



PHOTO ALAMY

Humans consume less than one salt grain of microplastic per week

Wageningen researchers have calculated that most of the world's population ingest less than one salt grain of microplastic per week. It is not yet known what risks this entails.

Microplastics are minute particles that are found in clothing and cosmetics, for example, or are created when plastic breaks up or fragments. Researchers in the Aquatic Ecology and Water Quality Management group developed a mathematical model of humans' exposure to microplastics. This model is innovative in that it allows for uncertainty and variation in the presence of microplastics in the air, drinking water and so on. The model calculations show that most of the world's population ingest about 0.0041 milligrams of microplastic per week — less than a grain of salt. This figure could be up to 676 milligrams of microplastic for 1 in 20 people, depending on their dietary habits and the concentrations in food products. The simulations predict that the average person will accumulate 12.3 milligrams of microplastic in the course of their life. But only 41 nanograms will actually be absorbed by the body. Furthermore, microplastics

do not play a big role in the uptake of toxic substances such as lead or benzopyrene, as many researchers had expected.

The model uses measurement data on microplastics in the air, water and eight different food products. These products make up 20 per cent of an average diet. 'There is no data for many products about how much microplastic there is in them,' explains Bart Koelmans, professor of Aquatic Ecology and Water Quality Management. 'But the values for measurements using human faeces show that the model is reasonably in line with the real world.'

Koelmans cannot yet say anything about the health risks of the calculated exposures. 'To determine that, we first need to know the concentration at which the particles have an effect.' The research was published on 16 March 2021 in *Environmental Science & Technology*.

Info: bart.koelmans@wur.nl