Trusted science for safe food

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Micro and Nanoplastics in food and feed

Marta Hugas

Chief Scientist

efsa

European Food Safety Authority

Micro and Nanoplastics Impact

Environment: Water - Food Chain

Food Safety

Effect on Human Health

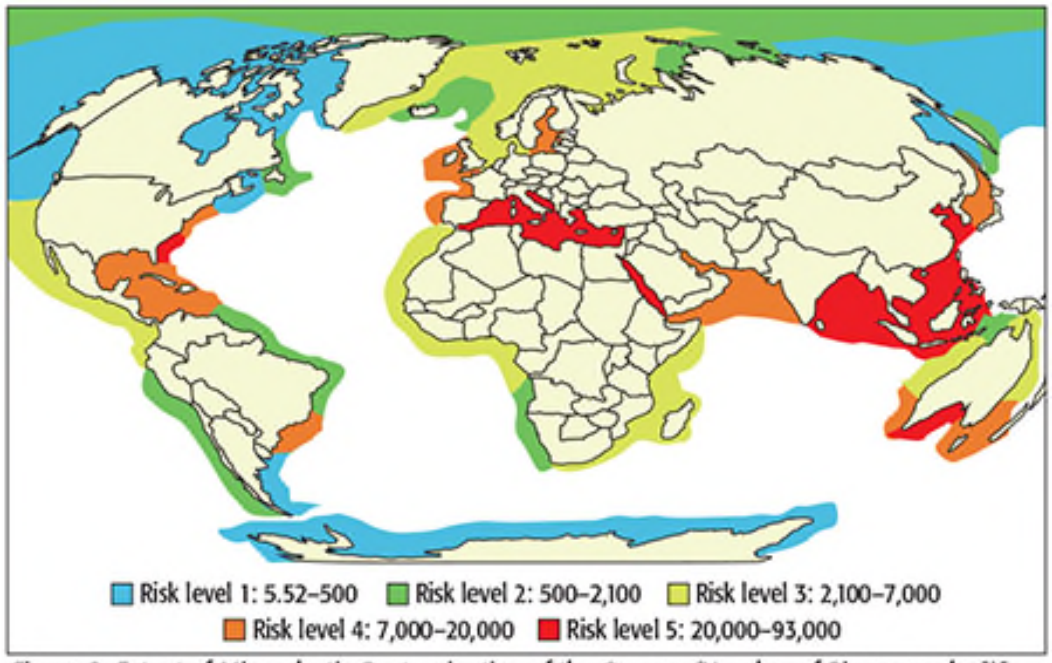


Figure 2. Extent of Microplastic Contamination of the Oceans (Number of Pieces per km²)[5]

Source: foodsafetymagazine.com

EFSA's statement after BfR request (2016)

- Analytical methods to identify and quantify micro/nanoplastics in food, should be (further) developed and standardised, and quality assurance should be in place and demonstrated.

- Occurrence data in food, for the smaller sized particles (<150 µm), should be generated in order to assess dietary exposure.

- Research on the toxicokinetics and toxicity, including studies on local effects in the GI tract, is needed for the smaller sized particles.

- Research on the degradation of microplastics and potential formation of nanoplastics in the human GI tract is needed.

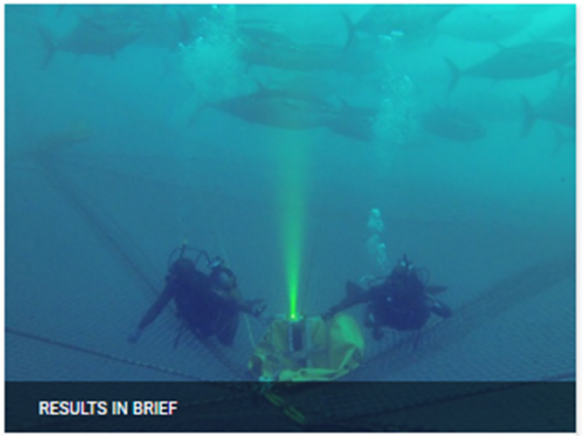
Current H2020 projects

Numerous research projects help to preserve and protect our oceans from the scourge of plastics waste and to offer solutions to replace plastics with environmentally-friendly alternatives.

https://cordis.europa.eu/article/id/401309-sustainable-and-innovative-solutions-to-tackle-the-plastics-crisis-in-our-oceans-and-seas/en

