including
PFUnDA-Na CAS No.: 60871-96-7
PFUnDA-NH₄ CAS No.: 4234-23-5
PFUnDA-K CAS No.: 30377-53-8
- (23)11H-PFUnDA refers to its salts including
11H-PFUnDA-K CAS No.: 307-71-1
11H-PFUnDA-NH₄ CAS No.: 5081-02-7
- (24)PFTTrDA refers to its salts including
PFTTrDA-NH₄ CAS No.: 4288-72-6
- (25)PFOSA refers to its salts including
PFOSA-Li CAS No.: 76752-79-9
- (26)6:2 FTS refers to its salts including
6:2 FTS-Na CAS No.: 27619-94-9
6:2 FTS-K CAS No.: 59587-38-1
6:2 FTS-NH₄ CAS No.: 59587-39-2



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(27)The maximum permissible limit is quoted from the client requirement. If PFAS is detected, it is recommended to refer to relevant regulatory remarks to confirm the relevant requirements of PFAS.

Relevant regulations remarks:

US Market Related PFAS regulations in the United States include but not limit to:				
Region	Legislation/ Bill	Scope	Implementation date	Requirement
Maine	38 M.R.S. §1614 (LD 1503)	All products	2023.1.1	A manufacturer of a product for sale in the state that contains intentionally added PFAS shall submit a notification
			2030.1.1	Prohibited if PFAS have been intentionally added
Minnesota	HF 1000	Cookware, et al.	2025.1.1	Prohibited if PFAS have been intentionally added
		All products	2026.1.1	A manufacturer of a product for sale in the state that contains intentionally added PFAS shall submit a notification
Rhode Island	S 0016	Cookware, et al.	2025.1.1	Prohibited if PFAS have been intentionally added
		All products	2026.1.1	A manufacturer of a product for sale in the state that contains intentionally added PFAS shall submit a notification
Vermont	HB 152	Cookware, et al.	2024.1.1	Prohibited if PFAS have been intentionally added
		All products	2030.1.1	Prohibited if PFAS have been intentionally added
California	AB 1200	Food packaging substantially made of paper, paperboard, or derived from plant fibers	2023.1.1	Prohibited if either intentionally added that has a functional or technical effect, or ≥ 100 ppm (as total organic fluorine)
		In handle of cookware or any cookware surface that comes into contact with food, foodstuffs or beverages	2023.1.1	Disclosure of the PFAS presence in cookware on internet website for online sales
			2024.1.1	List the presence of PFAS on product label



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Colorado	HB 22-1345	In handle of cookware or any cookware surface that comes into contact with food, foodstuffs or beverages	2024.1.1	List the presence of PFAS on product label
EU market Related PFAS regulations in the EU include but not limit to:				
Region	Legislation	Scope	Implementation date	Requirement
EU	POPs	Substances, mixtures and articles	2020.7.4	Sum of PFOA and its salts ≤ 0.025 mg/kg Sum of PFOA-related substances ≤ 1 mg/kg
			2010.8.26	Sum of PFOS and its derivatives in - Substance/ mixture: ≤ 10 mg/kg - Article: ≤ 1000 mg/kg - Textile or other coated materials: ≤ 1 $\mu\text{g}/\text{m}^2$
EU	REACH	Substances, mixtures and articles	2023.2.25	Sum of C9-C14 PFCA and its salts ≤ 0.025 mg/kg Sum of C9-C14 PFCA-related substances ≤ 0.26 mg/kg
EU	REACH	Substances, mixtures and articles	Proposal	Any targeted PFAS ≤ 25 $\mu\text{g}/\text{kg}$ Sum of targeted PFAS ≤ 250 $\mu\text{g}/\text{kg}$ PFAS (polymeric PFAS included) ≤ 50 mg/kg If total fluorine exceeds 50 mg/kg, provide a proof for the fluorine measured as content of either PFAS or non-PFAS.

Remark:

= Exceed the limit.

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.

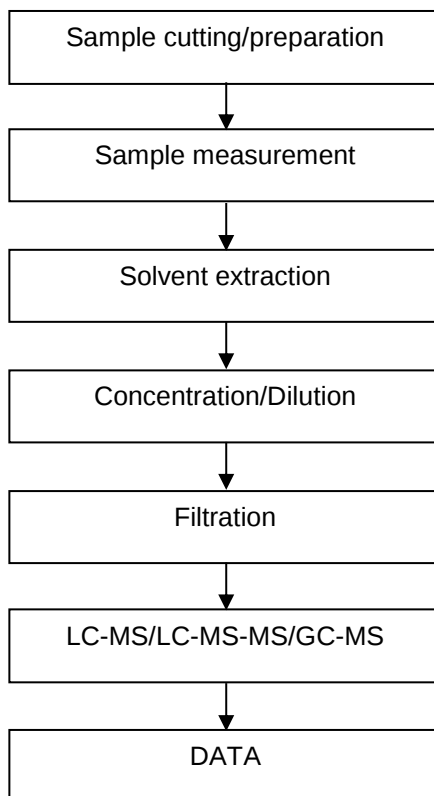


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PFASs/ PFOS/PFOA Testing Flow Chart



