Data Article

Data on occurrence of perfluoroalkyl substances in influents and effluents collected from different wastewater treatment plants in Latvia

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\begin{abstract}
The data set provided in this paper contains occurrence data of 17 perfluoroalkyl substances (PFAS) (including 10 perfluorinated carboxylic acids and 7 perfluorinated sulfonic acids) in influent and effluent samples collected from 43 wastewater treatment plants (WWTPs) located in different cities in Latvia. Samples were collected in the period June-July 2021. In each WWTP one influent and one effluent sample were collected on the same day. Extraction and clean-up of the samples were performed using solid phase extraction (SPE) on a weak-anion SPE phase. Observed extracts were analysed using high performance liquid chromatography coupled with Orbitrap high resolution mass spectrometry (HPLC-Orbitrap-MS) on the content of selected PFAS representatives. The collected data are with fundamental scientific value and can be applied for local data analysis. The data set is useful for the estimation of overall background levels of PFAS and evaluation of local city WWTPs wastewater remediation efficiency towards the removal of PFAS contamination.
\end{abstract}

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Specifications Table

| Subject                                      | Environmental Science |
|----------------------------------------------|-----------------------|
| Specific subject area                        | Emerging Contaminants in the environment |
| Type of data                                 | Tables                |
|                                               | Figure                |
| How the data were acquired                   | High performance liquid chromatography coupled with Orbitrap high resolution mass spectrometry (Thermo Scientific UltiMate 3000 HPLC coupled with Thermo Scientific Orbitrap Q-Exactive mass spectrometer). Xcalibur™ Software. |
| Data format                                  | Raw;                  |
|                                               | Analysed              |
| Description of data collection               | Wastewater samples were collected into 1 L brown coloured glass bottles and transferred to the laboratory at +4 °C. Samples were stored at +4 °C and extracted within seven days of receipt. Samples were extracted by weak-anion exchange solid phase extraction and subjected to HPLC-Orbitrap-MS analysis. |
| Data source location                         | Institution: Institute of Food Safety, Animal Health and Environment “BIOR” City: Riga |
|                                               | • Country: Latvia     |
|                                               | • Latitude and longitude for monitoring points are presented in Table 1 |
| Data accessibility                           | The data are available within this article |

Value of the Data

- Perfluorinated substances transport and spread in the environment through WWTPs are of increasing concern, with a lack of data available in Latvia. These data offer a comprehensive overview of the occurrence of 17 perfluorinated carboxylic and sulfonic acids in influents and effluents collected from different WWTPs in Latvia.
- The data can be valuable for researchers studying contaminant transfer into the environment through the WWTPs.
- These data may be used by local authorities, policy makers and researchers to improve the environmental quality standards. These data may be valuable in the optimisation of WWTP operation conditions.
- These data may contribute to the existing worldwide need of monitoring data for PFAS to support future prioritisation of relevant compounds and the development of guidelines by national and international authorities.

1. Data Description

The presented data were obtained during a comprehensive monitoring study on the occurrence of 17 PFAS in influent and effluent samples collected from 43 WWTPs located in different regions of Latvia. Results are expressed as nanogram per liter concentrations (ng L⁻¹). Data presented include (1) mapping of sampling locations in different regions of Latvia (Fig. 1); (2) datasets with concentrations of selected PFAS in influent wastewater collected before any treatment and concentrations in effluent wastewater collected immediately before the discharge from WWTP (Table 1); (3) constructed boxplots for datasets (Fig. 2).

