

Call for Evidence response

Veterinary medicines

Summary

Water UK is the trade association for the UK's water industry. We represent all regulated water and wastewater companies in England, Northern Ireland, Scotland and Wales.

Water UK fully supports mandatory point-of-sale advice for all veterinary medicines containing fipronil or imidacloprid to support responsible use. However, we are concerned that this proposal will not go far enough. In particular, we are concerned by the impacts of the routine preventative treatment of pets and would rather advocate that veterinarians and product manufacturers are required to recommend a more targeted treatment approach (e.g. risk-based).

Conventional wastewater treatment infrastructure is not designed to remove persistent contaminants such as veterinary parasiticides and pharmaceuticals. For this reason, pollution prevention and source control should remain the primary policy approach wherever feasible. Where there is evidence of environmental harm, like in the instance of fipronil and imidacloprid, the UK government should adopt a principle of controlling pollution at source by imposing tighter regulatory restrictions on the most environmentally damaging substances.

Such a restriction should be supplemented by requiring more advanced wastewater treatment, in line with European legislation, to target micropollutants such as pharmaceuticals and veterinary products. Retrofitting advanced treatment technologies across the wastewater network will involve substantial financial, operational and carbon costs, which should be funded through an extended producer responsibility scheme. It would be inequitable for water customers to bear the costs of removing contaminants resulting from the widespread commercial use of these substances, and the polluter-pays principle should be implemented.

Fipronil and Imidacloprid

We are grateful for the opportunity to provide feedback on the environmental impacts of fipronil and imidacloprid, particularly on the water environment.

- Fipronil (CAS 120068373)¹ is an active substance with both crop protection and animal health uses. In veterinary applications, fipronil is commonly used in spot-on treatments for flea eradication. Agricultural uses are already heavily restricted because of environmental risks.² Fipronil is a known neurotoxin, classified as acutely toxic by inhalation and skin contact, and is very toxic to aquatic organisms.³ Fipronil was approved as an insecticide under the EU Biocides Regulation but was

¹ [Substance Information - ECHA; Fipronil \(Ref: BAS 350I\)](#)

² [EU Pesticides Database - Active substances - Active substance details](#)

³ [30343c17-aea0-5fc0-228f-013b688bd866; fipronil \(ISO\); \(±\)-5-amino-1-\(2,6-dichloro-α,α,α-trifluoro-para-tolyl\)-4-trifluoromethylsulfinyl-pyrazole-3-carbonitrile 100.102.312 | Overview - ECHA CHEM](#)

withdrawn from 28 March 2024, with a use-up date of 24 September 2024. Finally, Fipronil, due to its molecular structure including fluorinated carbon atoms, is similar to the large group of per- and polyfluoroalkyl substances (PFAS), also known as forever.⁴ As such it shares some common properties such as persistence and tendency to bio-accumulate in soil and water.⁵

- Imidacloprid (CAS 138261-41-3) is a neonicotinoid insecticide used as a pesticide.⁶ It is highly soluble, persistent in soil and very harmful to pollinators such as bees.⁷ While primarily used in crop protection applications, it is also commonly used in spot-on treatments and flea collars for pets. Concerns about impacts on pollinators led to restrictions on agricultural use in both the EU and UK. It was added to the EU Water Framework Directive (WFD) watch list in 2015, with UK surface water monitoring beginning in 2016. Monitoring data collected between 2016 and 2023 were assessed against proposed EU environmental quality standards for 2027, as no UK Environmental Quality Standard (EQS) currently exists.^{8,9}

Both substances are effective for flea and tick control but also pose significant environmental risks, particularly to aquatic invertebrates.

The UK pet population was estimated at 22.2 million animals in 2024.¹⁰ More than 80% of UK cats and dogs receive at least one flea or tick treatment each year, with many treatments applied monthly as spot-on products that subsequently enter wastewater systems, rivers or soils.¹¹ This creates a substantial and ongoing pathway for environmental contamination. Residues transfer from pets' fur into wastewater through hand washing, stroking, bathing pets, and laundering pet and household bedding.¹²

Monitoring

Monitoring of these substances is not mandated by the legislation and as such is not routinely conducted. However, since 2010, water companies, Defra, the Environment Agency and Natural Resources Wales have collaborated on a monitoring programme that investigate a range of chemical substances, including metals, fire retardants and biocides, hydrocarbons, pharmaceuticals and personal care products.¹³

Both fipronil and imidacloprid were analysed as part of a specific project of the Chemicals Investigation Programme assessing a range of chemicals of concern. Monitoring identified concentrations of both fipronil and imidacloprid exceeding Predicted No-Effect Concentration (PNEC) values in influent and

⁴ [Fipronil | C12H4Cl2F6N4OS | CID 3352 - PubChem](#)

⁵ [Fipronil \(Ref: BAS 350I\)](#)

⁶ [Imidacloprid \(Ref: BAY NTN 33893\)](#)

