

## NanoFATE Deliverable 2.6

### Research report on important parameters for soil and water PEC estimation: for use in WP6 for the assessment of maximum soil and water concentrations of nano ZnO, Ag and CeO<sub>2</sub> and their distribution

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#### Research Report Summary

This study has brought together information from other deliverables in NanoFATE on the consumption and likely discharge of nanoparticles. The major effort has been to review the fate and behaviour of nanoparticles in sewage treatment plants (STPs) and also in soil.

Whilst our knowledge of the fate and behaviour of nanoparticles both in sewage treatment and in the environment is still limited, existing information paints a fairly consistent picture and some general pointers could be observed. Removal in sewage treatment from the effluent to sludge of at least 49% can be expected for all nanoparticles. Nano ZnO conversion to sludge is likely to be over-estimated due to the dissolution of nano ZnO. It seems unlikely that all nanoparticles applied to soil via sludge will stick to the upper soil profile as some humic acid enhanced mobility will occur. In due course experiments carried out by NanoFATE in D2.7 and D2.8 will add to this information.

This limited fate information may seem unsatisfactory, but it should be noted that the biggest weakness in predicting risk of exposure to nanoparticles in the environment remains the uncertainty on their actual consumption and discharge down the sink.

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