

Test Report

No.: SHAEC23004870903

Date: Aug 16, 2023

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Client Name: TMC Industries Inc

Client Address: 1423 Mill Lane Waconia, Minnesota 55387-1044 USA

Sample Name: TMC-7500(23-108)

Destination of the Product(s): Ireland,Denmark,UK,Japan,Singapore,Israel,Australia,France,Italy,Germany,S witzerland

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

SGS Job No.: SP23-010141

Sample Receiving Date: Apr 21, 2023

Testing Period: Apr 21, 2023 ~ Aug 16, 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
Entry 68 of Regulation (EU) 2021/1297 amending Annex XVII of REACH Regulation (EC) No 1907/2006 - C9-C14 PFCAs, their salts and C9-C14 PFOA-related substances	Pass
European Regulation POPs (EU) 2020/784 amending to Regulation (EU) 2019/1021 - PFOA and its salts, PFOA-Related Substances , PFOS and its derivatives	Pass

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



Jenny Lan
Approved Signatory



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Test Result(s):

Test Part Description:

SN ID	Sample No.	SGS Sample ID	Description
SN1	A1	SHA23-0048709-0001.C001	Colorless transparent liquid

Remarks:

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

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

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
Perfluorononane Acid (PFNA) and its salts*	-	-	µg/kg	10	ND
Perfluoro-3,7-dimethyloctanoic Acid (PF-3,7-DMOA)	172155-07-6	-	µg/kg	10	ND
Perfluorodecane Acid (PFDA) and its salts*	-	-	µg/kg	10	ND
Perfluoroundecanoic Acid (PFUnDA)	2058-94-8	-	µg/kg	10	ND
Perfluorododecanoic Acid (PFDoDA) and its salts*	-	-	µg/kg	10	ND
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	-	µg/kg	10	ND
Perfluorotetradecanoic Acid (PFTDA)	376-06-7	-	µg/kg	10	ND
Sum of C9-C14 PFCAs and its salts	-	25	µg/kg	-	ND
Perfluorodecane Sulfonate (PFDS) and its salts*	-	-	µg/kg	10	ND
1H,1H,2H,2H-Perfluorododecylacrylate (10:2 FTA)	17741-60-5	-	µg/kg	100	ND
1H,1H,2H,2H-Perfluoro -1-dodecanol (10:2 FTOH)	865-86-1	-	µg/kg	100	ND
1-Iodo-1H,1H,2H,2H-perfluorodecane (8:2 FTI)	2043-53-0	-	µg/kg	100	ND
1H,1H,2H,2H-Perfluorodecyltriethoxysilane (8:2 FTSi(OC ₂ H ₅) ₃)	101947-16-4	-	µg/kg	100	ND
2H,2H,3H,3H-Perfluoroundecanoic acid (H ₄ PFUnA/ 8:3 FTCA)	34598-33-9	-	µg/kg	10	ND
1H,1H,2H,2H-Perfluoro-1-decanol (8:2 FTS)	39108-34-4	-	µg/kg	10	ND
1H,1H,2H,2H-Perfluorodecyl acrylate (8:2 FTA)	27905-45-9	-	µg/kg	100	ND
1H,1H,2H,2H-Perfluorodecyl methacrylate (8:2 FTMA)	1996-88-9	-	µg/kg	100	ND



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Test Item(s)	CAS No.	Limit	Unit(s)	MDL	A1
2H,2H-Perfluorodecane Acid (H ₂ PFDA/8:2 FTCA) and its salts / derivative *	-	-	µg/kg	10	ND
1H,1H,2H,2H-Perfluoro-1-decanol (8:2 FTOH)	678-39-7	-	µg/kg	100	ND
Sum of C9-C14 PFCA-related substances	-	260	µg/kg	-	ND
Conclusion					Pass

Notes:

