MICROPLASTICS AND HUMAN HEALTH CONSORTIUM

— Researching the human health effects of micro- and nanoplastics

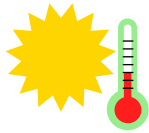
— Developing solution routes to minimise their health impact

MOMENTUM Microplastics and Human Health Consortium

NL Health~Holland ZonMw

Particle production + characterisation

We produced reference micro- & nanoplastic particles for standardised research



The particles had different shapes & sizes and were weathered to resemble particles in environment

We captured size, shape & chemical properties in a microplastics passport

More key findings

Exposure

We developed methods for more reliable detection and quantification of micro- & nanoplastics in various human tissues

Micro- & nanoplastics were present in 94% of tested human blood samples

We developed computer models to estimate absorption, distribution & excretion of micro- & nanoplastics in human body

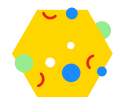
Plants can take up micro- & nano-plastics and transport them to leaves: a new pathway for plastics into our diet

Hazards

Micro- & nanoplastics show toxicity in lab models, depending on cell type, plastic type & particle size. Translation to effects in humans ongoing

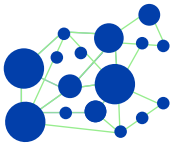
Cells from the lungs are most sensitive in lab models and polyamide (nylon) particles are most toxic, probably due to chemical additives

The presence of micro- & nano-plastics in blood may be associated with immune responses in young adults



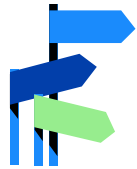
Pathogens can attach to plastic particles and persist in the environment for a long time

Risk assessment + solution routes



30+ partners worked together to better understand micro-plastics risks and translate science to solution routes

Roadmap for risk assessment identified key goals and knowledge gaps



Roadmap for solutions outlined various solution routes to minimise impact of micro- & nanoplastics on our health

We investigated microplastics awareness among Dutch population and developed a game to raise awareness among young people