2. Experimental Design, Materials and Methods

Wastewater aliquots were collected into 1 L brown coloured glass bottles and transferred to the laboratory at +4 °C. Samples were stored at +4 °C and treated within seven days of receipt.
Fig. 1. The distribution of sampling locations throughout Latvia.
| Sampling location | Coordinates          | PFPeA | PFHxA | PFHpA | PFOA | PFNA | PFDA | PFUdA | PFOA | PFTrDA | PFPeS | PFDoA | PFBS | PFPeS | PFHxA | PFHpS | PFOS | PFNS | PFDS |
|-------------------|----------------------|-------|-------|-------|------|------|------|-------|------|--------|-------|-------|------|-------|-------|-------|------|------|------|------|
| WWTP "Piebalgas", Vecumnieki district, influent | 56.60057, 24.49447 | 1.14  | 2.69  | 1.19  | 3.06 | 1.21 | 0.79 | 0.15  | -LOQ | -LOQ   | -LOQ  | -LOQ  | 0.57 | 0.14  | 0.25  | 0.05  | 0.22 | -LOQ | -LOQ |
| WWTP "Piebalgas", Vecumnieki district, effluent |                       | 0.99  | 2.86  | 1.11  | 4.70 | 0.84 | 0.45 | 0.01  | -LOQ | -LOQ   | -LOQ  | -LOQ  | 0.33 | -LOQ  | 0.10  | 0.05  | 0.46 | -LOQ | 0.82 |
| WWTP "Uzvara", Bauska district, influent | 56.31715, 24.19518 | 0.30  | 0.14  | 0.08  | 2.04 | 0.11 | 0.01 | -LOQ  | -LOQ | -LOQ   | -LOQ  | -LOQ  | 0.22 | -LOQ  | -LOQ  | -LOQ  | 0.11 | 0.03 | 0.11 |
| WWTP "Uzvara", Bauska district, effluent |                       | 0.45  | 0.29  | 0.12  | 0.75 | 0.11 | 0.03 | -LOQ  | -LOQ | -LOQ   | -LOQ  | -LOQ  | 0.29 | -LOQ  | -LOQ  | -LOQ  | 0.35 | -LOQ | -LOQ |
| WWTP "Nākotne", Jelgava region influent | 56.61932, 23.44394 | 1.01  | 2.40  | 2.74  | 1.92 | 0.81 | 0.03 | -LOQ  | -LOQ | -LOQ   | -LOQ  | -LOQ  | 0.31 | -LOQ  | -LOQ  | -LOQ  | 0.46 | -LOQ | -LOQ |
| WWTP "Nākotne Jelgava region effluent |                       | 1.20  | 1.10  | 2.09  | 0.82 | 0.76 | 0.08 | 0.01  | -LOQ | -LOQ   | -LOQ  | -LOQ  | 0.48 | -LOQ  | -LOQ  | -LOQ  | 0.02 | 0.40 | -LOQ |
| Vīce village WWTP, Jelgava region, influent | 56.37061, 23.52569 | 1.09  | 4.06  | 0.57  | 5.02 | 0.29 | 0.10 | -LOQ  | -LOQ | -LOQ   | -LOQ  | -LOQ  | 0.53 | -LOQ  | 0.04  | 0.20  | 0.29 | -LOQ | 0.68 |
| Vīce village WWTP, Jelgava region, effluent |                       | 0.90  | 2.16  | 0.43  | 1.62 | 0.24 | 0.14 | -LOQ  | -LOQ | -LOQ   | -LOQ  | -LOQ  | 0.53 | -LOQ  | -LOQ  | -LOQ  | 0.02 | 0.34 | -LOQ |
| Kalsciems village WWTP, Kalsciems, influent | 56.80218, 23.60559 | 0.79  | 2.62  | 8.50  | 1.32 | 0.54 | 0.19 | 0.02  | -LOQ | -LOQ   | -LOQ  | -LOQ  | 1.02 | -LOQ  | 0.05  | -LOQ  | 0.40 | -LOQ | 0.36 |
| Kalsciems village WWTP, Kalsciems, effluent |                       | 1.60  | 1.29  | 2.54  | 64.1 | -LOQ | -LOQ | -LOQ  | -LOQ | -LOQ   | -LOQ  | -LOQ  | 0.69 | -LOQ  | -LOQ  | -LOQ  | -LOQ | -LOQ | -LOQ |
| Ezernieki WWTP, Ezernieki, influent | 56.81207, 26.56585 | 0.01  | 1.20  | 0.15  | 0.89 | 0.24 | 0.12 | -LOQ  | -LOQ | -LOQ   | -LOQ  | -LOQ  | 0.22 | 0.53  | 0.21  | -LOQ  | 0.43 | 0.45 | -LOQ |
| Ezernieki WWTP, Ezernieki, effluent |                       | 0.03  | 0.83  | 0.19  | 3.71 | 0.20 | 0.05 | -LOQ  | -LOQ | -LOQ   | -LOQ  | -LOQ  | 0.51 | 0.01  | -LOQ  | 0.02  | 1.29 | 0.02 | -LOQ |
| Naujie WWTP, Naujie parish, influent | 55.94411, 26.7545 | 0.07  | 2.77  | 1.39  | 2.19 | 0.52 | 0.12 | -LOQ  | -LOQ | -LOQ   | -LOQ  | -LOQ  | 1.04 | 0.40  | -LOQ  | -LOQ  | 1.97 | 0.18 | 0.10 |
| Naujenes WWTP, Naujenes parish, effluent |                       | 0.12  | 2.19  | 0.87  | 2.68 | 0.69 | 0.17 | -LOQ  | -LOQ | -LOQ   | -LOQ  | -LOQ  | 0.94 | 0.08  | 0.03  | -LOQ  | 1.43 | 0.15 | 0.03 |
| Rudziki WWTP, Rudziki, influent | 56.45533, 26.47109 | 0.01  | 0.82  | 0.22  | 1.50 | 0.19 | 0.09 | -LOQ  | -LOQ | -LOQ   | -LOQ  | -LOQ  | 0.39 | 0.01  | 0.06  | -LOQ  | 0.72 | -LOQ | -LOQ |
| Rudziki WWTP, Rudziki, effluent |                       | 0.02  | 0.50  | 0.29  | 2.05 | 0.07 | -LOQ | -LOQ  | -LOQ | -LOQ   | -LOQ  | -LOQ  | 0.55 | 0.00  | 0.15  | -LOQ  | 0.47 | 0.02 | -LOQ |

