

New Report Identifies Plastic Chemicals of Concern and Highlights Approaches Towards Safer Plastics

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Countries are currently negotiating a global plastics treaty to end plastic pollution. **A strong treaty will solve this planetary crisis and enable a transition to a safer and sustainable circular economy.** But it is essential that the treaty addresses plastic chemicals because all plastics, from food packaging to car tires, contain thousands of chemicals that can leach into foodstuffs, homes, and the environment. Since many of these chemicals are hazardous, they can damage human health and the environment.

A new report provides **essential scientific information on plastic chemicals** that can enable production of plastics that are safer for humans and the environment, in a **single, comprehensive, and systematically compiled resource**. Known as the *PlastChem Report*, the document provides a scientific approach for **identifying and dealing with the many chemicals of concern** in plastics today and **will support policy makers**, but also other stakeholders, in science-based decision making.

Plastic chemicals comprise all chemicals in plastics, including additives, processing aids, and impurities. A previous report by the United Nations Environment Programme (UNEP) and other international institutions identified 13,000 plastic chemicals. The new *PlastChem Report* shows that **there are more plastic chemicals than previously known**, with over 16,000 chemicals included in the new *PlastChem* database that accompanies the report.

Further **key findings** of the report include:

- At least **4,200 plastic chemicals (or 26%) are of concern** because of their high hazards to human health and the environment,
- More than **400 chemicals of concern can be present in each major plastic type**, including in food packaging, and all tested plastics leached hazardous chemicals,
- For making plastics safer, **novel approaches to regulate plastic chemicals are needed**, including hazard-based identification of groups of plastic chemicals of concern.

Prof. Martin Wagner, coordinator of the *PlastChem Project*, lead author of the report, and Professor at the Norwegian University of Science and Technology (NTNU) Trondheim said that:

“Governments across the globe want to tackle the plastics problem. However, this can only be achieved if problematic plastic chemicals are properly dealt with. The report provides the much-needed scientific evidence to make plastics safer for the environment and for us humans.”

Prof. Hans Peter Arp, *PlastChem* co-author and Professor at the Norwegian University of Science and Technology (NTNU) and technical expert at Norwegian Geotechnical Institute (NGI) said that:

“The PlastChem report is a wake-up call to policymakers and industry. We need more transparency and better management of chemicals of concern in plastic. The future of innovation in plastic should focus on safety, sustainability, and necessity, rather than just functionality.”

Dr. Ksenia Groh, *PlastChem* co-author and Group Leader in Bioanalytics at Eawag – Swiss Federal Institute of Aquatic Science and Technology said that:

“Besides the high numbers of known chemicals, plastics can also contain and leach unknown substances, such as contaminants, impurities or degradation products. The toxicity of overall chemical mixtures leaching from plastics can be evaluated using bioassays, and we reviewed this in the PlastChem report. Importantly, many plastic products showed high toxicity in bioassay evaluations.”

Dr. Mari Løseth, *PlastChem* co-author, researcher and senior advisor at the Norwegian Geotechnical Institute (NGI) said that:

“This report provides the foundation needed for informed policy decisions to management of plastic and plastic chemicals. However, to foster a safe and circular plastic economy, improved transparency and data accessibility is imperative for strategic and sustainable policymaking.”

Dr. Laura Monclús, project manager of the *PlastChem Project*, co-author of the report, and researcher and senior advisor at the Norwegian Geotechnical Institute (NGI) said that:

“This report will be pivotal for informing policy development that is aimed at addressing plastic pollution. It provides robust scientific evidence for the universe of all plastic chemicals and presents a science-based approach to identify and deal with plastic chemicals of concern.”

Dr. Jane Muncke, *PlastChem* co-author and Managing Director at the Food Packaging Forum said that:

“This report is unique. It’s a systematic, comprehensive approach to understanding the chemical dimension of plastics, and it offers robust, science-based and future-proof options for responding to this challenge.”

Dr. Zhanyun Wang, *PlastChem* co-author and Scientist at Empa – Swiss Federal Laboratories for Materials Science and Technology said that:

“It may seem daunting to address the large number of problematic plastic chemicals, but we are equipped with the necessary tools to do so. The PlastChem report provides a feasible way towards chemically simpler and safer plastics. Importantly, simplifying plastics is critical for moving towards a safe and sustainable circular economy.”

Dr. Raoul Wolf, *PlastChem* co-author and senior advisor at the Norwegian Geotechnical Institute (NGI) said that:

“The PlastChem report provides a state-of-the-art synthesis of scientific data on chemicals in plastics. Its robust and rigorous scientific methodology is a milestone for the evidence-based response to plastic pollution.”

Dr. Lisa Zimmermann, *PlastChem* co-author and scientific communication officer at the Food Packaging Forum said that:

“Holistic, accessible, insightful, and a wakeup call– this report on chemicals in plastics provides policymakers and industry with a vital science-based resource to reduce exposure to hazardous plastic chemicals.”

More: <https://plastchem-project.org/>

Reference

Martin Wagner, Laura Monclús, Hans Peter H. Arp, Ksenia J. Groh, Mari E. Løseth, Jane Muncke, Zhanyun Wang, Raoul Wolf, Lisa Zimmermann (2024). *State of the science on plastic chemicals - Identifying and addressing chemicals and polymers of concern*, <http://dx.doi.org/10.5281/zenodo.10701706>.

For more information on the *PlastChem* report, please contact:

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Launch event:

The report will be presented on **March 14th, 2024, at 14.00 - 15.30 CET** during an online event hosted by the Geneva Environment Network. Registration is required. More: <https://www.genevaenvironmentnetwork.org/events/launch-and-panel-discussion-state-of-the-science-on-plastic-chemicals-identifying-and-addressing-chemicals-and-polymers-of-concern/>