FOOD STANDARDS Australia • New Zealand
Te Mana Kounga Kai – Ahitereiria me Aotearoa

27th Australian Total Diet Study

Appendix 1: Compounds analysed, analytical limits and methods

Appendix 1.1: List of compounds analysed (analytes) in the 27th ATDS

PFAS acronym	PFAS name	CAS* registry number
10:2 FTS	10:2 Fluorotelomer sulfonic acid	120226-60-0
4:2 FTS	4:2 Fluorotelomer sulfonic acid	757124-72-4
6:2 FTS	6:2 Fluorotelomer sulfonic acid	27619-97-2
8:2 FTS	8:2 Fluorotelomer sulfonic acid	39108-34-4
EtFOSA	N-Ethyl perfluorooctane sulfonamide	4151-50-2
EtFOSAA	N-Ethyl perfluorooctane sulfonamidoacetic acid	2991-50-6
EtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol	1691-99-2
FOSA	Perfluorooctane sulfonamide	754-91-6
MeFOSA	N-Methyl perfluorooctane sulfonamide	31506-32-8
MeFOSAA	N-Methyl perfluorooctane sulfonamidoacetic acid	2355-31-9
MeFOSE	N-Methyl perfluorooctane sulfonamidoethanol	24448-09-7
PFBA	Perfluorobutanoic acid	375-22-4
PFBS	Perfluorobutane sulfonic acid	375-73-5
PFDA	Perfluorodecanoic acid	335-76-2
PFDoDA	Perfluorododecanoic acid	307-55-1
PFDoS	Perfluorododecane sulfonic acid	79780-39-5
PFDS	Perfluorodecane sulfonic acid	335-77-3
PFHpA	Perfluoroheptanoic acid	375-85-9
PFHpS	Perfluoroheptane sulfonic acid	375-92-8
PFHxA	Perfluorohexanoic acid	307-24-4
PFHxS	Perfluorohexane sulfonic acid	355-46-4
PFNA	Perfluorononanoic acid	375-95-1
PFNS	Perfluorononane sulfonic acid	68259-12-1
PFOA	Perfluorooctanoic acid	335-67-1
PFOS	Perfluorooctane sulfonic acid	1763-23-1
PFPeA	Perfluoropentanoic acid	2706-90-3
PFPeS	Perfluoropentane sulfonic acid	2706-91-4
PFTeDA	Perfluorotetradecanoic acid	376-06-7
PFTrDA	Perfluorotridecanoic acid	72629-94-8
PFUnDA	Perfluoroundecanoic acid	2058-94-8