(continued on next page)
| Sampling location | Coordinates | PFPeA | PFHxA | PFHpA | PFOA | PFNA | PFDA | PFUdA | PFDoA | PFTrDA | PFTeDA | PFBS | PFPeS | PFHxS | PFHpS | PFOS | PFNS | PFDS |
|-------------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Viesite WWTP, Viesite, influent | 56.34486, 25.56032 | 0.06 | 3.71 | 0.26 | 1.69 | 0.46 | 0.10 | <LOQ | <LOQ | <LOQ | <LOQ | 0.60 | 0.08 | 0.58 | <LOQ | 1.69 | <LOQ | <LOQ |
| Viesite WWTP, Viesite, effluent | 0.01 | 1.72 | 0.19 | 6.48 | 0.66 | 0.18 | <LOQ | <LOQ | <LOQ | <LOQ | 1.09 | 0.05 | 0.02 | <LOQ | 1.15 | 0.02 | <LOQ |
| Aknīste WWTP, Aknīste, influent | 56.15973, 25.74428 | 0.13 | 4.41 | 0.44 | 3.08 | 2.02 | 0.11 | <LOQ | <LOQ | <LOQ | <LOQ | 0.47 | 0.07 | 0.15 | <LOQ | 0.77 | 0.15 | 0.12 |
| Aknīste WWTP, Aknīste, discharge | 0.12 | 2.31 | 0.09 | 7.43 | 2.73 | 0.24 | <LOQ | 0.09 | <LOQ | <LOQ | 0.73 | 0.34 | 0.41 | <LOQ | 1.48 | 0.13 | 0.07 |
| Straupe PKS, "Pienotava", Straupe parish, influent | 57.34699, 24.9477 | 0.03 | 2.42 | 0.08 | 1.78 | 0.09 | 0.03 | <LOQ | <LOQ | <LOQ | <LOQ | 0.19 | 0.07 | <LOQ | <LOQ | 0.77 | <LOQ | <LOQ |
| Straupe PKS, "Pienotava", Straupe parish, effluent | 0.01 | 0.36 | 0.05 | 1.17 | <LOQ | <LOQ | <LOQ | <LOQ | <LOQ | <LOQ | 0.25 | <LOQ | <LOQ | <LOQ | <LOQ | <LOQ | <LOQ | <LOQ |
| SIA "Rūjienas siltums", Rūjiena, influent | 57.89389, 25.33933 | 0.01 | 1.56 | 1.12 | 2.49 | 0.71 | 0.17 | <LOQ | 0.02 | 0.01 | <LOQ | 0.82 | 0.26 | <LOQ | 0.05 | 2.21 | <LOQ | <LOQ |
| SIA "Rūjienas siltums", Rūjiena, effluent | 4.24 | 6.78 | 3.58 | 3.27 | 1.03 | 0.12 | <LOQ | <LOQ | <LOQ | <LOQ | 12.5 | 0.19 | 0.19 | 0.05 | 4.51 | <LOQ | <LOQ | <LOQ |
| SIA "Salagūnas ūdens", WWTP, Salacgrāva, influent | 57.75813, 24.35434 | 0.03 | 1.62 | 2.36 | 3.32 | 2.52 | 0.25 | <LOQ | 0.07 | <LOQ | <LOQ | 0.59 | 0.56 | 2.25 | 1.47 | 41.78 | 1.88 | <LOQ |
