



**mouvement
écologique**

Eternal chemical TFA also in drinking water: No reason to panic yet - but politicians must act immediately!

The European network PAN-Europe (Pesticide Action Network), of which the Mouvement Écologique is a member, has recently published analyses of the pollution of groundwater and surface water in Europe by the persistent chemical TFA. TFA is a substance that is not degradable and remains in the environment, hence the name perpetual chemical. In contrast, it is highly soluble in water.

According to PAN-Europe, PFAS pesticides are considered to be the main source of TFA pollution, especially in rural areas, followed by refrigerants, wastewater treatment and industrial pollution (1).

The study revealed that **all ground and surface waters tested from ten EU countries are heavily polluted by this perpetual chemical**. Unfortunately, this also applies to the samples from Luxembourg (2). The Mouvement Écologique published this data at the end of May and called on the official authorities to present their strategy for tackling this pollution. To date, the Mouvement Écologique has not received a response to the letter.

It was only logical to carry out analyses of the drinking water throughout Europe and also in Luxembourg.

Unfortunately, once again with worrying results.

TFA was detected in **34 out of 36 European tap water samples (94%)** from eleven EU countries. They ranged from "not detectable" (corresponding to < 20 nanograms/litre (ng/L) to 4,100 ng/L with an average of 740 ng/L.

Luxembourg was in the middle, but too high, range for the drinking water sample (which is fed from spring water, SEBES water, etc.) with a value of 660 ng/L.