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Attachment:

Maximum System Voltage: 1500 V

JAM72D40-580/LB, JAM72D40-585/LB, JAM72D40-590/LB, JAM72D40-595/LB, JAM72D40-600/LB, JAM72D40-605/LB

JAM54D40-435/LB, JAM54D40-440/LB, JAM54D40-445/LB, JAM54D40-450/LB, JAM54D40-455/LB

JAM54D41-425/LB, JAM54D41-430/LB, JAM54D41-435/LB, JAM54D41-440/LB, JAM54D41-445/LB, JAM54D41-450/LB

JAM72D42-610/LB, JAM72D42-615/LB, JAM72D42-620/LB, JAM72D42-625/LB, JAM72D42-630/LB

JAM66D45-595/LB, JAM66D45-600/LB, JAM66D45-605/LB, JAM66D45-610/LB, JAM66D45-615/LB, JAM66D45-620/LB

JAM60D45-540/LB, JAM60D45-545/LB, JAM60D45-550/LB, JAM60D45-555/LB, JAM60D45-560/LB, JAM60D45-565/LB

JAM78D40-610/GB, JAM78D40-615/GB, JAM78D40-620/GB, JAM78D40-625/GB, JAM78D40-630/GB
JAM72D40-560/GB, JAM72D40-565/GB, JAM72D40-570/GB, JAM72D40-575/GB,
JAM72D40-580/GB, JAM72D40-585/GB
JAM54D40-420/GB, JAM54D40-425/GB, JAM54D40-430/GB, JAM54D40-435/GB,
JAM54D41-415/GB, JAM54D41-420/GB, JAM54D41-425/GB, JAM54D41-430/GB, JAM54D41-435/GB,

JAM78D40-610/MB, JAM78D40-615/MB, JAM78D40-620/MB, JAM78D40-625/MB, JAM78D40-630/MB
JAM72D40-560/MB, JAM72D40-565/MB, JAM72D40-570/MB, JAM72D40-575/MB, JAM72D40-580/MB,
JAM72D40-585/MB
JAM54D40-420/MB, JAM54D40-425/MB, JAM54D40-430/MB, JAM54D40-435/MB

JAM72D30-555/LB, JAM72D30-560/LB, JAM72D30-565/LB, JAM72D30-570/LB,
JAM72D30-575/LB, JAM72D30-580/LB

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JAM72D30-560/GB, JAM72D30-565/GB

JAM72D40-580/HB, JAM72D40-585/HB, JAM72D40-590/HB, JAM72D40-595/HB,
JAM72D40-600/HB, JAM72D40-605/HB, JAM72D40-610/HB

JAM54D40-430/HB, JAM54D40-435/HB, JAM54D40-440/HB, JAM54D40-445/HB,
JAM54D40-450/HB, JAM54D40-455/HB

JAM54D41-425/HB, JAM54D41-430/HB, JAM54D41-435/HB, JAM54D41-440/HB, JAM54D41-445/HB,
JAM54D41-450/HB, JAM54D41-455/HB

JAM78D30-580/MB, JAM72D30-585/MB, JAM78D30-590/MB, JAM78D30-595/MB,
JAM78D30-600/MB

JAM72D30-535/MB, JAM72D30-540/MB, JAM72D30-545/MB, JAM72D30-550/MB,
JAM72D30-555/MB

JAM72D20-440/MB, JAM72D20-445/MB JAM72D20-450/MB, JAM72D20-455/MB,
JAM72D20-460/MB, JAM72D20-465/MB



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JAM72D40-580/LB/1500V, JAM72D40-585/LB/1500V, JAM72D40-590/LB/1500V, JAM72D40-595/LB/1500V, JAM72D40-600/LB/1500V, JAM72D40-605/LB/1500V

JAM54D40-435/LB/1500V, JAM54D40-440/LB/1500V, JAM54D40-445/LB/1500V, JAM54D40-450/LB/1500V, JAM54D40-455/LB/1500V

JAM54D41-425/LB/1500V, JAM54D41-430/LB/1500V, JAM54D41-435/LB/1500V, JAM54D41-440/LB/1500V, JAM54D41-445/LB/1500V, JAM54D41-450/LB/1500V