| SIA "Salagūnas ūdens", WWTP, Salacgrāva, effluent | 0.59 | 1.85 | 0.94 | 6.23 | 2.27 | 0.19 | <LOQ | <LOQ | <LOQ | <LOQ | 0.98 | 0.08 | 1.11 | 0.36 | 8.40 | <LOQ | <LOQ | <LOQ |
| Turaida village WWTP, influent | 57.18226, 24.85028 | 0.42 | 2.03 | 0.41 | 1.37 | 0.35 | 0.31 | <LOQ | 0.10 | 0.01 | <LOQ | 0.61 | 0.15 | 0.06 | <LOQ | 0.74 | <LOQ | <LOQ |
| Turaida village WWTP, effluent | 0.10 | 1.28 | 0.13 | 2.24 | 0.13 | 0.09 | <LOQ | <LOQ | <LOQ | <LOQ | 0.49 | 0.01 | 0.02 | 0.03 | 0.35 | 0.01 | <LOQ | <LOQ |
| Lišmatne biological WWTP, influent | 57.23633, 25.03807 | 0.01 | 1.17 | 0.37 | 2.78 | 0.47 | 0.09 | 0.05 | 0.18 | <LOQ | <LOQ | 0.50 | 0.02 | <LOQ | 0.00 | 0.46 | <LOQ | <LOQ |
| Lišmatne biological WWTP, effluent | 0.03 | 1.71 | 0.44 | 0.99 | 0.24 | 0.02 | <LOQ | <LOQ | <LOQ | <LOQ | 0.55 | 0.06 | 0.02 | 0.05 | 0.45 | <LOQ | <LOQ | <LOQ |
| Sēļa WWTP, Sēlpils parish, influent | 56.52801, 25.61312 | 0.02 | 1.46 | 0.24 | 0.91 | 0.17 | 0.05 | 0.02 | 0.04 | <LOQ | <LOQ | 0.26 | 0.01 | 0.41 | <LOQ | 0.61 | 0.00 | <LOQ |
| Sēļa WWTP, Sēlpils parish, effluent | 0.02 | 1.72 | 0.79 | 1.20 | 0.18 | 0.03 | 0.02 | 0.03 | <LOQ | <LOQ | 0.30 | 0.01 | 0.43 | <LOQ | 0.75 | <LOQ | <LOQ | <LOQ |
| Ozolmuiža village, WWTP | 56.49696, 27.27792 | <LOQ | 1.08 | 0.07 | 0.62 | 0.08 | 0.04 | 0.02 | 0.01 | <LOQ | <LOQ | 0.13 | 0.00 | 0.38 | 0.00 | 0.76 | 0.01 | <LOQ |
| BIO II 300, Ozolmuiža parish, influent | 0.01 | 1.76 | 0.13 | 0.32 | 0.09 | 0.02 | 0.02 | 0.02 | <LOQ | <LOQ | 0.13 | <LOQ | 0.40 | <LOQ | 0.51 | <LOQ | <LOQ | <LOQ |
| Ozolmuiža village, WWTP | 56.49696, 27.27792 | <LOQ | 1.08 | 0.07 | 0.62 | 0.08 | 0.04 | 0.02 | 0.01 | <LOQ | <LOQ | 0.13 | 0.00 | 0.38 | 0.00 | 0.76 | 0.01 | <LOQ |
| BIO II 300, Ozolmuiža parish, effluent | 0.01 | 1.76 | 0.13 | 0.32 | 0.09 | 0.02 | 0.02 | 0.02 | <LOQ | <LOQ | 0.13 | <LOQ | 0.40 | <LOQ | 0.51 | <LOQ | <LOQ | <LOQ |

