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Justification for the selection of the exposure models

The calculation of environmental concentrations in surface water and groundwater was done based on the FOCUS models. The FOCUS models produce state of the art results for PECs (predicted environmental concentrations) of active compounds (pesticides, biocides, veterinary compounds). Especially, at higher assessment tiers these models are required for exposure calculations by EFSA (pesticides), ECHA (biocides) and EMA (veterinary substances).

A version control for all FOCUS models is established that includes considerable checking before the release of the software. All FOCUS models are freely available via the internet using the FOCUS website (https://esdac.jrc.ec.europa.eu/projects/focus-dg-sante).

The groundwater simulations were performed with FOCUS PEARL (version 4.4.4)

The surface water simulations were performed with FOCUS SWASH which mainly creates the necessary input data for MACRO 5.5.4, PRZM 4.3.1 and TOXSWA 4.4 which were used for the simulations.

There is currently no FOCUS model for PECsoil. However, especially for pesticide registrations the model ESCAPE 2.0 is used in many EU member states. In addition to simple approaches which only calculate concentrations based on first order kinetics ESCAPE is able to consider all kinetics recommended by FOCUS degradation kinetics (i.e. SFO = simple first order, FOMC = first order multi compartment, HS = hockey stick, DFOP double first order in parallel). As ESCAPE is commonly used in Europe, it was selected for estimating the fate of cyanamide in soil.

Also ESCAPE can be downloaded free-of-charge:

https://www.ime.fraunhofer.de/en/Research_Divisions/business_fields_AE_BR/Businessareas_AE/Software_E/Escape.html

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