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Better Food. Better Health. Better World.



From Debris to Data: Analytical Strategies in Microplastics Monitoring

Federico Benetti, Pollutec 2025

Agenda

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- Microplastics definition
- Microplastics in water
- Microplastics in air
- Microplastics in environmental samples
- ECSIN – MxNS capabilities in a nutshell
- Take home message

What are microplastics?

Microplastics definition

MICROPLASTICS are generally defined as particles - minute piece of matter with defined physical boundaries – characterized by:

- solid polymers, either synthetic or chemically modified-natural polymers;
- water insoluble and long-term persistence in the environment/very resistant to (bio)degradation;
- containing additives or other substances;
- with all sizes less than 5 mm in length (aspect ratio < 3, particles);
- a length of 0.3 µm ≤ x ≤ 15 mm and length to diameter ratio of >3 (fiber).

Although there is **no harmonized definition of microplastics**, the one above covers all possibilities.



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What are microplastics?

Microplastics definition

The term microplastics usually refers to the totality of the subfive-millimetre size class of these materials even if different category size are included:

MACROPLASTICS ► large items of plastic litter which are greater than 5 mm in size

MICROPLASTICS ► plastic particles in the size range between 0.1 µm to 5 mm in their longest dimension

NANOPLASTICS ► plastic particles of size ranging from 1 to 100 nanometres (nm) (0.001 µm - 0.1 µm)

All possible shapes of **plastic particles** are considered, namely fragments, fibres/filaments, beads/spheres, films/sheets and pellets.



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Primary microplastics



Microplastics definition

INTENTIONALLY ADDED: A fundamental distinction is made between primary and secondary microplastics

PRIMARY (or INTENTIONALLY ADDED) MICROPLASTICS are industrially manufactured for specific purposes in the form of synthetically based granulates and pellets. Different plastics such as polyethylene (PE), polypropylene (PP), polystyrene (PS), polyethylene terephthalate (PET), polyvinyl chloride (PVC), polyamide (nylon) and ethylene vinyl acetate (EVA) are used.

INTENTIONALLY ADDED microplastics have diverse technical functions and are used in various consumer, professional, agricultural and industrial products, including:

- ➔agriculture and horticulture
- ➔cosmetic products
- ➔detergents and maintenance products
- ➔paints, coatings and inks
- ➔chemicals used in the oil and gas sector
- ➔construction
- ➔medicinal products
- ➔medical devices
- ➔dietary supplements and medical food

In line with REACH procedures for restricting substances that pose a risk to the environment or human health, the EC has published the restriction of microplastics under Annex XVII of REACH. If properly applied, this restriction could reduce the amount of microplastics released to the environment by about **400.000 tonnes over 20 years.**

A regulatory definition under REACH



Regulation (EU) 2023/2055 limits the use of synthetic polymer micro-particles on their own or intentionally added to mixtures – better known as the “microplastics restriction”. It is entered into force on 17 October 2023, with the following timeline:

- 17 October 2027. Rinse-off cosmetics
- 17 October 2028. Detergents, waxes, polishes and air care products
- 17 October 2028.Fertiliser products
- 17 October 2028 Other Agricultural and Horticultural Products
- 7 October 2029. Synthetic polymer microparticles for use in fragrance encapsulation
- 17 October 2029. Leave-on cosmetics
- 17 October 2029. Medical devices
- 17 October 2031. Plant protection products, seeds and biocides
- 17 October 2031. Granular filler for use on synthetic sports surfaces
- 17 October 2035. Lip and make-up products

The main changes

The change consists of the addition of a **new entry 78 in Annex XVII of the EU chemical legislation REACH**, which restricts synthetic polymer microparticles, and two new Appendices 15 and 16, which indicate the rules for demonstrating the degradability and solubility of these microplastics. Furthermore, in paragraph 1, the restriction specifies that “*Shall not be placed on the market as substances on their own or, where the synthetic polymer microparticles are present to* ***confer a sought-after characteristic, in mixtures in a concentration equal to or greater than 0,01 % by weight***”. A threshold limit is therefore defined for microplastics intentionally added in certain products.

A regulatory definition under REACH



Microplastics are not subject to restriction if:

- They are **inorganic materials** (e.g. glass, metal)
- They are **natural, biodegradable or water-soluble** (not considered microplastics according to REACH)
- They are **permanently** incorporated into a solid matrix (e.g. trapped in paint or glue)
- **They lose** their microplastic nature during use (derogation 5b), such as cosmetic products that “melt” on contact with water
- They are considered “articles” **under REACH**, or are already on the market before the date of entry into force of the ban.

Secondary microplastics



Microplastics definition

UNINTENTIONALLY ADDED: A fundamental distinction is made between primary and secondary microplastics

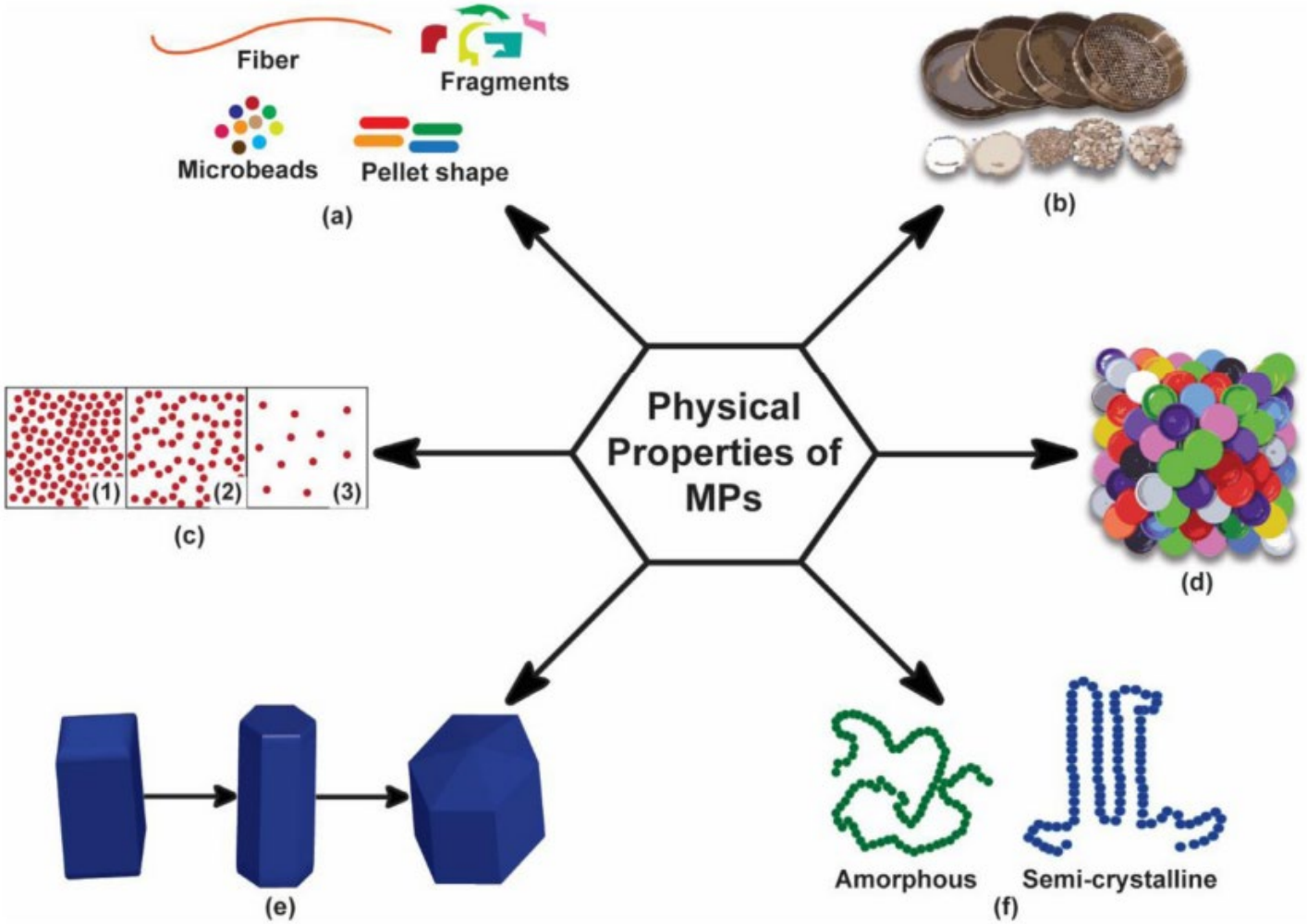
SECONDARY (or UNINTENTIONALLY ADDED) MICROPLASTICS occur through chemical and physical ageing and degradation processes of products such as plastic bags, plastic bottles or tyre wear particles. As far as we know today, the microplastics found in the environment consist mainly of secondary microplastics.