(continued on next page)
| Sampling location                  | Coordinates         | PFPeA | PFHxA | PFHpA | PFOA | PFNA | PFDA | PFUdA | PFDoA | PFTrDA | PFTeDA | PFBS | PFPeS | PFHxS | PFHpS | PFOS | PFNS | PFDS |
|-----------------------------------|----------------------|-------|-------|-------|------|------|------|-------|-------|--------|--------|------|------|-------|------|------|------|------|------|
| SIA "Gulbenes nami", Pilskalna village WWTP, Gulbene district, influent | 57.28817, 26.78724  | 0.01  | 1.38  | 0.38  | 0.65 | 0.11 | 0.04 | 0.04  | <LOQ  | <LOQ   | <LOQ   | 0.22 | 0.02 | 0.43  | 0.01 | 0.77 | <LOQ | 0.01 |
|                                  |                      | 0.01  | 1.70  | 0.41  | 1.02 | 0.05 | 0.04 | 0.01  | 0.04  | <LOQ   | <LOQ   | 0.47 | 0.03 | 0.43  | 0.01 | 0.84 | <LOQ | <LOQ |
| Skrīveri SAC "Ziedugravas" WWTP ASD BX – 100, Skrīveri district, influent | 56.63707, 25.11434  | 0.01  | 0.89  | 0.11  | 0.56 | 0.17 | 0.15 | 0.00  | 0.02  | <LOQ   | <LOQ   | 0.15 | 0.01 | 0.43  | <LOQ | 1.39 | <LOQ | 0.02 |
| Skrīveri SAC "Ziedugravas" WWTP ASD BX – 100, Skrīveri district, effluent |                      | <LOQ  | 1.09  | 0.13  | 0.39 | 0.19 | 0.09 | 0.01  | 0.04  | <LOQ   | <LOQ   | 0.34 | 0.01 | 0.43  | <LOQ | 1.04 | <LOQ | <LOQ |
| Žīguri village, WWTP BIO KRB 60, Žīguru parish, influent | 57.29366, 27.67204  | 1.11  | 2.13  | 1.86  | 2.67 | 1.07 | 1.15 | <LOQ  | <LOQ  | <LOQ   | <LOQ   | 1.68 | <LOQ | 0.02  | <LOQ | 2.09 | <LOQ | <LOQ |
| Žīguri village, WWTP BIO KRB 60, Žīguru parish, effluent |                      | 0.68  | 1.00  | 1.52  | 2.11 | 0.94 | 0.11 | <LOQ  | <LOQ  | <LOQ   | <LOQ   | 1.77 | 0.06 | 0.11  | <LOQ | 1.35 | <LOQ | <LOQ |
| Vilaka WWTP BIO - 240, Vilaka, influent | 57.18795, 27.66825  | 0.03  | 0.67  | 4.04  | 1.32 | 9.28 | 0.07 | 0.02  | 0.07  | 0.19   | 0.13   | 0.62 | 0.08 | <LOQ  | <LOQ | 0.89 | <LOQ | 0.16 |
| Vilaka WWTP BIO - 240, Vilaka, effluent |                      | 0.27  | 0.86  | 3.25  | 1.98 | 10.2 | 0.04 | <LOQ  | <LOQ  | <LOQ   | <LOQ   | 0.75 | 0.11 | <LOQ  | <LOQ | 0.97 | 0.08 | 0.02 |
| Ludza, WWTP BIO-2800, Isnaudas parish, influent | 56.48444, 27.83591  | 6.34  | 7.45  | 5.89  | 10.1 | 4.01 | 0.60 | <LOQ  | <LOQ  | 0.03   | 0.18   | 1.75 | <LOQ | 0.11  | <LOQ | 2.29 | <LOQ | <LOQ |
| Ludza, WWTP BIO-2800, Isnaudas parish, effluent |                      | 4.35  | 5.57  | 1.53  | 4.18 | 1.57 | 0.19 | <LOQ  | <LOQ  | <LOQ   | <LOQ   | 1.70 | <LOQ | 0.07  | <LOQ | 1.78 | <LOQ | <LOQ |
| Nirzas village, WWTP BIO M 27.5 × 2, Nirzas parish, influent | 56.39374, 27.90853  | <LOQ  | 0.84  | 0.31  | 0.98 | 1.08 | 0.08 | <LOQ  | <LOQ  | <LOQ   | <LOQ   | 0.11 | <LOQ | <LOQ  | <LOQ | 0.18 | <LOQ | <LOQ |
| Nirzas village, WWTP BIO M 27.5 × 2, Nirzas parish, effluent |                      | 0.34  | 0.94  | 0.59  | 2.23 | 1.24 | 0.25 | <LOQ  | <LOQ  | <LOQ   | <LOQ   | 0.33 | <LOQ | <LOQ  | 0.02 | 0.65 | <LOQ | <LOQ |
| Raipole village WWTP BIO 50 (Mechanical), "Lupinas", Kusneri, Nirzas parish, influent | 56.37307, 27.89586  | 0.01  | 0.05  | 0.25  | 1.28 | 0.16 | 0.20 | 0.03  | <LOQ  | <LOQ   | <LOQ   | 0.06 | <LOQ | <LOQ  | <LOQ | 0.34 | <LOQ | 2.17 |
| Raipole village WWTP BIO 50 (Mechanical), "Lupinas", Kusneri, Nirzas parish, effluent |                      | 0.01  | <LOQ  | 0.10  | 0.07 | 0.04 | <LOQ | <LOQ  | <LOQ  | <LOQ   | <LOQ   | 0.07 | <LOQ | <LOQ  | <LOQ | <LOQ | <LOQ | <LOQ |