⁷ [Complete ban on bee killing pesticides moves forward - GOV.UK](#)

⁸ [Imidacloprid in UK surface waters: trends, sources, and pathways | Environmental Sciences Europe | Springer Nature Link](#)

⁹ [QA-Neonicotinoids-in-water-in-the-UK-final-2-NI.pdf](#)

¹⁰ [Pet Populations - PDSA](#) Including 10.6 million dogs, and 10.8 million cats, as well as 800k rabbits

¹¹ [Experts call for restrictions on pet flea treatments that harm UK songbirds | Birds | The Guardian](#)

¹² [Veterinary medicines: an overlooked source of aquatic pollution in the UK | Wildfish](#)

¹³ Chemical Investigation Programme, [Water Chemicals Investigation Programme](#)

treated effluent. Exceedance of PNEC values in both the influent and final effluent is to be expected as wastewater works have not been designed to remove these chemicals from the waste water.¹⁴

The Environment Agency conducts its own environmental monitoring to build knowledge of known and emerging chemical risks and to understand environmental exposure pathways. Its Prioritisation and Early Warning System (PEWS) uses monitoring data and scientific evidence to identify emerging chemical threats. PEWS has evaluated the risks of a large number of chemicals, including fipronil.¹⁵

The Environment Agency has detected these substances in surface waters, groundwater, freshwater systems, estuarine waters and coastal waters.¹⁶

The Environment Agency has also worked with the Veterinary Medicines Directorate, through the Pharmaceuticals in the Environment (PiE) Group, to develop a strategy to manage the impacts of veterinary medicines and pharmaceuticals on unintended receptors (i.e., wild fauna). The outcome of this work has not yet been published.¹⁷

Fipronil has been identified in a study for the Office for Environmental Protection (OEP) as a high-risk substance for water quality in England and Northern Ireland.¹⁸ The OEP concluded that the widespread pollution and the large number of samples exceeding environmental assessment criteria support its classification as high risk.¹⁹ The report also identified potential risks to human health from exposure to drinking water that require further investigation. In addition, it highlighted significant evidence gaps regarding Northern Ireland and sediment contamination, despite fipronil being predicted to partition into sediment.

It is also difficult to justify the continued widespread domestic use of substances whose agricultural uses have already been heavily restricted because of environmental concerns.

Treatment in wastewater

Current wastewater treatment infrastructure is not designed to remove persistent contaminants such as veterinary parasiticides and pharmaceuticals. Wastewater treatment works are typically fitted with technologies that ensure primary (solid and filtering), secondary (biological treatment) and, where required, tertiary treatment (removal of nutrients). Substances such as imidacloprid and fipronil need

¹⁴ [The National Chemical Investigations Programme 2020-2022 Volume 5 - Substances of Emerging Concern PNEC are generally applied to surface waters, they were used as part of the technical study to provide context.](#)

¹⁵ [\(PDF\) A National scale Prioritisation and Early Warning System for Chemicals of Emerging Concerns](#)

¹⁶ Fipronil has been detected in targeted screening of water quality at more than 2200 locations in most England's regions between 2009 and 2024 [Water quality monitoring data GC-MS and LC-MS semi-quantitative screen - National Data Library](#)

¹⁷ [Cross-government Pharmaceuticals in the Environment Group Roadmap - GOV.UK](#)

¹⁸ [OEP finds 'deeply concerning' issues with how the laws in place to protect England's rivers, lakes and coastal waters are being put into practice | Office for Environmental Protection](#)

¹⁹ See p.166 of the report: https://www.theoep.org.uk/sites/default/files/reports-files/A%20review%20of%20the%20implementation%20of%20River%20Basin%20Management%20Planning%20in%20England_Accessible.pdf

additional technologies to be separated from wastewater. These techniques, typically deployed at the end of the treatment, are usually described as ‘quaternary treatment’ and include granular activated carbon and ozonation. A recent, high-level, estimate of costs to deploy end of pipe treatment to remove PFAS (which involves similar technologies) was estimated by UKWIR to have a net present value cost of £21 billion for the UK.^{20,21}

The European Union requires that by 2033, the largest wastewater treatment works are upgraded to include an additional stage of treatment to remove micropollutants and pharmaceutical substances.²² While fipronil and imidacloprid are not the primary substances targeted by the legislative changes, their concentrations in the wastewater will be reduced as a co-benefit of the increased treatment. All wastewater works will be upgraded by 2045. The new legislation will be implemented in the Republic of Ireland, with some possible effects in Northern Ireland (e.g. it could complicate the management of pollution in the two transboundary river basin districts²³). The Scottish Government is continuing to consider whether it will adopt this new legislation based on its expressed intention to "to maintain policy alignment [with the European Union] wherever possible... and legislative alignment where it is meaningful and appropriate to do so".²⁴