UNINTENTIONALLY ADDED can be released from:

- ➔synthetic fibres from textiles
- ➔vehicle tyres and brakes
- ➔synthetic paints and coatings
- ➔extrusion pellets for plastics
- ➔plastic waste

Microplastic contamination is very likely to increase in the future as a result of environmental breakdown and fragmentation of present stocks and future production of plastic items.

Secondary microplastics





EU ACTION AGAINST MICROPLASTICS



Objectives

The EU aims to reduce microplastic releases by 30% by 2030. This will be achieved by:

- reducing plastic pollution (as these degrade into microplastics)
- restricting the use of intentionally added microplastics to products
- reducing unintentional microplastic releases

Microplastics detection methods

Others methods available

MICROPLASTICS IDENTIFICATION REQUIRES

- Particle size determination (<5 mm)
- Chemical identification (i.e. plastic composition)

MICROPLASTICS DETECTION METHODS

- Fluorescence microscopy
- FT-IR microscopy
- RAMAN microscopy
- SEM/TEM-EDX
- pyrGC-MS



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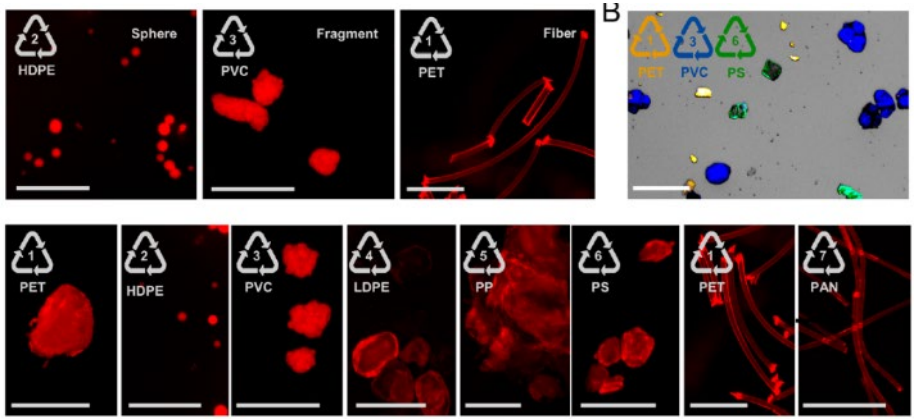
Fluorescence microscopy

Others methods available

Labeling microplastics with fluorescent dyes is a tool for tracking microplastics.

ADVANTAGES

- Low-cost approach
- Fast approach
- 8-10 µm resolution



DISADVANTAGES

- A specific approach (no chemical identity)
- False positives (dyes stain biological structures and lipophilic particles)
- No blank corrections can be correctly applied

Therefore

- Size determination
- No chemical identification

NOT SUITABLE FOR REAL SAMPLES

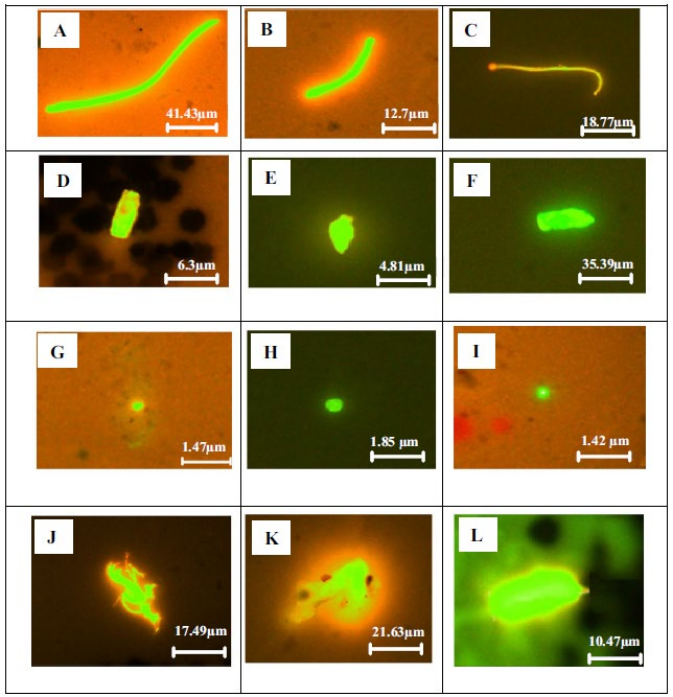
Fluorescence microscopy

Environ Monit Assess (2025) 197:702
https://doi.org/10.1007/s10661-025-14127-x

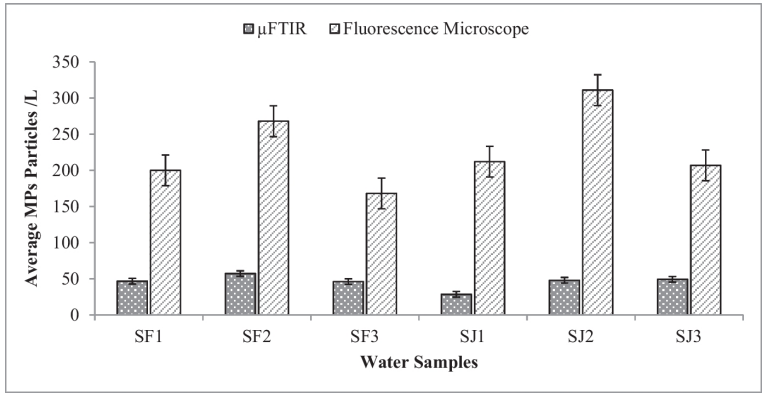
RESEARCH

Tracking microplastics at the source: a comparative study of fluorescent and FTIR microscopy at a drinking water intake in the Perak River, Malaysia

Irfan Hassan · Sumathi Sethupathi · Mohammad J. K. Bashir · Abdul Latif Ahmad · Purushothaman Parthasarathy