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Table 1 (continued)

| Sampling location                  | Coordinates       | PFPeA | PFHxA | PFHpA | PFOA | PFNA | PFDA | PFUdA | PFDa | PFTrDA | PFPeS | PFHxS | PFHpS | PFOS | PFNS | PFDS |
|-----------------------------------|-------------------|-------|-------|-------|------|------|------|-------|------|--------|-------|-------|-------|------|------|------|------|
| SIA "Madonas ūdens", Liezērūs WWTP, BIO-DRY-S-45, Madona district, influent | 57.03367, 26.05236 | 0.08  | 0.20  | 0.18  | 0.41 | 0.08 | <LOQ | <LOQ  | <LOQ | <LOQ   | 0.08  | <LOQ  | <LOQ  | 0.07 | <LOQ | 0.80 | <LOQ |
| SIA "Madonas ūdens", Liezērūs WWTP, BIO-DRY-S-45, Madona district, effluent | 57.00842, 24.95752 | <LOQ  | <LOQ  | 0.12  | 0.23 | 0.02 | 0.01 | <LOQ  | <LOQ | <LOQ   | <LOQ  | <LOQ  | <LOQ  | 0.25 | <LOQ | 0.03 | <LOQ |
| SIA "Mālpils pienaismnieks" WWTP, Mālpils region, influent | 57.06847, 24.3394 | 0.19  | 2.39  | 0.68  | 2.11 | 0.21 | 0.15 | <LOQ  | <LOQ | <LOQ   | 2.17  | 0.08  | <LOQ  | 0.85 | <LOQ | <LOQ | <LOQ |
| SIA "Mālpils pienaismnieks" WWTP, Mālpils region, effluent | 56.7892, 23.95962 | <LOQ  | <LOQ  | 0.45  | 3.92 | 0.14 | 0.03 | <LOQ  | <LOQ | <LOQ   | <LOQ  | <LOQ  | <LOQ  | 0.21 | <LOQ | 0.01 | <LOQ |
| SIA "Ādažu ūdens", "Centre treatment plant", Ādažu district, influent | 57.03367, 26.05236 | 0.08  | 3.22  | 1.36  | 6.45 | 0.36 | 0.28 | <LOQ  | <LOQ | <LOQ   | 0.30  | 0.01  | <LOQ  | <LOQ | <LOQ | <LOQ | <LOQ |
| SIA "Ādažu ūdens", "Centre treatment plant", Ādažu district, effluent | 57.06847, 24.3394 | 2.61  | 5.33  | 1.30  | 6.83 | 0.29 | 0.10 | <LOQ  | <LOQ | <LOQ   | 4.23  | <LOQ  | <LOQ  | 0.26 | <LOQ | <LOQ | <LOQ |
| JSC "Olainfarm", production WWTP, Olaine region, influent | 57.09544, 24.65032 | <LOQ  | <LOQ  | 2.48  | 1.64 | 0.46 | 0.04 | <LOQ  | <LOQ | <LOQ   | <LOQ  | <LOQ  | <LOQ  | 0.49 | <LOQ | <LOQ | <LOQ |
| JSC "Olainfarm", production WWTP, Olaine region, effluent | 57.06847, 24.3394 | 1.00  | 1.76  | 8.41  | 2.07 | 0.94 | 0.05 | <LOQ  | <LOQ | <LOQ   | 0.76  | <LOQ  | <LOQ  | 0.18 | <LOQ | 0.03 | <LOQ |
| PSIA "Vangažu avots" WWTP "Kārtzemnieki", Inčukalns district, influent | 57.03367, 26.05236 | 0.01  | 0.66  | 0.68  | 6.36 | 0.38 | 0.36 | 0.01  | 0.02 | <LOQ   | 0.00  | 0.40  | <LOQ  | <LOQ | <LOQ | 0.29 | <LOQ |
| PSIA "Vangažu avots" WWTP "Kārtzemnieki", Inčukalns district, effluent | 57.09544, 24.65032 | 0.00  | 0.52  | 0.43  | 1.90 | 0.20 | 0.20 | 0.01  | <LOQ | <LOQ   | 0.18  | 0.00  | <LOQ  | <LOQ | <LOQ | <LOQ | <LOQ |

(continued on next page)
Table 1 (continued)

