

DSM Science & Technology Awards (SOUTH) 2009	
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Synthetic nanoparticles are man-made particles in a size range from 1 to 100 nanometers. Industrial and academical opportunities have been associated with this material class. For a sustainable market introduction of products containing such nanoparticles possible risks of these nanomaterials need to be addressed.

Therefore, we investigated the quantitative uptake of metal oxide nanoparticles into human lung cells and highlighted differences to the cellular uptake of molecules. We compared toxic effects of different nanoparticles in vitro and proposed mechanisms describing their potential toxicity. The clearing efficiency of nanoparticles in sewage treatment plants was studied because they represent the last barrier before nanoparticles could enter aquatic ecosystems.

Amongst others, the acquired data was integrated into a base report of the Federal Office of Public Health and the Federal Office for the Environment and incorporated into an action plan which was passed by the Swiss Federal Council in April 08.