

University of Hertfordshire

Agricultural Substance Databases

NEWSLETTER

September 2026

Welcome to the latest edition of our ASD newsletter. It's been just over a year since our last issue and since then a lot has happened. In this issue you will find summaries of recent database developments. This includes the recent launch of our Pesticide Formulations Catalogue (PFC), significant expansion of the commercial information within the PPDB and the BPDB, upgrades to the hazard alerts and, of course, many new substances.

Recent development activity



Over the last year we have significantly expanded the data within the PPDB and BPDB relating to commercial production. This included a short description of how the active substance is produced commercially and also, information on its impact on climate, including, (where data exists or sufficient information is available to make a defensible estimate) the greenhouse gases emitted during its production. Data is undoubtedly scarce and often behind pay-walls but we have collated a reasonably comprehensive data set to be confident this is a valuable addition to the databases.

Part of this review included a significant expansion of the 'Other substance' data within the PPDB/BPDB. This work included the addition of a number of biostimulants, bacteriophages, synergists and safeners. A new sub-menu on the PPDB website enables easy access to these substances.

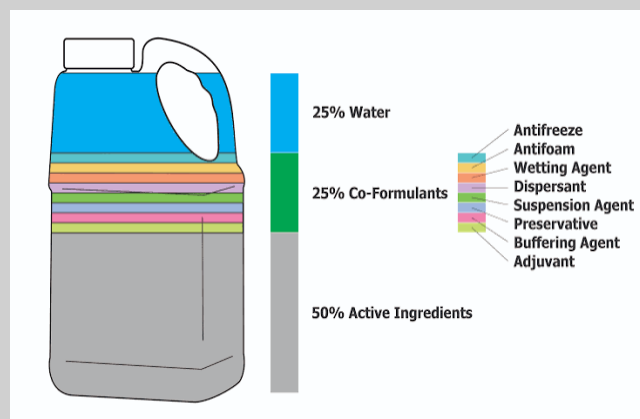
Pesticide Formulations Catalogue



PFC
Pesticide
Formulations
Catalogue

Whilst updating the commercial information we reviewed and updated the list of commercial products we had. We also added many new adjuvants. The collation of this data led to the initial concept and then full development of newest addition to our ASDs – the Pesticide Formulations Catalogue (PFC).

This is an independent service to the PPDB/BBDB but online it is cross-linked. The PPDB/BPDB focus on active substances whereas the PFC focuses on pesticide product formulations. The rationale for the PFC is simply that pure active substances are rarely applied in practice. The active substance is the component intended to produce the pesticidal effect and it sometimes accounts for a relatively small proportion of the total product. The bulk being water and substances such as solvents, carriers, surfactants, emulsifiers, stabilisers, preservatives, safeners, fillers and other coformulants which are added to make the active substance suitable for storage, handling, application and delivery to its target.



These coformulants are described as [pesticidal] inert components within the formulation but that is not the same as them being environmentally benign or non-toxic^{1,2,3}. Whilst the entire product is considered by regulatory processes and not just the active substance, researchers rarely have sufficient information to consider products as a whole due to the lack of information which restricts their risk assessment activities. The individual constituents and their concentrations within a product are often not publicly disclosed as they are considered trade secrets. In many countries a coformulant is only disclosed on a Safety Data Sheet (SDS) when specific legal hazard criteria are triggered but in some countries there is no legal requirement for any coformulant to be publicly disclosed. In addition, data on the environmental fate and toxicity of the coformulants is difficult to identify. Despite the data paucity our PFC starts to address this issue by focusing and collating data on a products formulation. Data has been collected from SDSs and published regulatory dossiers and it currently includes data for over 2000 (and growing) of the most common pesticide products globally, concentrating mainly on those produced by the major companies. Basis data includes the active substance(s), concentrations, formulation type and known coformulants. There is also information on product families and similarly formulated products. The uniqueness of the PFC compared to other product websites is that active substances and coformulants are cross linked online to active substance and coformulant records within the PPDB/BPDB (where records exist). The cross linking also works the other way from the PPDB to the PFC. Access to the PFC and background information on the PFC can be found [here](#).

Hazard alerts

In the last newsletter we introduced the PPDB Pesticide Hazard Tricolour (PHT) system which is displayed at the top of every pesticide profile page whereby three data 'alerts' are shown. These are simple indicators generated using the substance properties and a simple rule-base to categorise each substance as high, moderate or low with respect to environmental fate, ecotoxicity and human health. Over the last year we have extended this to also determine the FAO/WHO (Type I) and PAN (Type II) Highly Hazardous Pesticides (HHP) indicators based on PPDB data. Neither the PHT nor the HHP hazard alerts take account of usage patterns or exposure, thus they do not represent risk.

PHT: Environmental fate	PHT: Ecotoxicity	PHT: Human health	Highly Hazardous Pesticide
			

Greater information is given within the substance data profile. Information on how the criteria for both the PHT and the HHPS is available on the PPDB website via the blue information icons as shown below.

Highly Hazardous Pesticide (HHP)	 Type I  	-
	Type II 	Yes [R04; R05; R09]

New publication

Our newly published paper, in the journal *Human and Ecological Risk Assessment*, reflects on last 10 years of building, expanding, and curating the PPDB. It highlights how the PPDB has driven policy, UN conventions, and global biodiversity research over the past decade, and it also looks firmly to the future. The paper can be found [here](#):

- Tzilivakis, J., Lewis, K.A., Green, A. and Warner, D.J. (2026) A decade of growth and impact of the Pesticide Properties Database (PPDB). *Human and Ecological Risk Assessment: An International Journal*, 1–26. DOI: [10.1080/10807039.2026.2702066](https://doi.org/10.1080/10807039.2026.2702066)

Data access

Our databases, including the PFC are still free to use online. The databases are also available, under licence, as MS Access or MS Excel files. More detailed datasets are also available in these two formats. The PPDB/BPDB/VSDB are completely free of adverts, however, we are considering small, selective, highly relevant adverts on the online PFC to help us raise funding for future development. Bespoke sub-sets of our data can be provided for a small fee. We are always happy to discuss your pesticide data or indicator needs.

References

1. Domingo, J.L. (2025) Mixture toxicity revisited: A translational review of experimental evidence from animal models to human health risk assessment. *Toxicology*, **520**, 154372. DOI: [10.1016/j.tox.2025.154372](https://doi.org/10.1016/j.tox.2025.154372)
2. Nagy, K., Duca, R. C., Lovas, S., Creta, M., Scheepers, P. T., Godderis, L. and Ádám, B. (2020) Systematic review of comparative studies assessing the toxicity of pesticide active ingredients and their product formulations. *Environmental Research*, **181**, 108926. DOI: [10.1016/j.envres.2019.108926](https://doi.org/10.1016/j.envres.2019.108926)
3. Wang, Y., Wu, S., Chen, J., Zhang, C., Xu, Z., Li, G., Cai, L., Shen, W. and Wang, Q. (2018) Single and joint toxicity assessment of four currently used pesticides to zebrafish (*Danio rerio*) using traditional and molecular endpoints. *Chemosphere*, **192**, 14-23. DOI: [10.1016/j.chemosphere.2017.10.129](https://doi.org/10.1016/j.chemosphere.2017.10.129)



If you want more information on anything in this newsletter or on any aspect of our databases, please contact us. Similarly, if we have something wrong or something is missing, please let us know. There is a [report form](#) on the PPDB website which will help us make any necessary changes quickly.

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