| Sampling location | Coordinates          | PFPeA | PFHxA | PFHpA | PFOA | PFNA | PFDA | PFUnA | PFDoA | PFTrDA | PFTdA | PFBS | PFPeS | PFHxS | PFHpS | PFOS | PFNS | PFDS |
|-------------------|----------------------|-------|-------|-------|------|------|------|-------|-------|-------|-------|------|------|-------|-------|------|------|------|------|
| JSC "Jaunpils pienotava" WWTP, influent | 56.72998, 23.01658 | 0.30  | 0.98  | 0.04  | 1.05 | 0.15 | 0.02 | <LOQ  | 0.11  | <LOQ  | <LOQ  | 0.40 | 0.08 | 0.04  | <LOQ  | 1.08 | 0.15 | 0.48 |
| JSC "Jaunpils pienotava" WWTP, effluent | 56.72998, 23.01658 | 0.41  | 0.97  | <LOQ  | 0.37 | 0.06 | 0.01 | <LOQ  | 0.02  | <LOQ  | <LOQ  | 0.13 | 0.09 | 0.02  | <LOQ  | 1.23 | 0.09 | 0.08 |
| Valdeku village WWTP influent | 56.99956, 22.77259 | 0.24  | 0.65  | 0.17  | 0.95 | 0.29 | 0.40 | 0.75  | 1.40  | 1.79  | 1.06  | 0.42 | 0.18 | 0.17  | <LOQ  | 1.84 | 0.58 | <LOQ |
| Valdeku village WWTP effluent | 56.99956, 22.77259 | 1.23  | 2.52  | 0.79  | 2.49 | 0.39 | 0.24 | <LOQ  | <LOQ  | <LOQ  | <LOQ  | 0.91 | 0.05 | 0.79  | 0.08 | 3.03 | <LOQ | <LOQ |
| Kazanga WWTP "Avenes", Azpūte region, influent | 56.73262, 21.7328 | 0.05  | 0.56  | 0.05  | 0.47 | 0.28 | 0.06 | <LOQ  | 0.03  | <LOQ  | <LOQ  | 0.28 | 0.57 | 0.05  | <LOQ  | 2.46 | 0.44 | <LOQ |
| Kazanga WWTP "Avenes", Azpūte region, effluent | 56.73262, 21.7328 | 0.14  | 0.62  | 0.13  | 1.35 | 0.27 | 0.02 | <LOQ  | 0.01  | <LOQ  | <LOQ  | 0.53 | 0.78 | 0.13  | 0.49 | 1.96 | <LOQ | <LOQ |
| SIA "Durbes KS" WWTP, Raibenieki, Durbe district, influent | 56.62798, 21.49162 | 0.12  | 0.52  | <LOQ  | 1.06 | 0.29 | 0.09 | <LOQ  | 0.01  | <LOQ  | <LOQ  | 0.39 | 1.38 | <LOQ  | <LOQ | 6.21 | 0.33 | <LOQ |
| SIA "Durbes KS" WWTP, Raibenieki, Durbe district, effluent | 56.62798, 21.49162 | 0.26  | 1.21  | 0.35  | 7.57 | 0.19 | 0.08 | <LOQ  | 0.02  | <LOQ  | <LOQ  | 0.43 | 0.04 | 0.35  | 0.06 | 1.43 | <LOQ | <LOQ |
| WWTP "Ciruši", Valdgale parish, influent | 57.35444, 22.37565 | 0.45  | 2.13  | 0.29  | 2.51 | 0.66 | <LOQ  | <LOQ  | 0.04  | <LOQ  | <LOQ  | 0.98 | 1.99 | 0.29  | 0.23 | 4.30 | 0.25 | <LOQ |
| WWTP "Ciruši", Valdgale parish, effluent | 57.35444, 22.37565 | 0.39  | 2.68  | 0.06  | 7.07 | 0.67 | <LOQ  | 0.01  | 0.01  | 0.04  | 0.02  | 0.72 | 2.69 | 0.06  | <LOQ | 5.46 | <LOQ | <LOQ |
| WWTP, Viduskurzeme AAO, Brocēnu region, influent | 56.73475, 22.63573 | 1169 | 1528  | 406   | 801  | 59.4 | 32.8  | 1.88  | 1.19  | 0.99  | 0.74  | 5.32 | 5.33  | 406   | 5.02 | 201  | <LOQ | <LOQ |
| WWTP, Viduskurzeme AAO, Brocēnu region, effluent | 56.73475, 22.63573 | 1115 | 1574  | 240   | 237  | 19.6 | 4.01  | 0.21  | 0.20  | <LOQ  | <LOQ  | 346  | 4.14  | 240   | 0.00 | 64.8 | 0.00 | <LOQ |
| SIA "Madonas ūdens", Laudona WWTP | 56.70736, 26.19354 | 0.01  | 3.12  | 0.83  | 1.59 | 0.28 | 0.10  | <LOQ  | 0.01  | <LOQ  | <LOQ  | 0.00 | 0.47  | 0.01  | 0.44 | 1.11 | 0.09 | 0.09 |
| SIA "Monaonas ūdens", Laudona WWTP | 56.70736, 26.19354 | 1.18  | 3.68  | 1.82  | 7.54 | 0.71 | 0.38  | 0.01  | <LOQ  | <LOQ  | <LOQ  | 0.26 | <LOQ  | <LOQ  | <LOQ | 1.57 | <LOQ | 0.03 |

(continued on next page)
Table 1 (continued)