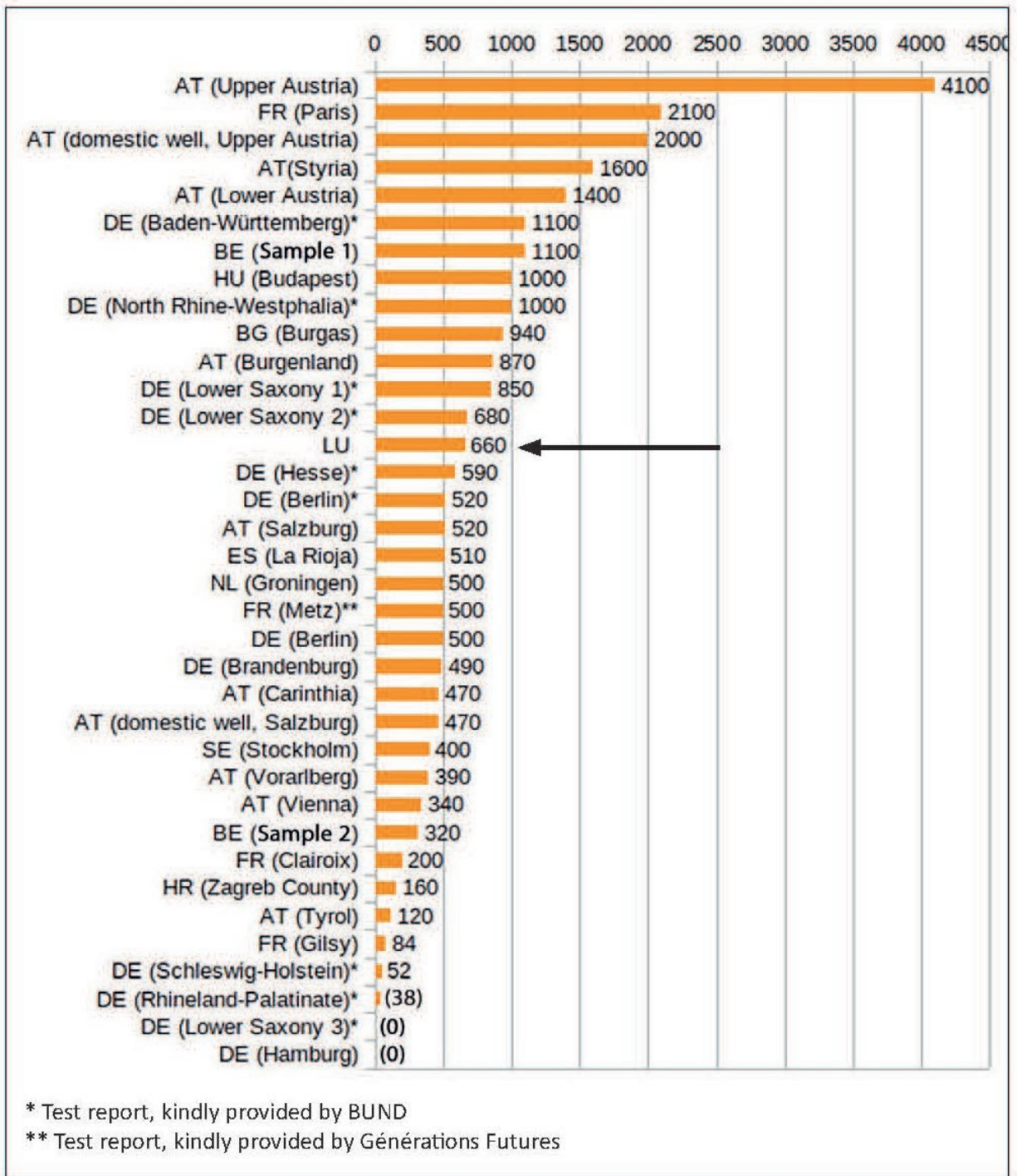


Figure 1. TFA in drinking water in ng/L (34 tap water samples come from public and 2 from private sources)

Anyone who now believes that they can safely avoid the eternal chemical by using bottled mineral and spring water is mistaken. TFA was also detected in 12 out of 19 bottled mineral and spring waters (63%), ranging from "undetectable" (< 20 ng/L) to 3,200 ng/L, with an average of 278 ng/L. The sample from Luxembourg was also contaminated.

Unfortunately, there are still too few toxicological studies on the impact of TFAs on health due to policy failures, despite their widespread use (3). The data situation is unfortunately poor. Studies that are available, however, urge caution. They show similar effects for TFA as for the better-studied PFAS (liver toxicity, malformations), but at much higher concentrations. In principle, it is essential to consistently expand this research, because there are also voices that say: many PFAS are considered chemicals without a threshold value, i.e. zero exposure would be advisable. The question is justified as to whether this should also apply to TFA.

A drinking water guideline value from the Dutch Institute for Public Health and the Environment (RIVM), which takes into account the current state of scientific knowledge and is cited by PAN-Europe, can serve as a guide. This **indicative drinking water guideline value for TFA is 2,200 ng/L. This value is met by the Luxembourg sample and overall by 97% of the samples analysed.**

This leads PAN-Europe to conclude: "*According to the current state of scientific knowledge on the toxicity of the chemical, the TFA levels we have identified still appear to be within the safety limits. However, the toxicity data are limited and incomplete, so that an underestimation of the risk cannot be ruled out. "This is the good news! But the situation is still alarming!"*

This is because a standard limit value for "PFAS" totalling 500 ng/l drinking water is due to come into force at EU level in 2026 (based on current discussions). By definition, this should also include TFA. The Luxembourg sample would therefore be above this value.

As the name suggests, TFA is an eternal chemical. It does not degrade naturally and is increasingly accumulating in our environment. In addition, toxicity data is limited and incomplete, so it cannot be ruled out that the risk is underestimated. Furthermore, humans do not only ingest TFA through drinking water.

The consequence: pollution levels will rise steadily if no immediate action is taken! As PFAS chemicals can hardly be filtered by wastewater treatment plants, and then only with considerable effort, these values are all the more alarming. Investments totalling billions would be necessary at EU level. And as PAN-Europe writes: "*The end product of such a costly, non-environmentally friendly high-tech purification process would be "artificial water" that would be stripped of its natural components and which water suppliers would have to treat again at great energy expense before they could supply it to their customers.*"

The release of these substances into the environment must be avoided at all costs.

Therefore, immediate measures must be taken to prevent further TFA contamination of humans.

According to the Mouvement Ecologique and PAN-Europe, the following measures are required, both in Luxembourg itself and at EU level:

- **The top priority is a rapid ban on the use of PFAS pesticides: because they are also used in Luxembourg.** The figures updated by the Ministry of Agriculture in 2024 on the use of pesticides in agriculture show that almost half of the 38 PFAS pesticides currently authorised in the EU are also used in Luxembourg. Only a few of these substances are listed as "big movers" and are therefore set to be withdrawn from the market in the foreseeable future.