Getting under the ocean's (microplastic) skin

Milk-based plastics plastics to reduce environmental damage



New underwater inspection camera uses 3D time-of-flight technology

International events

Recent developments

MICROPLASTICS AND NANOPLASTICS: ECHA AND EFSA WORKING TO PROTECT THE EU

European Food Safety Authority

BACKGROUND

- The environmental and human health risks posed by micro and nanoplastics have recently been subject to increasing regulatory and scientific scrutiny.
- Micro and nanoplastics (synthetic polymer-containing particles <5mm) can be formed through the wear and tear of larger objects, including synthetic textiles and tyres. They can also be manufactured and intentionally added to products, e.g. cosmetics, fertilisers, detergents, paints. Once released into the environment, they are persistent and may be accumulated by animals, including fish and shellfish, and consequently consumed in food by consumers.
- Both EFSA and ECHA have been actively working in the area of micro and nanoplastics, an excerpt of which is presented here.

EFSA ACTIVITIES

Risks to consumers

EFSA has been addressing nanoscience and nanotechnologies in the food chain for some years, producing guidance on risk assessment in 2011, and updating this for human and animal health in 2018 (http://www.efsa.europa.eu/en/efsajournal/pub/5327).

Microplastic and nanoplastic particles in food were first flagged as a potential future food safety issue by EFSA's Emerging Risks Exchange Network.

In reaction to this and as a first step towards a future assessment of the potential risks to consumers from microplastics and nanoplastics in food, especially seafood, EFSA reviewed the current state of knowledge in 2016 (https://www.efsa.europa.eu/en/efsajournal/pub/4501), concluding that:

- Methods are available for identification and quantification of microplastics in food, but occurrence data are limited; for nanoplastics, no methods or occurrence data in food are available.
- Research on the toxicokinetics and toxicity, including studies on local effects in the gastrointestinal (GI) tract, are needed as is research on the degradation of microplastics and potential formation of nanoplastics in the human GI tract.

Among the authorised food additives in the EU included in Reg 1333/2008 there are substances that may fall under the definition of microplastics.

ECHA ACTIVITIES

Restriction of intentionally-added microplastics

The EU Plastics Strategy (January 2018), committed ECHA to assess the need for a restriction on the intentional use of microplastics under REACH.

ECHA's assessment (March 2019), concluded that the use of intentionally added microplastics (including nanoplastics) posed a risk to the environment that was not adequately controlled.

ECHA has therefore proposed to prohibit the use of microplastics where their release to the environment is inevitable, and require enhanced product labelling and reporting for other uses. The restriction would enter into effect over a six year period.

The restriction is estimated to reduce emissions of microplastics by ~400 000 tonnes over 20 years at a cost of ~€9.4 billion (NPV).

The proposal is now subject to scrutiny by ECHA's scientific committees. A public consultation is open until 20 September 2019

PROHIBITION ON 'PLACING ON THE MARKET'
Uses where microplastic releases to the environment are inevitable

DEROGATED USES
Natural/biodegradable polymers; uses with no releases of microplastics to the environment; uses already regulated under other legislation

MANDATORY 'LABELLING'
Uses where releases of microplastics can be minimised with improved 'instructions for use' and/or labelling

MANDATORY 'REPORTING'
Identity, description of use (function), tonnage, releases

Scientific Colloquium Spring 2020

FUTURE ACTIVITIES

The opinions of ECHA's Committees will be used by the European Commission to decide if the proposed restriction on intentionally-added microplastics should be adopted. Given the interest in the topic of microplastics and nanoplastics, EFSA (with the help of EU Sister Agencies) is planning to host a Scientific Colloquium in spring 2020, with the aim to identify questions relevant for research and risk assessment of this contemporary emerging issue.

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For further information, please contact:
hans.verhagen@efsa.Europa.eu, restriction-microplastics@echa.europa.eu
http://www.efsa.europa.eu, www.echa.europa.eu

ECHA EUROPEAN CHEMICALS AGENCY

efsa European Food Safety Authority

EFSA Scientific Colloquium micro/nanoplastics

Possible date: spring 2020

Aim

- Collect views and engage with scientific community before EFSA (possibly) starts working on a topic
- Influence research agendas (e.g. DG RTD)
- Scientific Colloquium = mixture of workshop and conference

Target audience

- Scientific community
- Registered participants (open event)

Main Stakeholders

- EFSA project team
- External Programme Committee (EFSA plus EEA, ECHA, JRC etc.)
- AF Members: input, suggestions welcome (contact person hans.verhagen@efsa.europa.eu)

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