| Sampling location                  | Coordinates       | PFPeA | PFHxA | PFHpA | PFOA | PFNA | PFDA | PFUdA | PFDoA | PFTcDA | PFTeDA | PFBS | PFPeS | PFHxS | PFHpS | PFOS | PFNS | PFDS |
|------------------------------------|-------------------|-------|-------|-------|------|------|------|-------|-------|--------|--------|------|------|------|------|------|------|------|
| SIA "Olaines īdēns un siltums", municipal WWTP, Olaine district, influent | 56.78967, 23.92957 | 0.76  | 2.78  | 2.46  | 3.95 | 0.75 | 0.24 | 0.10  | <LOQ  | <LOQ   | <LOQ   | 8.48 | 0.06 | 0.06 | <LOQ | 0.95 | <LOQ | 0.02 |
| SIA "Olaines īdēns un siltums", municipal WWTP, Olaine district, effluent | 57.21902, 26.36204 | <LOQ  | 0.87  | 0.16  | 0.48 | 0.10 | <LOQ | 0.01  | <LOQ   | <LOQ   | <LOQ   | 13.3 | 0.03 | 0.02 | <LOQ | 0.18 | <LOQ | <LOQ |
| SIA "Gulbenes nami", Lizuma village WWTP, Gulbene district, influent | 57.17309, 26.76197 | 0.31  | 0.59  | 0.30  | 1.06 | 0.05 | 0.02 | <LOQ   | <LOQ   | <LOQ   | <LOQ   | 0.36 | <LOQ | <LOQ | 0.09 | 0.12 | <LOQ | 0.07 |
| JSC "Rankas piens", Ranka WWTP, Gulbene district, influent | 56.97438, 22.93197 | 0.33  | 0.63  | 0.08  | 1.59 | 0.38 | <LOQ | 0.01  | 0.04   | 0.02   | <LOQ   | 1.22 | 1.76 | 0.08 | 0.70 | 20.5 | <LOQ | <LOQ |
| Abavnieki village WWTP influent | 57.44606, 21.87923 | 5.70  | 8.42  | 0.25  | 10.4 | 1.91 | 1.37 | 0.21  | 0.07   | 0.49   | 0.55   | 2.95 | 0.17 | 0.25 | 0.20 | 7.34 | <LOQ | <LOQ |
| SIA "Olaines īdēns un siltums", municipal WWTP, Olaine district, effluent | 56.59974, 22.41208 | 0.49  | 1.37  | 0.44  | 0.79 | 0.20 | 0.11 | 0.07  | <LOQ   | <LOQ   | <LOQ   | 0.44 | 0.03 | 0.03 | 0.08 | 0.47 | 0.03 | 0.27 |
| JSC "Rankas piens", Ranka WWTP, Gulbene district, effluent | 56.78967, 23.92957 | 0.01  | <LOQ  | 1.03  | 2.03 | 0.21 | 0.08 | 0.02  | <LOQ   | <LOQ   | <LOQ   | 0.38 | 0.04 | <LOQ | <LOQ | 0.60 | <LOQ | <LOQ |
| SIA "L LIKO FARM", Strazdi, Saldus district, influent | 55.17438, 22.41208 | 0.56  | 1.40  | 0.94  | 4.86 | 0.28 | 0.07 | 0.01  | 0.03   | <LOQ   | <LOQ   | 0.79 | 0.13 | 0.94 | <LOQ | 1.85 | <LOQ | <LOQ |
Fig. 2. Boxplots of the concentrations of selected PFAS in analysed influents and effluents.
Selected PFAS were analysed according to the previously published method with minor modifications in order to extend the scope of the target analytes \cite{1}. 250 mL sample aliquots were spiked with $^{13}$C-isotopically labeled PFAS surrogates (5 ng of each component) served as internal standards and then 100 μL of formic acid was added to each sample. Samples were loaded at a flow rate of ~ 5 mL min$^{-1}$ on the weak anion-exchange SPE columns (Strata-X-AW 200 mg/3 mL (Phenomenex, Torrance, CA, USA)), which were previously pre-washed with 3 mL of 1% NH$_4$OH in MTBE/MeOH (90:10, v/v), 3 mL of MeOH, and 3 mL of ultra-pure water. After the sample loading, the SPE cartridges were washed with 1 mL of 2% formic acid and 2 mL of MeOH, and after drying the cartridges for 30 min under vacuum, the analytes were eluted with 7 mL of 1% NH$_4$OH in MTBE/MeOH (90/10, v/v) to a 10 mL glass vial. Eluted extracts were evaporated to dryness under a gentle stream of nitrogen at 30 °C, reconstituted with MeOH (100 μL) and subjected to the HPLC-Orbitrap-MS analysis. Prepared extracts were analysed within three days of sample preparation. Instrumental analysis was performed using HPLC-Orbitrap-MS operated in parallel reaction monitoring (PRM) mode, with detection of negative ions. Quantitation was carried out using isotope dilution and internal standardisation method with selected $^{13}$C-labeled surrogates. The results from real samples were corrected by subtracting the PFAS concentrations of the procedural blanks (see Supporting Information) analysed in each sample sequence. Method accuracy was controlled by the analysis of certified reference material (CRM) Standard Reference Material 2781 Domestic Sludge (NIST, Gaithersburg, MD, USA), which was analysed in each sample run in the frame of the current study. Boxplots were constructed for datasets as follows: the horizontal line within the box represents the distribution median. The ends of the box represent the 25th and 75th percentiles, while the interquartile range (IQR) is the difference between the 25th and 75th percentiles. The lines that extend from each end are whiskers, from the ends of the box to the outermost data point that falls within the distances computed as follows: 1st quartile$-1.5 \times$ (IQR) 3rd quartile$+1.5 \times$ (IQR).

**Ethics Statement**

Not applicable.

**Declaration of Competing Interest**

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

**Data Availability**

Data on occurrence of perfluoroalkyl substances in influents and effluents collected from different wastewater treatment plants in Latvia (Original data) (https://figshare.com/).

**CRediT Author Statement**

Dzintars Zacs: Methodology, Writing – original draft, Visualization; Elina Pasecnaja: Methodology, Software, Data curation; Vadims Bartkevics: Supervision, Writing – review & editing.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi: 10.1016/j.dib.2022.108228.

Reference

[1] D. Zacs, V. Bartkevics, Trace determination of perfluorooctane sulfonate and perfluorooctanoic acid in environmental samples (surface water, wastewater, biota, sediments, and sewage sludge using liquid chromatography–Orbitrap mass spectrometry, J. Chromatogr. A 1473 (2016) 109–121, doi:10.1016/j.chroma.2016.10.060.