Types of polymers	Number of particles/L					
	February 2023			July 2023		
Water samples	SF1	SF2	SF3	SJ1	SJ2	SJ3
Ethylene propylene diene monomer (EPDM)	19.0 ± 2.0		5.0 ± 2.0		4.0 ± 2.0	4.7 ± 2.1
Melamine–formaldehyde (MF)	2.0 ± 1.0	1.3 ± 0.6	2.0 ± 1.7		3.0 ± 2.0	3.0 ± 1.0
Polyacrylamide (PAM)	1.0 ± 0.0		1.0 ± 0.0		2.0 ± 1.7	
Polyethylene (PE)	1.0 ± 0.0	16.0 ± 2.7	10 ± 2.0	9.0 ± 2.7	2.0 ± 1.0	3.3 ± 1.5
Polyethylene terephthalate (PET)		13.0 ± 2.0	7.0 ± 2.0	5.0 ± 2.0	3.0 ± 1.7	11.3 ± 2.5
Polypropylene (PP)				2.5 ± 0.7	2.0 ± 1.0	2.3 ± 1.5
Polymethyl methacrylate (PMMA)		1.0 ± 0.0				
Polystyrene (PS)	2.0 ± 1.0	2.0 ± 1.7	2.0 ± 1.0		8.0 ± 2.0	4.7 ± 1.5
Polysulfone	3.0 ± 2.0	3.0 ± 2.7				
Polyurethane (PU)	2.0 ± 1.0	2.0 ± 1.0	1.0 ± 0.00		4.0 ± 2.0	4.0 ± 1.0
Polyvinyl stearate (PVS)					4.0 ± 1.7	
Rayon	16.7 ± 2.1	19.0 ± 3.0	18.0 ± 2.7	12.0 ± 3.0	16.0 ± 3.6	16.0 ± 2.0
Total MP particles/L	46.7 ± 9.08	57.3 ± 13.6	46.0 ± 11.4	28.5 ± 8.4	48.0 ± 18.8	49.3 ± 13.2
Total unknown particles/L	172.3 ± 20.74	169.3 ± 15.50	206.0 ± 7.81	224.7 ± 24.13	192.7 ± 15.82	218.7 ± 21.7
Total MP particles/L for the month	50.0 ± 6.4			41.9 ± 11.6		
Total unknown particles/L for the month	182.5 ± 20.38			212.5 ± 16.27		



SEM/TEM - EDX

Others methods available

NANOPLASTICS are plastic particles of size ranging from 1 to 100 nanometers.

ADVANTAGES

- Particle size < 1 nm - µm

DISADVANTAGES

- No chemical identification (only elemental composition with EDX)
- No unambiguous substance identification

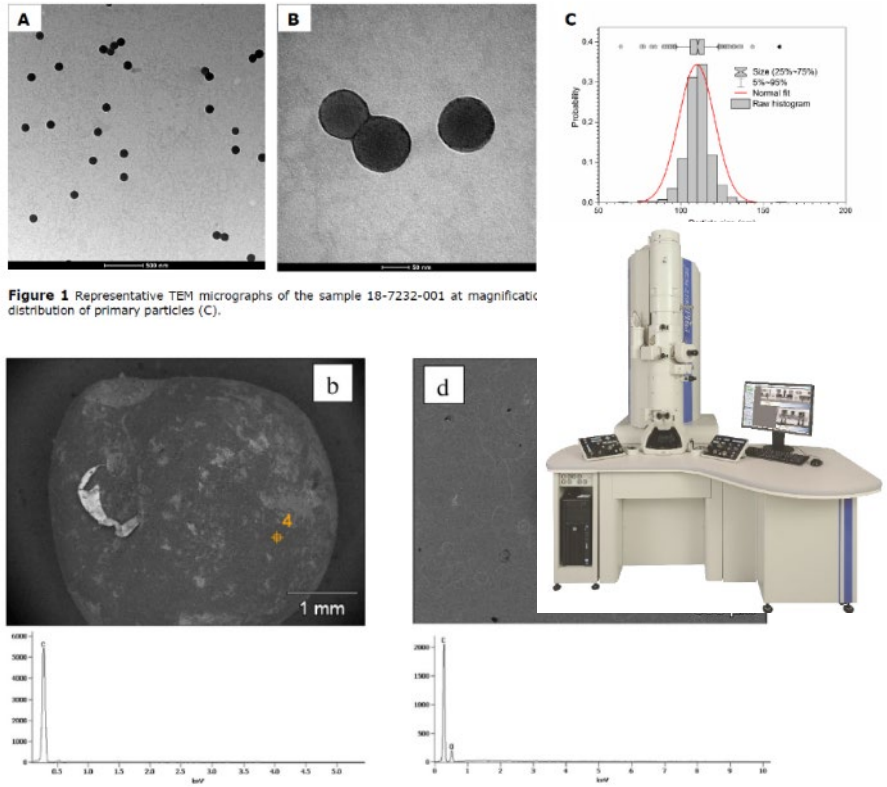
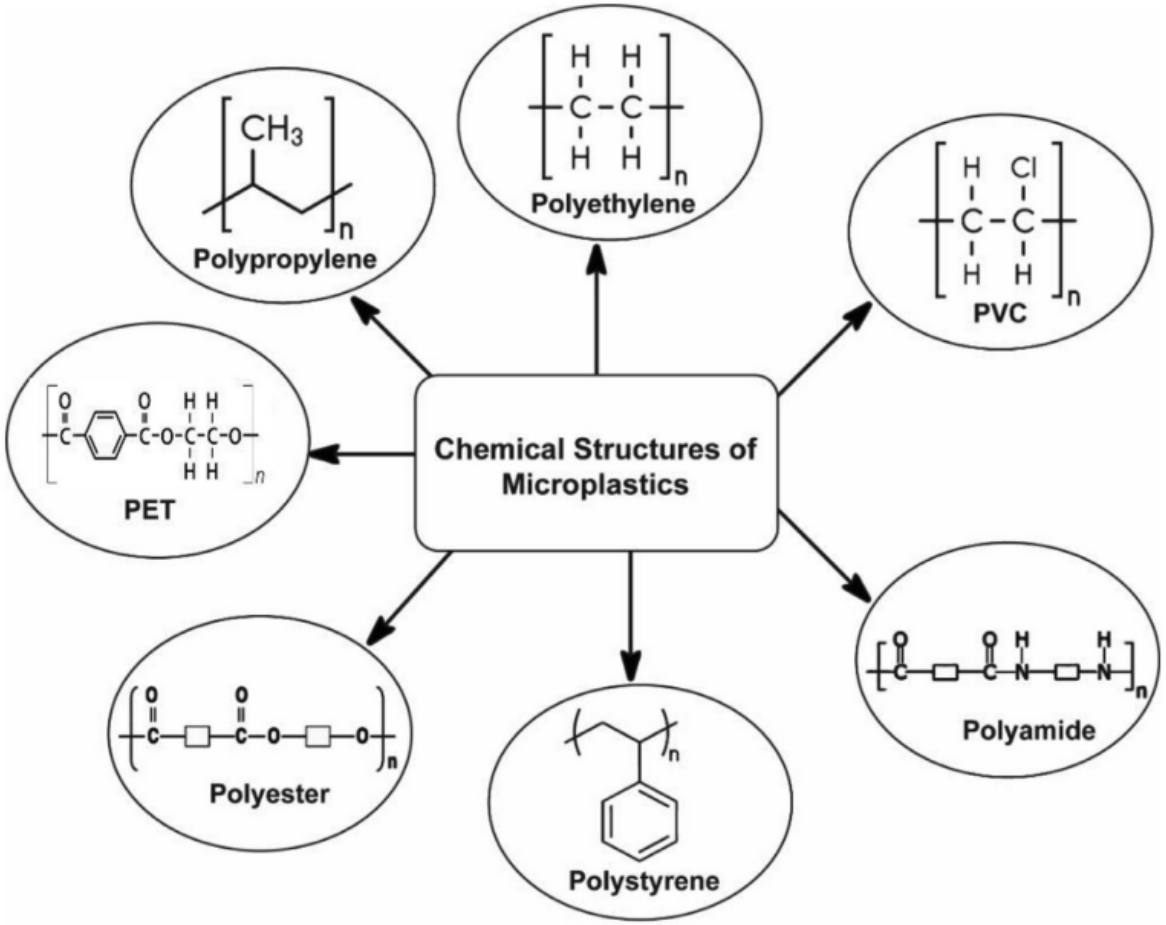


