NanoFATE Deliverable 2.3

Influx estimates for ZnO and Ag ENPs: Assessment of per capita influent discharge to STWs of nano ZnO and Ag

Virginie Keller
NERC, Centre for Ecology & Hydrology

Research Report Summary

The total influx of chemical to sewage treatment works (STWs) is of primary importance when modelling predicted environmental concentrations for soils and freshwater and quantifying potential risk to the environment from a given chemical. This report aimed at providing the most appropriate estimate of per capita daily influent to STWs for silver (Ag) and zinc oxide (ZnO) engineered nanoparticles (ENPs).
Estimates of per capita daily influent to STWs were derived from production use and volume data (compiled in NanoFATE report D6.1) combined with UN population estimates for 2010. So far only one group of investigators has offered an estimation for nano ZnO production use and volume data. For nano Ag, various authors have offered different consumption rates which when converted to per capita daily influent to STWs ranged from 0.04 to 1108 µg/cap/day.

For modelling purposes, the recommended influx estimate to STW for nano ZnO is 3 mg/cap/day, and 123 µg/cap/day for nano Ag.

The research report in full is restricted to project partners.