



FEATURED PRODUCT

Microplastics

Microplastics are tiny plastic particles, which can be unintentionally formed as a result of the breakdown of larger plastics.¹ Some plastics are deliberately designed to be small. They are known as microbeads and are used in many health and beauty products, such as exfoliating beads in facial or body scrubs.

Once in the environment, microplastics do not biodegrade. Instead, they accumulate in animals, and aquatic life, and are consequently consumed as food by humans.² As an emerging environmental pollutant, little is known about the impact of microplastics and whether they are harmful to human or animal health.¹

Microplastics are officially defined as plastics less than five millimetres (0.2 inches) in diameter.¹ An even smaller group of plastics known as nanoplastics, which measure at just 100 nanometres or less, are also contaminating our environment.³ A third group of larger plastics pollutants, called macroplastics, are typically categorised as anything greater than 5 millimeters.⁴



What are the concerns?

Plastic pollution is globally recognised as a planetary boundary threat to humans and our environment.

Our beaches and marine sediments are contaminated, organisms have plastic particles in their stomachs, and microplastics are found in our drinking water and food. Plastic pollution is a widespread issue; microplastics have been found as far away as Antarctica, and as closely as in our own blood.

Microplastic and nanoplastic accumulation poses a great risk to the environment. Because of their small size, their bioavailability increases, meaning they can potentially impact many more species than larger objects, like macroplastics.⁴

There is concern surrounding the toxicity of plastic ingestion, and the potential risks microplastics pose to organisms in aquatic habitats, threatening biodiversity and potentially human health.⁵

The PRefs® project

PRefs®, established in partnership with Innovation Norway and Chiron, is an evolving portfolio of plastic reference materials consisting of the six most environmentally prevalent plastics: PE, PET, PS, PP, PVC and PC, with particle size distribution ranging from 50-300 micron.

PRefs® will produce plastic reference materials to support researchers in establishing polymer types, particle size, quantity of particles present and mass of polymers present.

The three sub-brands, MacroPRefs®, MicroPRefs® and NanoPRefs®, will each specialise in microplastics of different sizes and provide its own respective reference materials.

PRefs[®]
Plastic Reference Materials

Macro
PRefs[®]

Micro
PRefs[®]

Nano
PRefs[®]

How are they monitored and regulated?

Several countries, including Australia, Canada, Italy, Korea, New Zealand, Sweden, the UK and the US have approved or proposed national bans on the intentional use of microplastics in consumer products. The bans mainly prohibit the use of microbeads in cosmetics, where microplastics are used as abrasive and polishing agents.²

The Netherlands were the first country to introduce a ban on microbeads in cosmetic products in 2014.⁶ Products containing deliberately designed microplastics, or microbeads, were banned from being manufactured in the UK from January 2018, and banned from sale in June 2018.⁷

In 2016, the European Food Safety Authority (EFSA) identified the need to gather more data on the occurrence levels of microplastics in food and their potential effects on human health. The EFSA held a scientific colloquium in 2021 to discuss the current state of play and ongoing research in the field.

The concluding remarks of a session on microplastic analytical challenges, acknowledged that standards and reference materials were critical for method development, quality control and laboratory development.⁸

In January 2019, ECHA proposed a wide-ranging restriction on microplastics intentionally placed in products in the EU/EEA market. The proposal is expected to prevent the release of 500 000 tonnes of microplastics over 20 years.²

Discussions between the REACH Committee and EU Member States prompted a vote in favour of the European Commission's proposal in April 2023. Before the restriction can be enacted, it must still undergo a 3-month scrutiny by the European Parliament and the Council before it can be adopted by the Commission. As of July 2023, regulation decisions are yet to be confirmed.²



What does Chiron offer?



Available Standards:

Chiron No.	Name	Synonym	CAS
15246.X	Polyethylene, microplastics 50-300 micron	PE 50-300 micron	9002-88-4
15247.X	Polyethylene terephthalate, microplastics 50-300 micron	PET 50-300 micron	25038-59-9
15248.X	Polystyrene, microplastics 50-300 micron	PS 50-300 micron	9003-53-6
15249.X	Polypropylene 50-300 micron	PP 50-300 micron	9003-07-0
15250.X	Polyvinylchloride, microplastics 50-300 micron	PVC 50-300 micron	9002-86-2
15251.X	Polycarbonate, microplastics 50-300 micron	PC 50-300 micron	25037-45-0
15558.6-KIT	KIT containing PE, PET, PS, PP, PVC, PC 50-300 micron	KIT MicroPrefs® 50-300 micron	n/a

Your PReferred supplier of plastic reference materials

Chiron standards are made for pyrolysis GC-MS, and tablets (coming soon!) are produced for counting microplastic particles in a sample using MicroFT-IR, FT-RAMAN or similar techniques. For a quotation, please contact us today at sales@chiron.no

References

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