Figure 1 Representative TEM micrographs of the sample 18-7232-001 at magnificatic
distribution of primary particles (C).

SEM/TEM - EDX


Chemical Structures of Microplastics
Polypropylene
Polyethylene
PVC
PET
Polyester
Polystyrene
Polyamide

RAMAN microscopy

Others methods available

Raman microscopy also provides size and polymeric nature of microplastics.

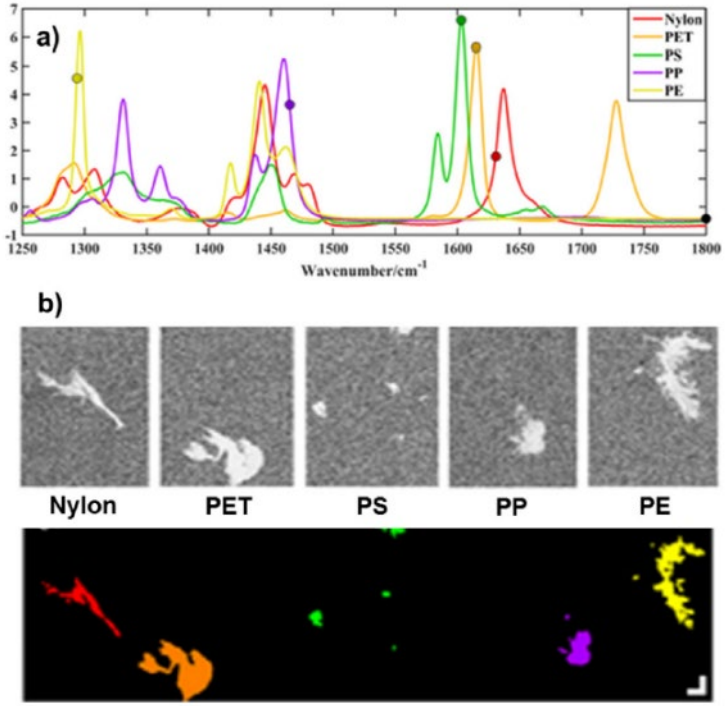
ADVANTAGES

- Chemical substance identification
- Particle size < 30-50 µm (spatial resolution < 1 µm)
- No false positives

DISADVANTAGES

- Fluorescence interfers with analysis (e.g. organic contaminations or additives)
- Laser can burn/evaporate particles
- Scattered light has small intensity (~10^{-8} of laser intensity)
- Less experience than FT-IR

SUITABLE FOR REAL SAMPLES



FT- IR microscopy

Others methods available

Fourier transform infrared (FT-IR) microscopy provides size and polymeric nature of microplastics.

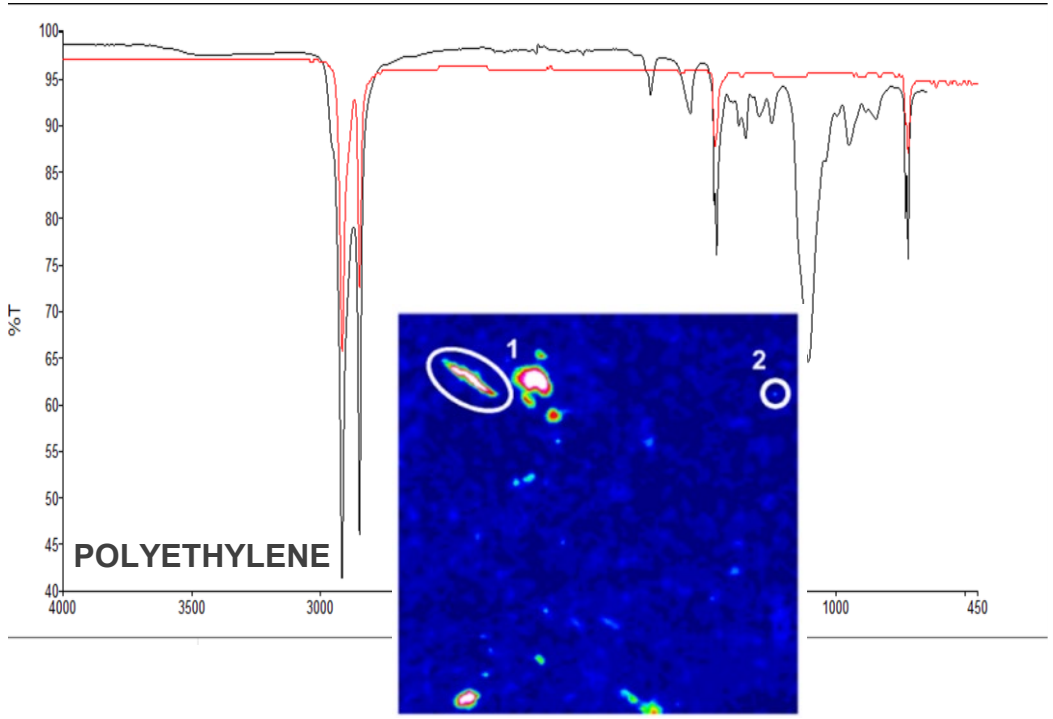
ADVANTAGES

- Clear and specific chemical substance identification
- Extensive libraries and experience available
- Quick
- Images and analyses of entire filter
- No false positives

