

Evaluation of TFA remediation by Opropre filtration system

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Introduction and aims

Recently, TFA has been detected in tap water (from ng.L^{-1} to mg.L^{-1}) all over the world [1], [2]. To overcome this contamination, Solable company (Lambesc, France) has developed a new filtration system called Opropre. The objective of this study is to evaluate the TFA remediation capacity of Opropre filtration system in representative conditions.

Material and method

Reagents: TFA was provided from Sigma-Aldrich® (USA). All experiments were conducted in tap water.

Experimental protocol: 20 L of tap water spiked with a TFA mother solution to obtain a final concentration of $160 \mu\text{g.L}^{-1}$ was prepared and stored in a plastic container. The solution was then directly introduced in Opropre filter by a centrifugal pump (Speck Roth D-91154, Germany), at the representative flow of 5 L.min^{-1} . After 1 minute pumping, the filtered water was sampled in triplicates and sent to a certified laboratory (TZW, Karlsruhe, Germany) for TFA analysis with a quantification limit of $0.2 \mu\text{g.L}^{-1}$.

Results and discussion

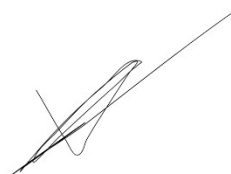
The results obtained are presented in Table I. Under these experimental conditions, the filter Opropre revealed to retain more than 99% of TFA. This result demonstrates the filter's efficiency in removing TFA present in tap water in a realistic domestic use.

	Before filtration	After filtration	Removal rate
[TFA] ($\mu\text{g.L}^{-1}$)	160 ± 10	1.5 ± 0.8	99.9 %

Table I: TFA removal rate by Opropre filtration system in representative conditions (flow = 5 L.min^{-1} , $[\text{TFA}]_0 = 160 \mu\text{g.L}^{-1}$)

Conclusion

This study gives a first evaluation of TFA retention by Opropre filters. In representative conditions, Opropre filter proves to be efficient in the almost complete elimination of TFA from tap water. In the future, other tests could be conducted with various flows and tap waters (including blank controls and repeatability assessments), to reinforce the understanding of Opropre filtration system limits in representative application conditions.



References

- [1] 'Polluants éternels (PFAS), TFA et eau potable : le SEDIF vous informe'. Accessed: Oct. 14, 2025. [Online]. Available: <http://www.sedif.com/polluantseternelspfastfaeteaupotablelesedifvousinforme>
- [2] A. Affricano *et al.*, 'Case Study: Targeted HPLC-MS/MS analysis of TFA and other USC-PFAS in beverages and waters from Italy and Asia', *Food Control*, p. 111779, Oct. 2025, doi: 10.1016/j.foodcont.2025.111779.