- 1µg/kg=1ppb.
- PFNA and its salts* including PFNA (CAS No. 375-95-1), PFNA-Na (CAS No. 21049-39-8) and PFNA-NH₄ (CAS No. 4149-60-4). The result of PFNA is used to represent PFNA and its salts.
PFDA and its salts* including PFDA (CAS No. 335-76-2), PFDA-Na (CAS No. 3830-45-3) and PFDA-NH₄ (CAS No. 3108-42-7). The result of PFDA is used to represent PFDA and its salts.
Perfluorododecanoic Acid (PFDoDA) and its salts* including PFDoDA (CAS No. 307-55-1) and PFDoDA-NH₄ (CAS No. 3793-74-6). The result of PFDoDA is used to represent PFDoDA and its salts.
PFDS and its salts* including PFDS (CAS No. 335-77-3), PFDS-Na (CAS No. 2806-15-7), PFDS-K (CAS No. 2806-16-8) and PFDS-NH₄ (CAS No. 67906-42-7), The result of PFDS is used to represent PFDS and its salts.
2H,2H-Perfluorodecane Acid (H₂PFDA/8:2 FTCA) and its salts / derivative * including H₂PFDA/8:2 FTCA (CAS No. 27854-31-5) and Tetrabutylphosphonium 2H,2H-Perfluorodecanoate (8:2 FTCA-P(C₄H₉)₄) (CAS No. 882489-14-7). The result of H₂PFDA/8:2 FTCA is used to represent H₂PFDA/8:2 FTCA and its salts / derivative.
- Until 25 August 2024, the concentration limit for the sum of C9-C14 PFCAs in fluoroplastics and fluoroelastomers that contain perfluoroalkoxy groups. From 25 August 2024, the concentration limit shall be 100 ppb for the sum of C9-C14 PFCAs, in fluoroplastics and fluoroelastomers that contain perfluoroalkoxy groups.
- The concentration limit shall be 1000ppb for the sum of C9-C14 PFCAs, where these are present in PTFE micro powders produced by ionising irradiation or by thermal degradation, as well as in mixtures and articles for industrial and professional uses containing PTFE micro powders.
- Recommended requirement with reference to Entry 68 of Regulation (EU) 2021/1297 amending Annex XVII of REACH Regulation (EC) No 1907/2006 (Effective date: 25 February 2023).

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



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Test Method: For PFOA and its salts , PFOS and its derivatives, with reference to CEN/TS 15968:2010, analysis was performed by HPLC-MS.
For PFOA related substances, SGS in house method, analysis was performed by GC-MS and HPLC-MS.

Test Item(s)	CAS No.	Limit	Unit(s)	MDL	A1
Perfluorooctanoic Acid (PFOA) and its salts+	335-67-1	0.025	mg/kg	0.025	ND
PFOA Related Substances	-	1	mg/kg	-	ND
1H,1H,2H,2H-Perfluoro-1-decanol (8:2 FTS)	39108-34-4	-	mg/kg	0.2	ND
Methyl perfluorooctanoate (Me-PFOA)	376-27-2	-	mg/kg	0.2	ND
Ethyl perfluorooctanoate (Et-PFOA)	3108-24-5	-	mg/kg	0.2	ND
1H,1H,2H,2H-Perfluoro-1-decanol (8:2 FTOH)	678-39-7	-	mg/kg	0.2	ND
1H,1H,2H,2H-Perfluorodecyl acrylate (8:2 FTA)	27905-45-9	-	mg/kg	0.2	ND
1H,1H,2H,2H-Perfluorodecyl methacrylate (8:2 FTMA)	1996-88-9	-	mg/kg	0.2	ND
Perfluoro-1-iodooctane (PFOI)	507-63-1	-	mg/kg	0.2	ND
Perfluorooctane sulfonates (PFOS) and its derivatives	-	10	mg/kg	-	ND
Perfluorooctane sulfonates (PFOS) ^	1763-23-1	-	mg/kg	1	ND
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	-	mg/kg	1	ND
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	-	mg/kg	1	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol (EtFOSE)	1691-99-2	-	mg/kg	1	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (MeFOSE)	24448-09-7	-	mg/kg	1	ND
Perfluorooctane sulfonamide (PFOSA)	754-91-6	-	mg/kg	1	ND
Conclusion					Pass

Notes:

- (1) + PFOA refer to its salts including 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) and APFO (CAS No.: 3825-26-1);
- (2) ^ PFOS including PFOS-K (CAS No.: 2795-39-3), PFOS-Li (CAS No.: 29457-72-5), PFOS-NH₄ (CAS No.: 29081-56-9), PFOS-NH(OH)₂ (CAS No.: 70225-14-8), PFOS-N(C₂H₅)₄ (CAS No.: 56773-42-3), PFOS-DDA(CAS No.:251099-16-8) and POSF(CAS No.: 307-35-7).