JAM72D42-610/LB/1500V, JAM72D42-615/LB/1500V, JAM72D42-620/LB/1500V, JAM72D42-625/LB/1500V, JAM72D42-630/LB/1500V

JAM66D45-595/LB/1500V, JAM66D45-600/LB/1500V, JAM66D45-605/LB/1500V, JAM66D45-610/LB/1500V, JAM66D45-615/LB/1500V, JAM66D45-620/LB/1500V

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JAM78D40-610/GB/1500V, JAM78D40-615/GB/1500V, JAM78D40-620/GB/1500V, JAM78D40-625/GB/1500V, JAM78D40-630/GB/1500V

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JAM72D20-440/MB/1500V, JAM72D20-445/MB/1500V, JAM72D20-450/MB/1500V, JAM72D20-455/MB/1500V, JAM72D20-460/MB/1500V, JAM72D20-465/MB/1500V



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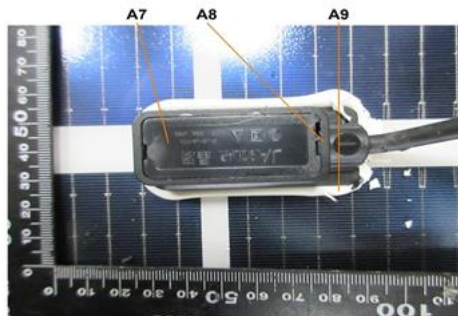
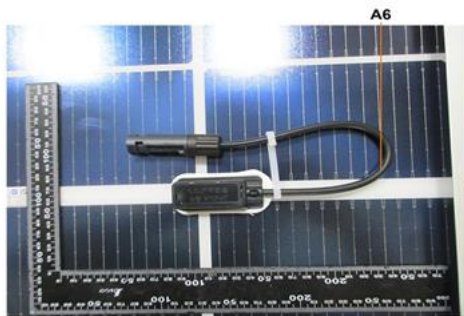
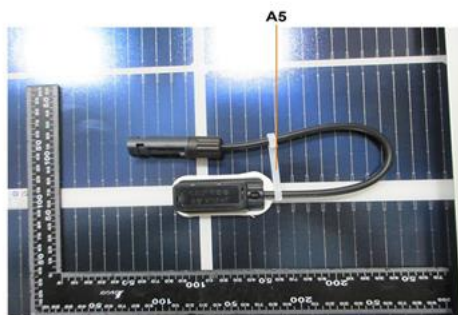
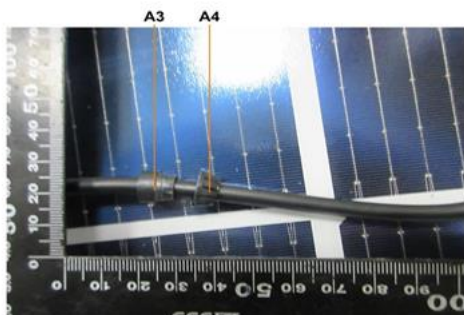
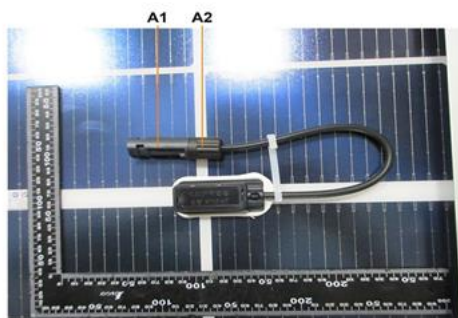
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Sample photos:



