

Fugacity Based EQC Level II Method: Prediction of Environmental Partitioning of a Fungicide Fluopyram

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Abstract. A fungicide Fluopyram has been subjected to an EQC Level 2 calculation using a fugacity-based environmental model. According to the model, Fluopyram tends to build up in similar amounts in both soil and water. Sediment, soil, water, and air are predicted to contain the high concentration of the chemical. Fluopyram will be lost primarily by reaction (56.4%) and advection from water (39%). An overall residence time of 830 hours (34.6 days) is predicted by the model, as well as reaction and advection residence times of 1364 hours (56.8 days) and 2122 hours (88.4 days), respectively. Fluopyram is therefore not expected to be environmentally persistent, and reaction is predicted to be the key factor in the overall persistence. Fluopyram has a very low potential for atmospheric transport as only a very small portion of the chemical ($2.38\text{E-}03\%$) is predicted to be leaving the model environment in the advecting air.

References:

Parnis JM, Mackay D. Multimedia environmental models: the fugacity approach. CRC press; 2020 Sep 7.