DISADVANTAGES

- Particle size limits ~ 30-50 µm
- No automated particle analysis

SUITABLE FOR REAL SAMPLES



pyrGC/MS

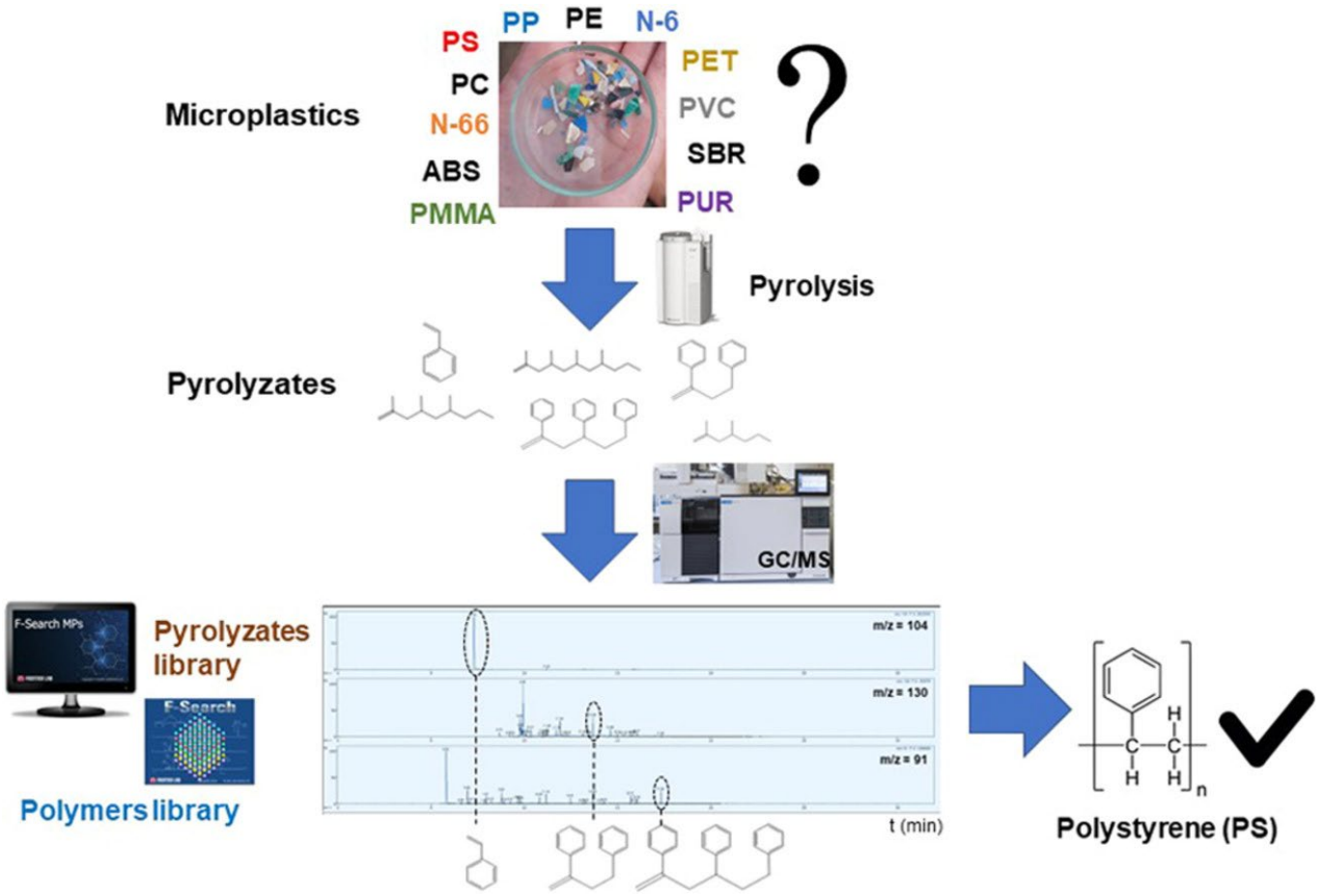
Pyrolysis coupled with gas chromatography-mass spectrometry (Pyr-GC/MS) provides polymeric nature of microplastics.

ADVANTAGES

- Quantitative measurements
- Clear and specific chemical substance identification

DISADVANTAGES

- No particle (size) info
- Microplastics contaminats could be < LOQ



Microplastics in WATER

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DIRECTIVE (EU) 2020/2184



In order **to address growing public concern about** the effects of **emerging compounds**, such as endocrine-disrupting compounds, pharmaceuticals and **microplastics**, […]. **It will also enable follow-up on new knowledge about the relevance for human health of those emerging compounds and on new knowledge about the most appropriate monitoring approaches and methodologies**.

Where surface waters are used for water intended for human consumption, **Member States should pay particular attention in their risk assessment to microplastics** and endocrine-disrupting compounds, such as Nonylphenol and Beta-estradiol, **and should, where necessary, require water suppliers to also monitor and**, where necessary**, carry out treatment for those and other parameters included in the watch list if considered a potential danger to human health**.

In order **to adapt this Directive to scientific and technical progress, the power to adopt acts** in accordance with Article 290 TFEU **should be delegated to the Commission** […], **adopting a methodology to measure microplastics**, […].

By 12 January 2024, **the Commission shall adopt delegated acts** in accordance with Article 21 in order **to supplement this Directive by adopting a methodology to measure microplastics** with a view to including them on the watch list referred to in paragraph 8 of this Article once the conditions set out under that paragraph are fulfilled.

The Commission shall adopt implementing acts to establish and update a watch list addressing substances or compounds of concern to the public or the scientific community on health grounds (‘the watch list’), **such as** pharmaceuticals, endocrine-disrupting compounds and **microplastics**.

The Commission shall, no later than 12 January 2029, and thereafter where appropriate, **submit a report to the European Parliament and to the Council on the potential threat to sources of water intended for human consumption from microplastics**, pharmaceuticals and, if necessary, other contaminants of emerging concern, and on the relevant associated potential health risks.

Commission Delegated Decision (EU) 2024/1441

- **Microplastics definition** (as presented before)
- **Microplastics concentration** means the quantity of microplastics present in water, expressed as the number of microplastic objects (particles and/or fibres) per cubic metre of water
- **Microplastic particle size** means the area-equivalent diameter determined from an optical or chemical image of the microplastic;
- **Microplastic fibre size** means the average value of the projected width of the microplastic fibre;

Priority polymers means the following polymers that are to be considered in the identification of microplastics:

- Polyethylene (PE);
- Polypropylene (PP);
- Polyethylene Terephthalate (PET);
- Polystyrene (PS);
- Polyvinylchloride (PVC);
- Polyamide (PA);
- Polyurethane (PU);
- Polymethylmethacrylate (PMMA);
- Polytetrafluoroethylene (PTFE);
- Polycarbonate (PC)



Commission Delegated Decision (EU) 2024/1441

➔ **Polymer classification** means analysed particles classified according to the following three categories:
- Identified as a priority polymer;
- Identified as a synthetic polymer or a chemically modified natural polymer which is not in the list of priority polymers;
- Other (e.g., minerals, natural polymer, other) or unidentified.

Size classification means classification according to the area-equivalent diameter of microplastic particles in one of the following ranges:
- 20≤ area-equivalent diameter < 50 µm;
- 50≤ area-equivalent diameter < 100 µm;
- 100≤ area-equivalent diameter < 300 µm;
- 300≤ area-equivalent diameter < 1000 µm;
- 1000≤ area-equivalent diameter < 5000 µm.



