# HORIBA

## **Application Navigator** Plastic Waste

Everything begins with HORIBA's measurement

### **Problems in Plastic Waste**

Plastic waste including Microplastics (MPs) are small bits of plastic either engineered for end-products, or the result of environmental degradation of polymer-based trash.

#### What are MPs?

MPs are classified into Primary and Secondary MPs. Primary MPs are directly released into the environment as small plastic particles. These are intentionally engineered particles, like those found in some consumer and industrial products. Cosmetics have used MPs as abrasives.

Secondary MPs are the result of the degradation of large plastic waste, like plastic bags and bottles, into smaller plastic fragments when exposed to our environment. But these particles often weather, degrade or abrade from environmental or physical events, ending up in our oceans and elsewhere.

Plastics flows in the environment & related HORIBA solutions

#### Where are MPs coming from?





CO/CO<sub>2</sub>/H<sub>2</sub>/CH<sub>4</sub>

NH<sub>3</sub>/CO<sub>2</sub>/CO

Stack Gas Analyzer ENDA-5000 Series

Explore the future





Model prediction for global count density of microsplastic (1.01 - 4.85 mm) Citation: Eriksen M. Lebreton LCM. Carson HS, Thiel M. Moore CJ. Borerro JC, et al. (2014) Plastic Pollution in the World's Oceans: More than 5 Trillion Plastic Pieces Weighing over 250,000 Tons Afloat at Sea. PLoS ONE 9(12): e111913. https://doi.org/10.1371/journal.pone.0111913. Creative Commons: http://creativecommons.org/licenses/by/4.0/

MPs can be toxic depending on its composition and also act as a carrier of other bacterial molecules that cling to it. Scientists fear the cumulative buildup of these toxins may affect the health of living organisms. Research through particle analysis and Raman spectroscopy in the steps below has begun to identify various MPs

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