

# Understanding TFA in food

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## Introduction

**TFA is being detected in the food chain across Europe. No specific MRL. No clear regulatory home.**

Trifluoroacetic acid (TFA) was barely on anyone's radar a few years ago. That is changing fast.

Recent analysis by PAN Europe found TFA present in cereal-based foods across multiple European countries, illustrating the growing presence of this highly persistent compound in food.

As with many emerging substances, increasing analytical capabilities are making TFA more visible. At the same time, scientific knowledge and regulatory discussions are evolving. For QA professionals, understanding what TFA is and how to interpret analytical findings, is becoming increasingly important.

## 1. What is TFA?

TFA belongs to the PFAS family, synthetic fluorinated chemicals known for breaking down extremely slowly. Hence the nickname: *forever chemicals*.

Most public attention has focused on long-chain PFAS like PFOS and PFOA. TFA is generally considered an **ultra-short-chain** member of the PFAS family. Smaller, highly water-soluble and unlike

its longer-chain cousins, it does not accumulate in fatty tissue.

Instead, it moves easily through water systems, soil and agricultural ecosystems. Once released in the environment, TFA is highly persistent.

Because of its high mobility, TFA can travel through groundwater and surface water, making irrigation an important pathway into agricultural production. Additional environmental sources may also contribute to the widespread presence of TFA.

## 2. Where does TFA come from?

TFA is not applied as a pesticide. It is a degradation product of other fluorinated compounds.

Important sources include certain PFAS-containing plant protection products such as *flufenacet*, *fluopyram* and *diflufenican* - and fluorinated gases (F-gases) used in refrigeration and air-conditioning technology. Additional environmental sources may also contribute to the presence of TFA.

In practice, TFA found in food or water often reflects a mix of background environmental sources. Pinpointing a single origin is difficult and that complexity has direct consequences for how it is regulated.

## 3. The regulatory landscape

TFA does not fit neatly into one regulatory framework.

Whether TFA is assessed as a pesticide residue or as an environmental contaminant largely depends on its origin.

- **Pesticide residue legislation:** if TFA originates from the breakdown of a plant protection product
- **Contaminant regulation:** if the source is industrial or atmospheric
- **REACH:** the EU's broad chemicals regulation covering *all* sectors, not just agriculture. European Chemicals Agency (ECHA) is currently reviewing universal PFAS restrictions that could cover thousands of compounds. TFA could be included as an ultra-short-chain PFAS, or restricted via bans on precursor substances. This is called "*horizontal*" regulation, because it applies to every industry emitting TFA precursors, not just agri-food.

At present, TFA is not included in any residue definition for enforcement under [Regulation \(EC\) 396/2005](#) and no specific MRL has been established. Although the default MRL of 0.01 mg/kg is often mentioned, it can only apply once TFA is formally included in a residue definition.

The absence of a specific MRL should not be interpreted as the absence of regulatory attention.

In June 2026, ECHA's Risk Assessment Committee formally concluded that TFA is toxic to reproduction, damaging to the unborn child and suspected of impairing fertility. That opinion is now with the European Commission for implementation into EU law.

In parallel, EFSA is conducting its own assessment. Following a European Commission mandate in July 2024, a dedicated Working Group reviewed the

existing health-based reference values. Their draft statement proposes significantly stricter limits — a new ADI of 0.03 mg/kg body weight per day (down from 0.05) and, for the first time, an ARfD for TFA. Both values are subject to possible revision based on the public consultation feedback. EFSA's final statement is expected by 31 July 2026.

For QA professionals, the question is no longer if TFA will be regulated more strictly but how future legislation will ultimately be implemented.

## 4. What does the data tell us?

In 2025, PAN Europe published results showing widespread TFA detection in cereal-based foods across Europe (66 products across 16 European countries). Detectable levels of TFA were found in the majority of samples analysed.

It is important to note that this was an NGO study rather than an official EU monitoring programme. Nevertheless, it illustrates two important developments.

First, analytical methods have advanced to the point where TFA can now be routinely detected at very low concentrations. Second, the increasing availability of occurrence data is driving scientific and regulatory discussions around the compound.

Rather than focusing on the precise concentrations reported in one study, QA professionals should view these results as an indication that TFA is becoming an increasingly relevant parameter within food safety monitoring.

## 5. Where does this leave you?

Although many questions remain, TFA is gradually moving from an emerging issue to a practical consideration for quality assurance.

For QA teams, this means:

- remaining aware of ongoing regulatory developments
- understanding the possible origin of detected TFA
- interpreting analytical results within their appropriate regulatory context
- anticipating increasing customer questions regarding PFAS and related compounds

Importantly, detecting TFA does not automatically imply non-compliance. Correct interpretation requires not only reliable analytical data but also

an understanding of the applicable legislation, the possible source of the compound and the context in which results are evaluated.

As analytical capabilities continue to improve and regulatory frameworks evolve, interpretation will become at least as important as detection itself.

Detecting TFA is only the starting point. Correct interpretation requires analytical expertise, regulatory knowledge and an understanding of the possible origin of the compound.

## You can rely on us

This information sheet provides a concise overview of the current situation with TFA. For further details on this topic or on the analytical services we offer, please do not hesitate to contact our customer care team.

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The quality and reliability of our analyses are of paramount importance to us. Our in-house R&D team continuously works on optimizing existing methods and developing new, relevant approaches in line with evolving market trends. In addition, our pesticide analyses are accredited under BELAC 057-TEST in accordance with the requirements of EN ISO/IEC 17025:2017. We also hold various certifications that ensure the quality, relevance, and scope of our analytical services. A selection of our current certifications is provided below.



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