Support for farmers in replacing PFAS pesticides is necessary.

- **Systematic analysis and monitoring of PFAS and TFA pollution in groundwater, surface water and drinking water is required.** The sources of pollution must be identified as far as possible and the results published transparently.
- **In Luxembourg itself, a discussion should be held on the permissible exposure limits for TFA and "total PFAS"**
- **At EU level, Luxembourg must campaign for**
 - * A revision of the EU Drinking Water Directive: a limit value for safe drinking water must be set that is in line with the latest scientific findings and opens up the possibility of setting an individual limit value for TFA at European level.
 - * A revision of the EU Water Framework Directive - crucial meetings are due at the end of 2024: quality standards for TFA in natural waters need to be set here.
- **Application of the polluter pays principle: Wherever it is necessary to purify water due to chemical contamination, the polluter pays principle must apply.**

Therefore: There is no need to panic. Luxembourg drinking water is still the best alternative! But politicians must act immediately!

Mouvement Ecologique asbl.

You can find the integral study at www.meco.lu

(1) It may be confusing that the term PFAS or TFA is used. However, the explanation is quite simple: TFA is a degradation product of PFAS pesticides, F-gases and other perpetuating chemicals (PFAS). These PFAS - per- and polyfluoroalkyl substances - have very welcome properties in industry: they are water-, grease- and dirt-repellent as well as being chemically and thermally very stable. However, this also makes them harmful to the environment, as they can last for centuries and accumulate in groundwater, soil and our bodies. PFAS are released into the environment during production, but especially during use and disposal. The more than 10,000 PFAS compounds on the market are used in rain-repellent clothing, cosmetics, dental floss and non-stick pots and pans. However, pesticides are also a major area of application.

Although TFA is the persistent end product of an estimated 2,000 PFAS compounds, its toxicity to the environment and humans has only been studied to a very limited extent. The few PFAS that have been studied more intensively have all proven to be very toxic. They exhibit reprotoxic, carcinogenic, immunotoxic and endocrine-disrupting properties. These harmful effects can occur even at very low concentrations. Thousands of people have already fallen ill or died as a result of contact with these substances.

Finally, it is also clear that the toxicity of each of the more than 10,000 PFAS chemicals does not need to be proven, as their ultimate longevity is sufficient to justify a general ban. This toxic legacy for future generations is irresponsible and self-destructive.

(2) As a reminder, the concentration of TFA in the Luxembourg Alzette near Mersch was around the European average of 1,220 ng/l.

The TFA concentration of the Luxembourg drinking water source was just under 1000 ng/l, the average of all groundwater samples was 1,025 ng/l.

The results of the study refute the decades-old assumption that PFAS contamination is limited to industrial hotspots. It is now clear that the pollution is widespread and occurs particularly in rural, agricultural areas.

(3)The German Federal Environment Agency (UBA) recently identified PFAS pesticides as the likely main source of TFA water pollution in rural areas. The EU Pesticide Regulation requires that pesticides are only authorised if their active substances and "relevant metabolites" (= degradation products) do not exceed concentrations of 100 ng/l in groundwater. In 2003, the European Food Safety Authority (EFSA) made a fatal decision: it concluded that TFA was considered a "non-relevant metabolite", exempting it from all monitoring obligations and limits. According to PAN Europe, this was a disastrous decision that has led to what is probably the largest and most ubiquitous contamination of European surface and groundwater, and as is now evident, drinking water, by a man-made chemical in history.

However, the EU Water Framework Directive should also have prevented this contamination. The prohibition of deterioration enshrined in Article 4 should have prevented a decades-long escalation of TFA pollution, but it did not. The necessary measures required by the law would undoubtedly have included a ban on PFAS pesticides and another group of PFAS, the so-called F-gases, which are released into the atmosphere in thousands of tonnes from industrial refrigerants and then enter the global water cycle as TFA via rain.

(4)A risk assessment approach was followed that uses relative potency factors for the liver toxicity of PFOA.

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