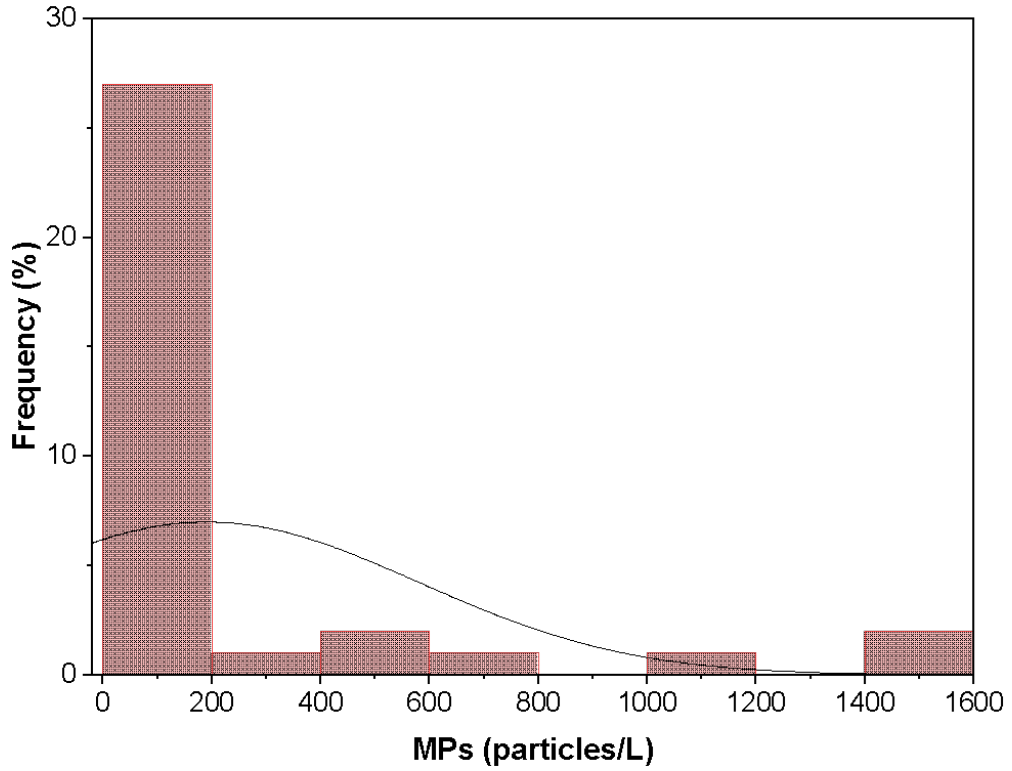
➔ The **analytical techniques** reported belonged to two distinct categories:

- Infra-Red (IR) or Raman optical **microspectroscopy** methods, which can identify the type of polymer in individual particles and additionally provide information on its size and shape

- **Thermo-analytical methods**, which can identify the polymers contained in a sample and quantify the total mass of each polymer type. Thermo-analytical methods alone are unable to provide information on particle numbers, size or shape. Thermo-analytical methods have no intrinsic lower detection limit for particle size, but are limited by the minimum mass detection levels.

Some numbers …

00575



Average of microplastics [particles/L]	191.5
Min [particles/L]	0
Max [particles/L]	1400

Microplastics in AIR

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MPs IN AIR – AN OVERVIEW

Overview of airborne MPs in indoor environments. Polyamide (PA), Polyacrylonitrile (PAN), Polyethylene (PE), Polyethylene terephthalate (PET), Poly(methyl methacrylate) (PMMA), Polypropylene (PP), Polyvinyl (PV). ATR-FTIR = Attenuated Total Reflection- Fourier-transform infrared spectroscopy, FPA = Focal Plane Array detector, HPLC = High-performance liquid chromatography Raw data rounded.

Indoor sample	Polymer types found	NMP size	Reported concentrations	Analytical method	Ref.
Filtering, passive sampling & dust samples from a vacuum cleaner	- PP - PA-cotton mixture	Dust samples: 4700–4900 μm Indoor air: <3300 μm	Filtering: range 0.4–59 fibers/m^3 with a median value of 5.4 fibers/m^3 Passive sampling: range 2.7 to 20 fibers/day, corresponding to a deposition rate between 1600 and 11,000 fibers/day/m^2 Collected bags of vacuum cleaners: ranged 190 and 670 fibers/mg dust samples.	Stereomicroscope sorting FTIR-ATR	Dris et al. (2017)
Filtering & passive sampling	- PE - PA - PP	Fibers: 60 ± 2.7%: 5–30 μm 29 ± 2.3%: 30–100 μm 11%: >100 μm	Mean concentration: 1600 ± 1200 MPs/m^3	Stereomicroscope sorting μ-FTIR	Liao et al. (2021)
Filtering	- PE - PET - nylon - PP	Fibers: 13% Fragments 87% Size distribution 37-240 μm with a D_{50} of 21-36 μm	Total number of inhaled MPs: 270 MPs The average number of inhaled MPs per unit volume: 9.3 ± 5.8 MP/m^3	FPA-μFTIR-	Vianello et al. (2019)
Passive sampling	- PET - PC	-	PET concentrations in the range of 29–1.1 × 10^5 μg/g dust sample PC concentrations in the range of <0.11–1700 μg/g dust sample	HPLC	Zhang et al. (2020)
Passive sampling	- PET - PA - acrylates - PP - co-polymer blends - PAN - PE - PMMA	Fibers (90%) Fragments (8%) Film (1%) Sphere (1%) Foam (<1%) Size not stated	Mean MPs concentration: 1400 ± 1000 MPs/m^2 per day	μ-FTIR	Jenner et al. (2021)
Passive sampling	- PE - PE:PET - PA - PV	Fibers: - 50–200 μm (5%) - 200–400 μm (19%) - 400–600 μm (17%) Fragments: - 686 μm (average) Films: -100 μm (average)	In total, 7400 fibers, 64 fragments and 18 films were collected. The deposition rate of fibrous MPs ranged from 22 to 6200 fibers/m^2 per day with an average of 3100 fibers/m^2 per day	Stereomicroscope sorting FTIR	Soltani et al. (2021)

Strategies defined for occupational exposure monitoring

Regarding the exposure routes, **the air (indoors and workplaces)** was found to suggest an abundant presence of MPs.

CASE STUDY: PLASTIC PRODUCTION PLANT

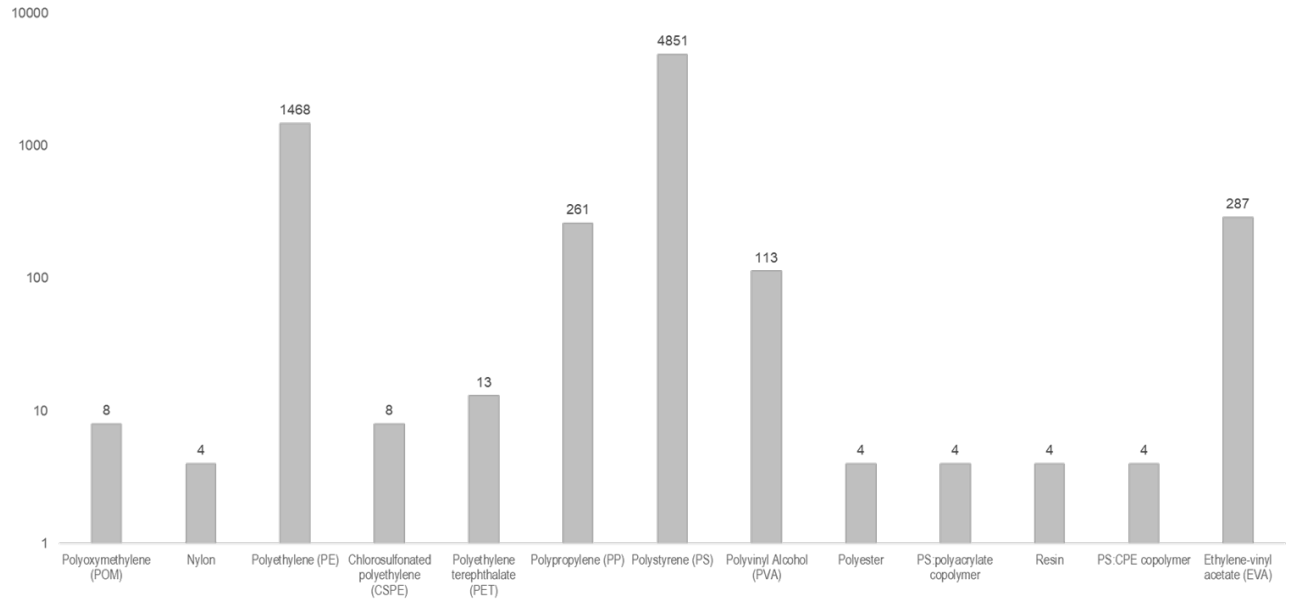
Six different areas of the factory were monitored:

- A few sites in the production area
- Offices
- Storage area

giving an insight on the presence of microplastics and human exposure in the whole workplace.

Exposure area	Total microplastics (particles/m^3)
Area for production and welding of rolls and bags	104
Film extrusion area	66
Outdoor storage area	75
Mixing of raw material on silos	5615
Mixing area	999
Area outside the offices	170

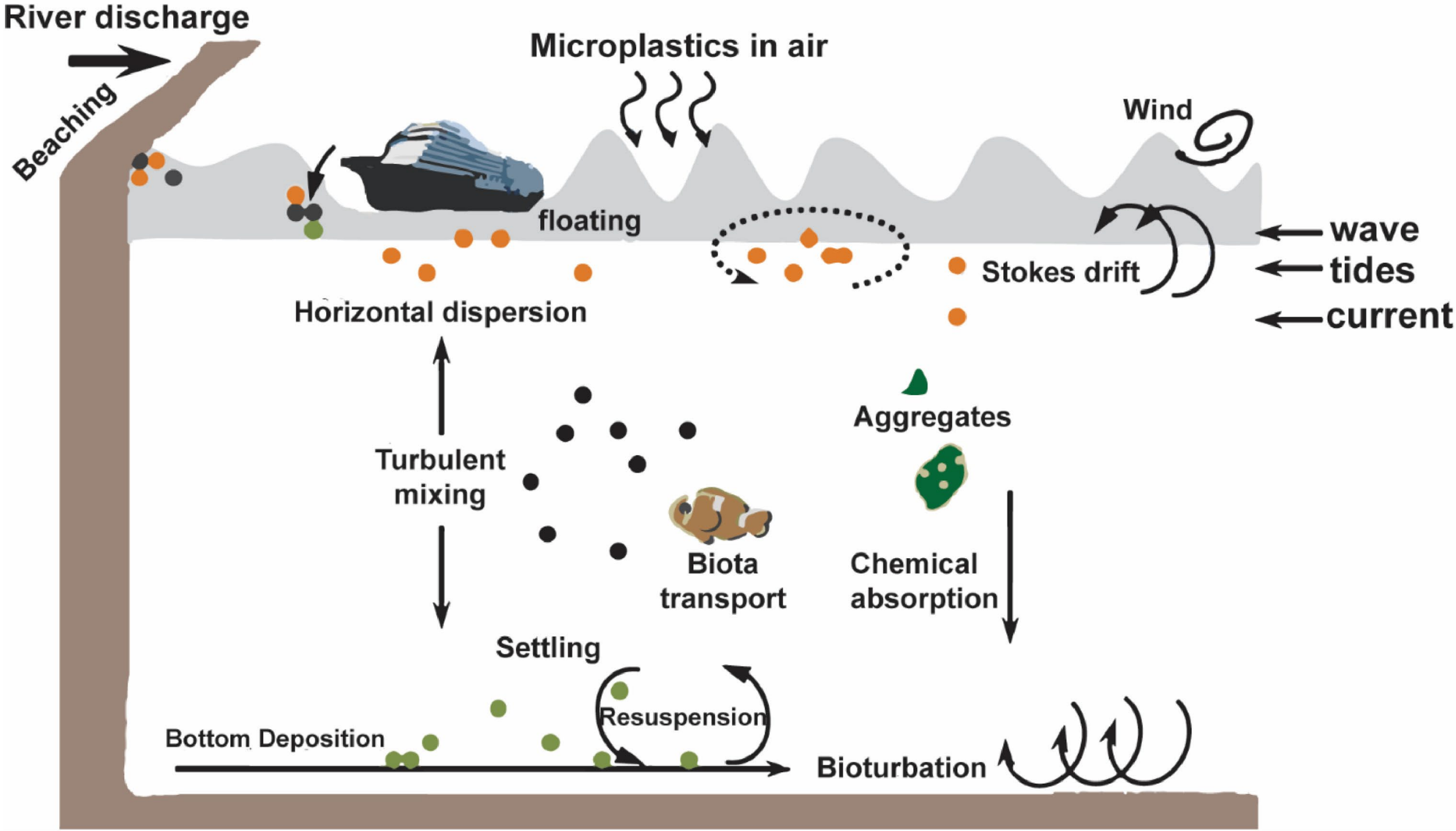
Strategies defined for occupational exposure monitoring



MICROPLASTICS TYPES	PERCENTAGE
Polyoxymethylene (POM)	0.1
Nylon	0.1
Polyethylene (PE)	20.9
Chlorosulfonated polyethylene (CSPE)	0.1
Polyethylene terephthalate (PET)	0.2
Polypropylene (PP)	3.7
Polystyrene (PS)	69.0
Polyvinyl Alcohol (PVA)	1.6
Polyester	0.1
PS:polyacrylate copolymer	0.1
Resin	0.1
PS:CPE copolymer	0.1
Ethylene-vinyl acetate (EVA)	4.1