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.

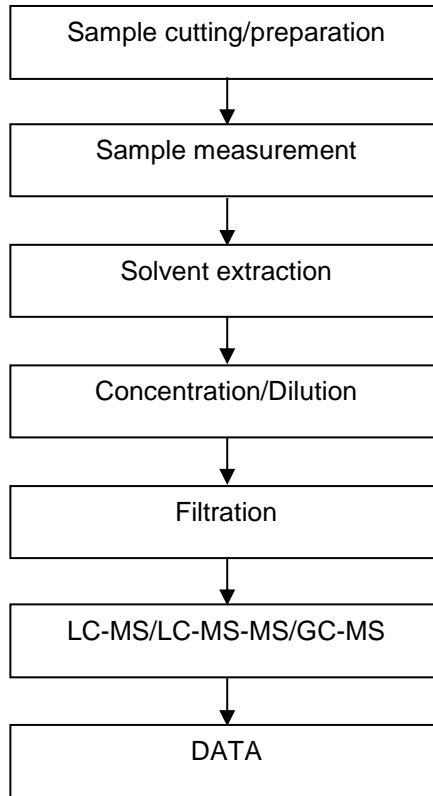


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PFASs/ PFOS/PFOA Testing Flow Chart



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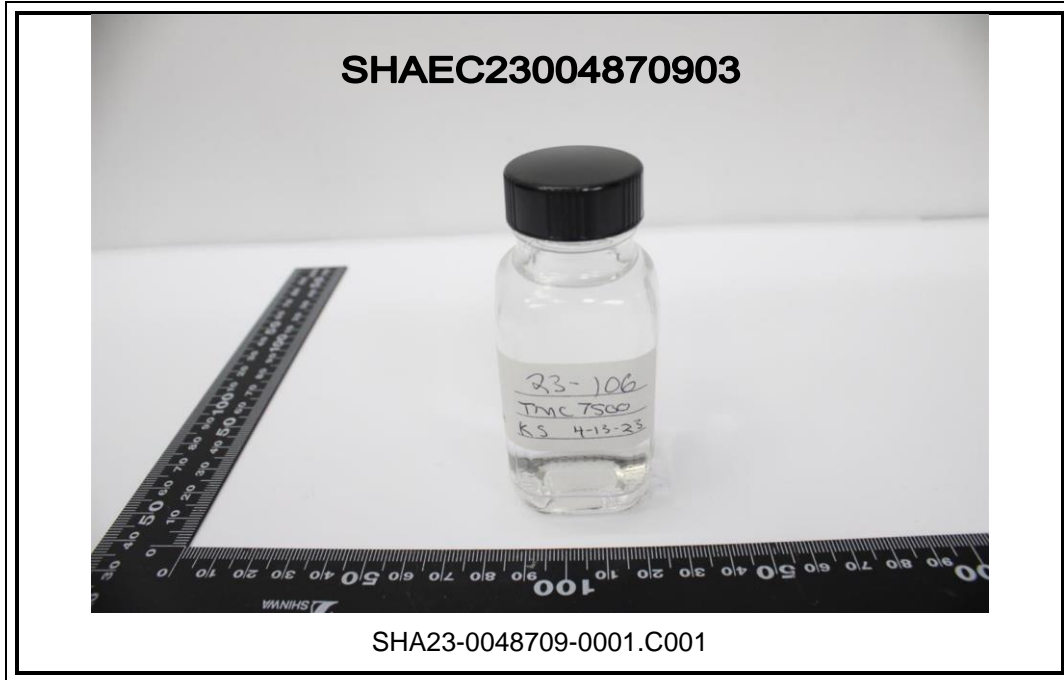
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Sample Photo:



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