*CAS: Chemical Abstracts Service

Appendix 1.2: Summary of analytical limits for all food types except for water

Analyte	Range of LOD* (µg/kg)	Range of LOQ** (µg/kg)	LOR*** (µg/kg)
10:2 FTS	0.016 - 0.10	0.080 - 0.33	0.50
4:2 FTS	0.0080 - 0.12	0.040 - 0.40	0.20
6:2 FTS	0.0050 - 0.12	0.025 - 0.40	0.20
8:2 FTS	0.0080 - 0.057	0.040 - 0.20	0.20
EtFOSA	0.014 - 0.15	0.070 - 0.51	1.0
EtFOSAA	0.0070 - 0.093	0.035 - 0.31	1.0
EtFOSE	0.024 - 0.21	0.12 - 1.0	1.0
FOSA	0.0050 - 0.050	0.025 - 0.17	0.20
MeFOSA	0.0070 - 0.19	0.035 - 0.62	1.0
MeFOSAA	0.0080 - 0.22	0.040 - 0.72	1.0
MeFOSE	0.016 - 0.30	0.078 - 1.0	1.0
PFBA	0.029 - 0.35	0.15 - 1.2	1.0
PFBS	0.0040 - 0.080	0.020 - 0.27	0.20
PFDA	0.0080 - 0.12	0.040 - 0.40	0.20
PFDoDA	0.013 - 0.12	0.065 - 0.38	0.20
PFDoS	0.017 - 0.057	0.085 - 0.22	0.50
PFDS	0.010 - 0.046	0.050 - 0.19	0.20
PFHpA	0.015 - 0.10	0.075 - 0.34	0.20
PFHpS	0.011 - 0.067	0.055 - 0.23	0.20
PFHxA	0.011 - 0.088	0.055 - 0.44	0.50
PFHxS	0.0040 - 0.047	0.019 - 0.20	0.05
PFNA	0.0080 - 0.071	0.040 - 0.24	0.20
PFNS	0.0090 - 0.065	0.045 - 0.23	0.20
PFOA	0.010 - 0.058	0.050 - 0.21	0.10
PFOS	0.0080 - 0.047	0.050 - 0.21	0.050
PFPeA	0.0090 - 0.12	0.045 - 0.40	0.20
PFPeS	0.0070 - 0.093	0.035 - 0.31	0.20
PFTeDA	0.010 - 0.16	0.050 - 0.55	0.20
PFTrDA	0.019 - 0.24	0.095 - 0.83	0.50
PFUnDA	0.0080 - 0.087	0.040 - 0.29	0.20

* LOD: Limit Of Detection
** LOQ: Limit Of Quantitation
*** LOR: Limit of Reporting

Appendix 1.3: Summary of analytical limits for tap and bottled water

Analyte	LOD (µg/L)	LOQ (µg/L)	LOR (µg/L)
10:2 FTS	0.0002	0.001	0.001
4:2 FTS	0.0001	0.0007	0.001
6:2 FTS	0.0002	0.001	0.001
8:2 FTS	0.0002	0.001	0.001
EtFOSA	0.0002	0.001	0.001
EtFOSAA	0.0002	0.001	0.001
EtFOSE	0.0002	0.001	0.001
FOSA	0.0002	0.001	0.001
MeFOSA	0.0002	0.001	0.001
MeFOSAA	0.0002	0.001	0.001
MeFOSE	0.0002	0.001	0.001
PFBA	0.001	0.005	0.005
PFBS	0.0002	0.001	0.001
PFDA	0.0002	0.001	0.001
PFDoDA	0.0002	0.001	0.001
PFDoS	0.0002	0.001	0.001
PFDS	0.0002	0.001	0.001
PFHpA	0.0002	0.001	0.001
PFHpS	0.0002	0.001	0.001
PFHxA	0.0002	0.001	0.001
PFHxS	0.0002	0.001	0.001
PFNA	0.0002	0.001	0.001
PFNS	0.0002	0.001	0.001
PFOA	0.0002	0.001	0.001
PFOS	0.0002	0.001	0.001
PFPeA	0.0002	0.001	0.001
PFPeS	0.0002	0.001	0.001
PFTeDA	0.0002	0.001	0.001
PFTrDA	0.0002	0.001	0.001
PFUnDA	0.0002	0.001	0.001

Appendix 1.4: Analytical methodology

Symbio Laboratories (Brisbane) conducted the preparation and analyses of food samples for PFAS. The analyses of samples were conducted in a NATA[1] accredited facility using a fully validated NATA accredited method (In-house method CR148). The results were subject to quality assurance and quality control procedures in accordance with ISO/IEC/17025 requirements.

PFAS were extracted from prepared foods using a modified QuEChERS[2] technique. The extract was further cleaned up by Solid Phase Extraction (SPE) and concentrated under

[1] National Association of Testing Authorities
[2] QuEChERS – Quick Easy Cheap Effective Rugged Safe. QuEChERS is recognised as an efficient extraction method for detection of chemical residues in food.

nitrogen prior to instrumental analysis. Quantitative and confirmatory analysis was performed simultaneously by Ultra High Performance Liquid Chromatography/High Resolution Mass Spectrometry (UHPLC/HRMS).