Control Measures

Tighter control over these substances could include adding them to the priority substance list under the Water Framework Directive. In practice, this means that the presence of substances would be monitored and assessed against a set Environmental Quality Standard (EQS), and exceedances would be taken into account when determining the chemical status of water bodies. The latest River Basin Management Plans found that all waterbodies in England and Wales failed to meet good chemical status.²⁵

If fipronil and imidacloprid were listed as priority substances under the Water Framework Directive, regulators would be required to identify significant sources of emissions and adopt measures (e.g., tighter controls on discharges, restrictions on uses, and the inclusion of discharge-related requirements in permits) Given that fipronil is highly toxic to aquatic invertebrates even at low concentrations, its inclusion as a priority substance could lead to increased monitoring and additional actions to reduce risks to freshwater ecosystems. However, we consider that these wouldn’t be sufficient, as pollution from priority substances persists despite their inclusion on the priority list, and the main users are not regulated by permits.

As such, pollution prevention and source control of imidacloprid and fipronil should remain the primary policy approach wherever feasible.

²⁰ UKWIR, 2021, PFAS and wastewater, Prevalence, reduction options and costs.

²¹ [water.org.uk/sites/default/files/2025-05/Water UK A Reset for Water - Response to the Independent Water Commission%27s Call for Evidence.pdf](https://www.water.org.uk/sites/default/files/2025-05/Water%20UK%20A%20Reset%20for%20Water%20-%20Response%20to%20the%20Independent%20Water%20Commission%27s%20Call%20for%20Evidence.pdf)

²² eur-lex.europa.eu/eli/dir/2024/3019/oj/eng

²³ [Water Framework Directive River Basin Districts - Dataset - data.gov.uk](https://data.gov.uk/dataset/water-framework-directive-river-basin-districts)

²⁴ [Paper-2--21-November](#) and [eu-alignment--reports-inc-draft-continuity-act-report-2025--final--31-oct-2025.pdfv](#)

²⁵ [River basin management plans: updated 2022 - GOV.UK](#)

Conclusions on fipronil and imidacloprid

While parasiticides play an important role in animal welfare, their environmental impacts and widespread prophylactic use require far greater scrutiny. The most effective approach would be for Government to undertake a full assessment of alternatives and, should they prove as effective as highly toxic insecticides, seek to ban the most toxic substances outright. In the absence of this and as per the consultation document, Government should restrict the routine use of existing highly toxic insecticides by at least requiring a Suitably Qualified Person to authorise use and provide suitable advice on frequency of use, application and disposal.

The substances should also be added to the priority substance list to increase regulatory scrutiny. Product approval processes should be adapted to place greater emphasis on environmental persistence, limitations on wastewater removal, and cumulative exposure arising from widespread routine use.

Mandatory point-of-sale advice should be part of a broader package of source-control measures rather than a standalone intervention.

More broadly, we're concerned about the UK falling behind the EU in protecting the environment from chemical pollution. The legislation should be updated to require more advanced treatment to remove micro-pollutants. Funding for these upgrades should come from an extended producer responsibility scheme, that embodies the polluter-pays principle.

These concerns echo those raised by environmental NGOs²⁶ and Water UK's response to the Call for Evidence of the Independent Water Commission.²⁷

Sheep Dip

We appreciate that the focus is on two specific substances, but we recommend that veterinary medicines beyond the substances considered in this call for evidence should be subject to an environmental review. All such reviews should include environmental risk assessments that fully account for the downstream treatment capabilities of wastewater infrastructure and consider whether source control is desirable.

One example is the disposal of spent sheep dip, which has been the subject of discussions among the sheep farming sector, agricultural contractors, water companies and Defra.

Sheep dipping remains an important control measure for *Psoroptes ovis* (sheep scab), a highly infectious parasitic mite that can have serious impacts on animal welfare, including mortality. However, once the sheep have been treated, the resulting spent dip must be disposed of. Spent sheep dip may be transported by tanker and disposed of via wastewater treatment works under trade effluent arrangements. However, water companies may refuse to accept spent sheep dip if treatment processes are not capable of effectively removing the chemical substances present.

²⁶ [Experts call for restrictions on pet flea treatments that harm UK songbirds | Birds | The Guardian](#)

²⁷ [water.org.uk/sites/default/files/2025-05/Water UK A Reset for Water - Response to the Independent Water Commission%27s Call for Evidence.pdf](https://water.org.uk/sites/default/files/2025-05/Water%20UK%20A%20Reset%20for%20Water%20-%20Response%20to%20the%20Independent%20Water%20Commission%27s%20Call%20for%20Evidence.pdf)

Recently, no wastewater treatment works have been accepting spent sheep dip. The water industry is concerned about substances commonly present, including cypermethrin and diazinon, which are highly toxic to aquatic organisms and are unlikely to be effectively removed through conventional wastewater treatment processes.

Following the reduced acceptance of spent sheep dip by water companies, Defra has rightly been considering alternative disposal routes and other measures (e.g., increased storage time to allow diazinon concentrations to decline as it degrades over time).