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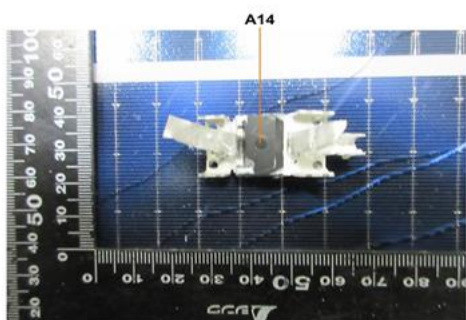
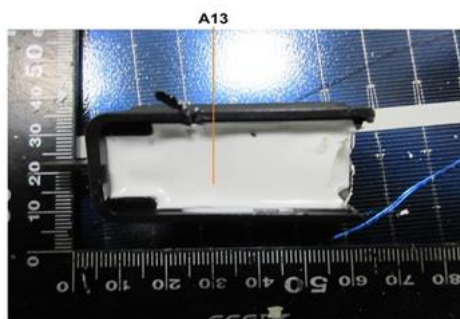
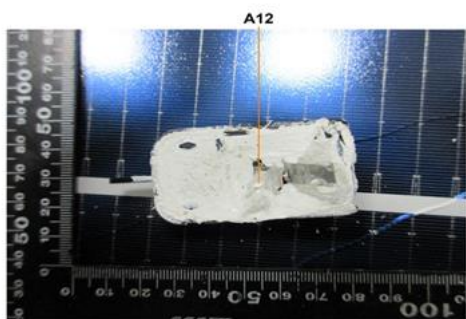
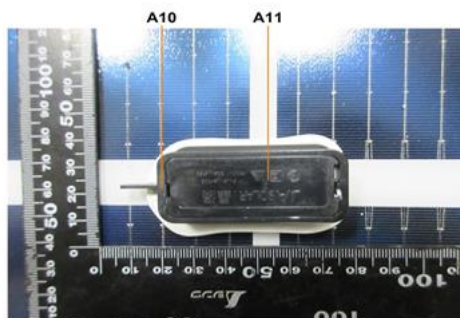
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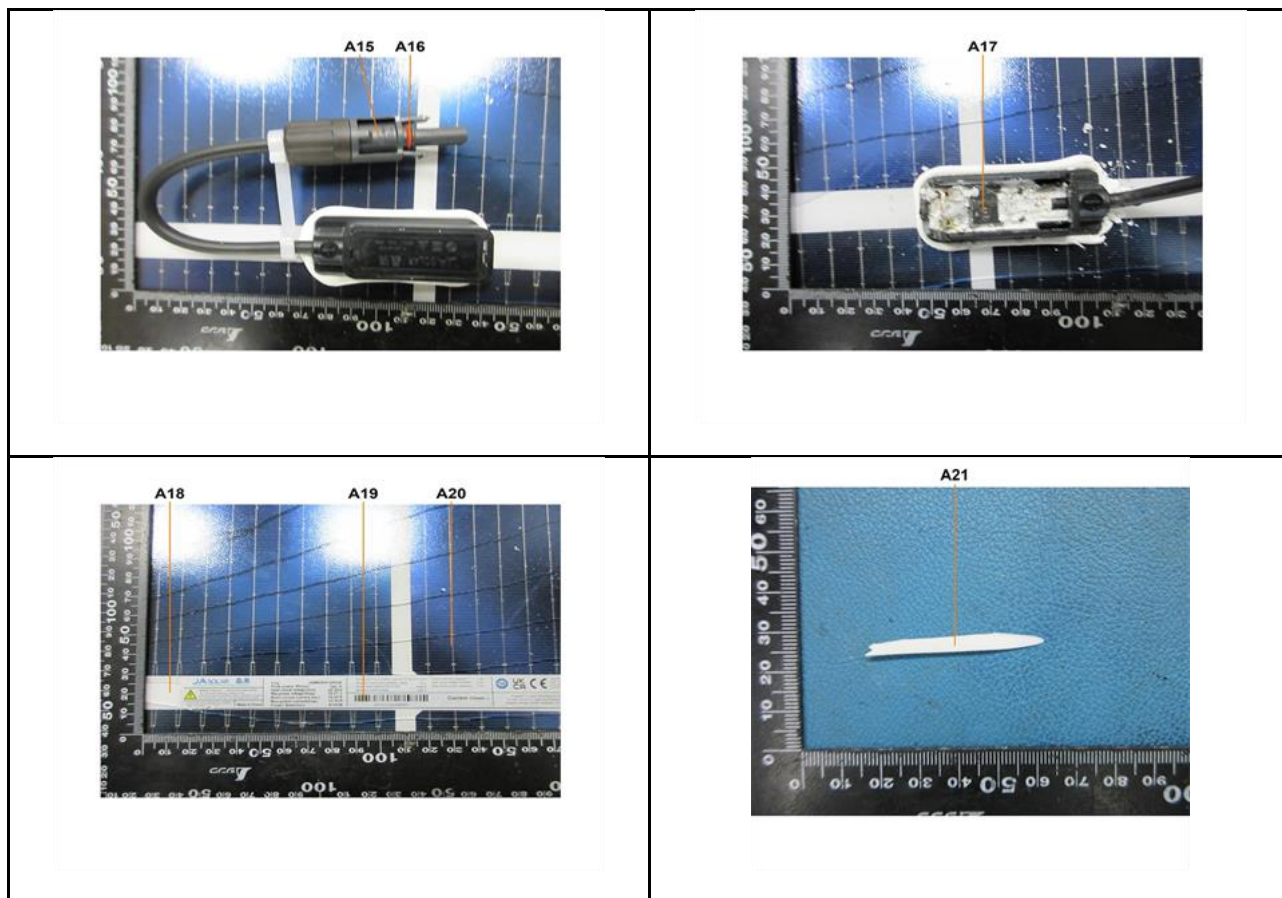
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