Documentation of the data model for PFAS analyses in milk and dairy products

In 2025, the Association of Swiss Cantonal Chemists (VKCS) and the Federal Food Safety and Veterinary Office (FSVO) conducted a joint nationwide campaign. The aim was to record the occurrence of per- and polyfluoroalkyl substances (PFAS) in food of animal origin. As part of the campaign, the FSVO investigated the presence of various PFAS in milk and dairy products (milk, yoghurt, butter, cream and cheese) made from cow's milk on the Swiss market. There are currently no legal maximum levels for these food categories.

In addition, the FSVO makes the raw data for milk and dairy products available as open government data. This document documents the data models of the raw data.

Download raw data: https://opendata.swiss/de/dataset/pfas-analysen-in-milch-und-milchprodukten

There are currently (December 2025) no legally binding maximum levels for PFAS in milk and dairy products in either Switzerland or the EU. If elevated PFAS concentrations are found in milk, the priority is therefore to investigate the causes of the contamination.

In 2022, the European Commission recommended that Member States extend the monitoring of PFAS to food groups for which little data is currently available (Recommendation (EU) 2022/1431). To this end, the recommendation contains indicative values for the four PFAS assessed by the European Food Safety Authority (EFSA), including milk. These guidance values are not legally binding but serve as a basis for further investigation. If they are exceeded, it is recommended that the source of the contamination be identified. Switzerland also uses the indicative values defined in the EU recommendation as a reference.

The results of the analyses of milk and yoghurt were evaluated in relation to these indicative values. As yoghurt has a similar composition to milk, the same evaluation basis is used. However, there are no specific indicative values for cream, butter and cheese. They are therefore assessed based on the limits of quantification of the analysis method (0.05 µg/kg).

The summary of results lists all analysis values, including those below the limit of quantification.

food_control_food_establishments.csv

Attribute	Explanation
Beschreibung	description
Milchproduktkategorie	milk product category
Datum Probenahme	sampling date
Produktionsland	country of manufacture
PFBA	perfluorobutanoic acid
PFPeA	perfluoropentanoic acid
PFHxA	perfluorohexanoic acid
PFHpA	perfluoroheptanoic acid
PFOA	perfluorooctanoic acid
PFNA	perfluorononanoic acid
PFDA	perfluorodecanoic acid
PFUnDA	perfluoroundecanoic acid
PFDoDA	perfluorododecanoic acid
PFTrDA	perfluorotridecanoic acid
PFTeDA	perfluorotetradecanoic acid
PFBS	perfluorobutane sulfonic acid
PFPeS	perfluorobutane sulfonic acid
total PFHxS	total perfluorohexane sulfonic acid
PFHpS	perfluoroheptane sulfonic acid
total PFOS	total perfluorooctane sulfonic acid
PFNS	perfluorononane sulfonic acid
PFDS	perfluorodecane sulfonic acid
PFUnDS	perfluoroundecane sulfonic acid
PFDoDS	perfluorododecane sulfonic acid
PFTrDS	perfluorotridecane sulfonic acid
HFPO-DA	hexafluoropropylene oxide dimer acid
DONA	ADONA,4,8-dioxa-3H-perfluorononanoate
9Cl-PF3ONS	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid
11Cl-PF3OUnDS	11-Chlorohexadecafluoro-3-oxaundecane-1-sulfonic acid
4:2 FTS	4:2 fluorotelomer sulfonic acid
8:2 FTS	8:2 fluorotelomer sulfonic acid
10:2 FTS	10:2 fluorotelomer sulfonic acid
FOSA	perfluorooctane sulfonamide
Capstone A	6:2 FTNO - 6:2 fluorotelomer sulfonamide amine oxide
Capstone B	6:2 FTAB - 6:2 fluorotelomer fulfonamide alkylbetaine
6:2 FTOH	6:2fluorotelomer alcohol
8:2 FTOH	8:2 fluorotelomer alcohol

Methode zur Analyse von Milch und Milchprodukten

PFAS	Milch und Joghurt		Käse, Butter und Rahm	
	LOQ (µg/kg)	MU[1] (%)	LOQ (µg/kg)	MU[1] (%)
PFBA	0.01	40	0.05	40
PFPeA	0.01	25	0.05	25
PFHxA	0.01	25	0.05	25
PFHpA	0.01	25	0.05	25
PFOA[2]	0.01	25	0.05	25
PFNA[2]	0.01	20	0.05	20
PFDA	0.01	30	0.05	30
PFUnDA	0.01	25	0.05	25
PFDoDA	0.01	35	0.05	35
PFTrDA	0.01	20	0.05	20
PFTeDA	0.01	25	0.05	25
PFBS	0.01	35	0.05	35
PFPeS	0.01	40	0.05	40
PFHxS[2]	0.01	25	0.05	25
PFHpS	0.01	10	0.05	10
L-PFOS[2]	0.01	30	0.05	30
PFNS	0.01	20	0.05	20
PFDS	0.01	20	0.05	20
PFUnDS	0.01	25	0.05	25
PFDoDS	0.01	30	0.05	30
PFTrDS	0.01	30	0.05	30
PFOSA	0.01	10	0.05	10
9Cl-PF3ONS	0.01	15	0.05	15
HFPO-DA	0.01	35	0.05	35
ADONA	0.01	40	0.05	40
6:2 FTNO (Capstone A)[3]	0.01	n/a	0.5	n/a
6:2 FTAB (Capstone B)	0.01	40	0.5	40
4:2 FTSA	0.01	25	0.05	25
6:2 FTSA[3]	0.01	n/a	0.05	n/a
8:2 FTSA	0.01	20	0.05	20
10:2 FTSA	0.01	50	0.05	50
6:2 FTOH[5]	0.5	25	2.5	25
8:2 FTOH[5]	0.5	25	2.5	25
11Cl-PF3OUdS	0.01	35	0.05	35

[1] Abschätzung der Messunsicherheit: Es ist jeweils die erweiterte Messunsicherheit (U expanded) mit k=2 für 95 % Vertrauensintervall im Bereich der Bestimmungsgrenze angegeben. Die Abschätzung beruht auf einer Intra-Labor-Validierung und QC-Daten.

[2]Für PFOA, PFNA, L-PFHxS und L-PFOS konnten anhand eines externen Referenzmaterials zusätzlich folgende MU-Abschätzungen im Bereich 0.4-1.2 µg/kg (U expanded mit k=2 für 95 % Vertrauensintervall) durchgeführt werden: PFOA 27 %, PFNA 26 %, L-PFHxS 23 %, L-PFOS 39%.