Microplastics in ENVIRONMENTAL SAMPLES

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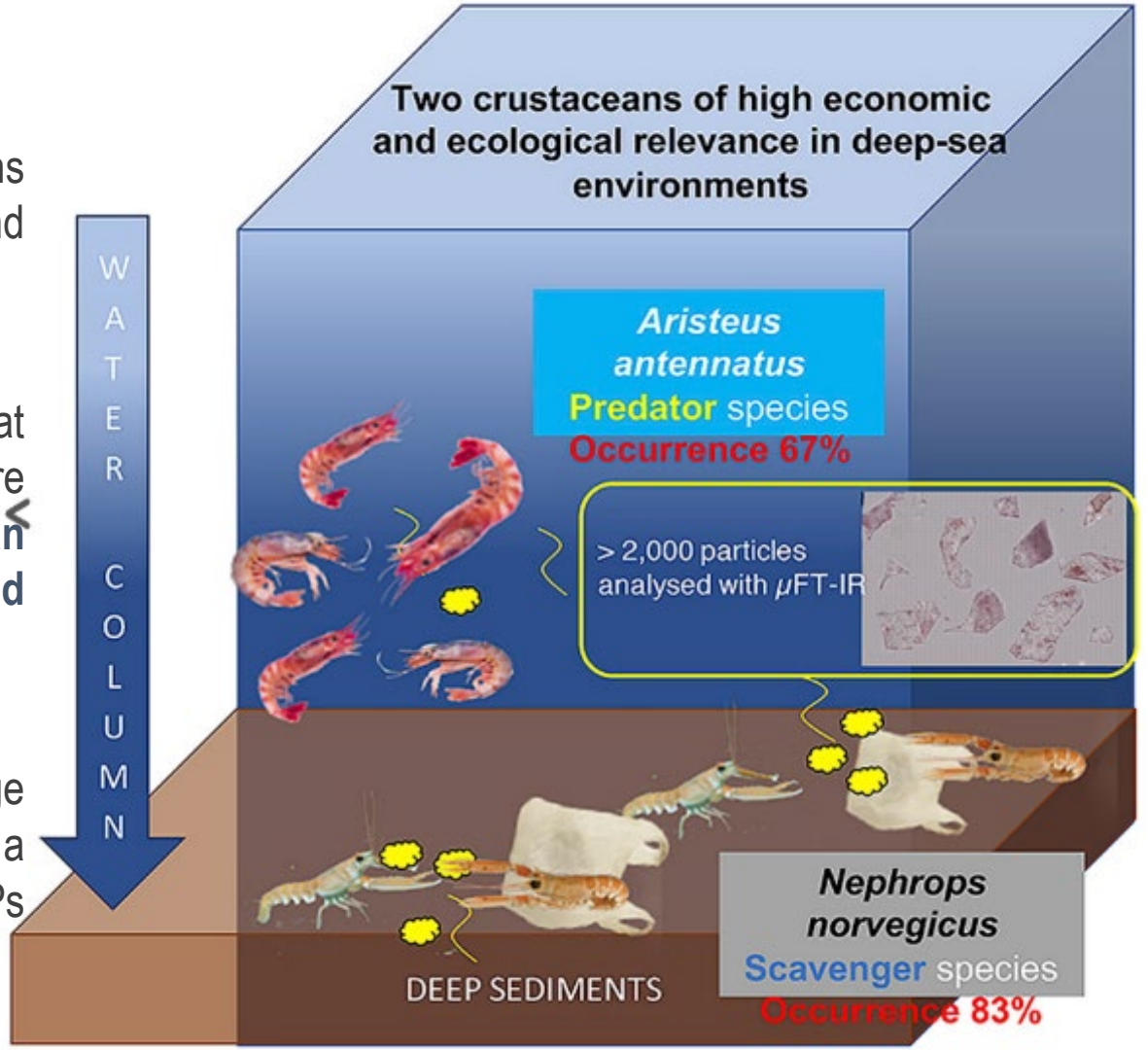

River discharge
Beaching
Microplastics in air
Wind
floating
wave
tides
current
Stokes drift
Horizontal dispersion
Aggregates
Turbulent
mixing
Biota
transport
Chemical
absorption
Settling
Resuspension
Bottom Deposition
Bioturbation

Microplastics in the crustaceans Nephrops norvegicus and *Aristeus antennatus* : Flagship species for deep - sea environments?

MPs were investigated in two economically and ecologically key crustaceans of the Mediterranean Sea, the Norwegian lobster *Nephrops norvegicus* and the shrimp *Aristeus antennatus.*

Both the species were collected from 14 sites around Sardinia (Italy), at depths ranging between 270 and 660 m. A total of 89 and 63 stomachs were analysed for *N. norvegicus* and *A. antennatus* respectively, and **more than 2000 MPs-like particles were extracted and sorted for identification and characterization by µFT-IR**.

In *N. norvegicus*, 83% of the specimens contained MPs, with an average abundance of 5.5 ± 0.8 MPs individual^{-1}, while *A. antennatus* showed a lower frequency of ingestion (67%) and a lower ratio number of MPs (1.66 ± 0.1 MPs individual^{-1}).



Source: https://www.sciencedirect.com/science/article/pii/S026974911933341X?via%3Dihub

MPs in the environmental matrices



Microplastics are ubiquitous in the environment, occurring also in complex environmental (e.g. soil, sediments) and technical (e.g. compost) matrices.

➔ Conversely from water for human consumption and the air, microplastics should be isolated from the non-plastics matric to be analyzed.

Some ISO standards have been recently published or are currently under development:

ISO/CD 24899

Plastics - A method for extraction of microplastics from compost samples

Under development

A draft is being reviewed by the committee.

ISO 24187:2023

Principles for the analysis of microplastics present in the environment

Published (Edition 1, 2023)

ISO/TR 21960:2020

Plastics — Environmental aspects — State of knowledge and methodologies

Published (Edition 1, 2020)

Examples of microplastic concentrations in environmental matrices

Matrix / Usage	Observed values (approx.)	Additional notes
Compost (Australia, treated organic waste)	**1,500 - 16,000 particles per kg of compost**	Compost from industrial composting plants — microplastic particles in the 20–500 µm range.
Urban compost (green waste composts, various types)	Total plastic: **0–1,201 particles per kg dry weight** (for particles >0.5 mm)	Compost with and without food waste; strong variability depending on feedstock composition.
Agricultural soil (amended with livestock compost/manure)	Approx. **140–316 particles/kg** for soil treated with cattle manure; 144–287 particles/kg for pig manure compost	Based on studies in regions with prolonged use of organic amendments.
Agricultural soils in Poland	Silty soils: ~**1,540 ± 912 particles/kg**; sandy soils: ~**383 ± 188**; clayey soils: ~**933 ± 682**	Regional study comparing soil types.
Soils under plastic film/mulching (China)	~ **10^4–10^5 particles/kg**: e.g. regions using plastic films report ~18,000 to 40,000 particles/kg	High contamination from plastic mulch use in greenhouses and crop fields.
Soils with long-term sewage sludge application	Up to approx. **6,800 particles/kg**	Microplastic accumulation increases with repeated sludge applications.
Global review – soils	Extremely variable: from almost none to **3.57×10^6 particles/kg** in extreme cases	Highest levels reported in landfill soils in China.

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Microplastics – analytical strategy

1. Sampling
2. Quartation
3. Digestion
4. Filtration
5. Analysis

Evaluation of microplastics in environmental samples

Sample **preparation** STEP 1

The first step is the degradation of the organic matrix in order to isolate microplastics

LIQUID SAMPLES

SOLID SAMPLES

CHEMICAL AND/OR ENZYMATIC DIGESTION

ARTIFACT PREVENTION
- Alteration or particle loss
- External contamination

Filtration STEP 2

Microplastics have to be completely recovered on filter and detectable.

FILTRATION

- Filtration in cleanroom ISO 7 class
- Plastic-free items
- Appropriate cleaning procedure before filtering

µFTIR / chemical imaging STEP 3

µFTIR sampling modes

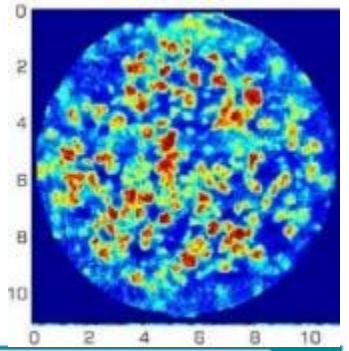
Reflectance

Transmittance

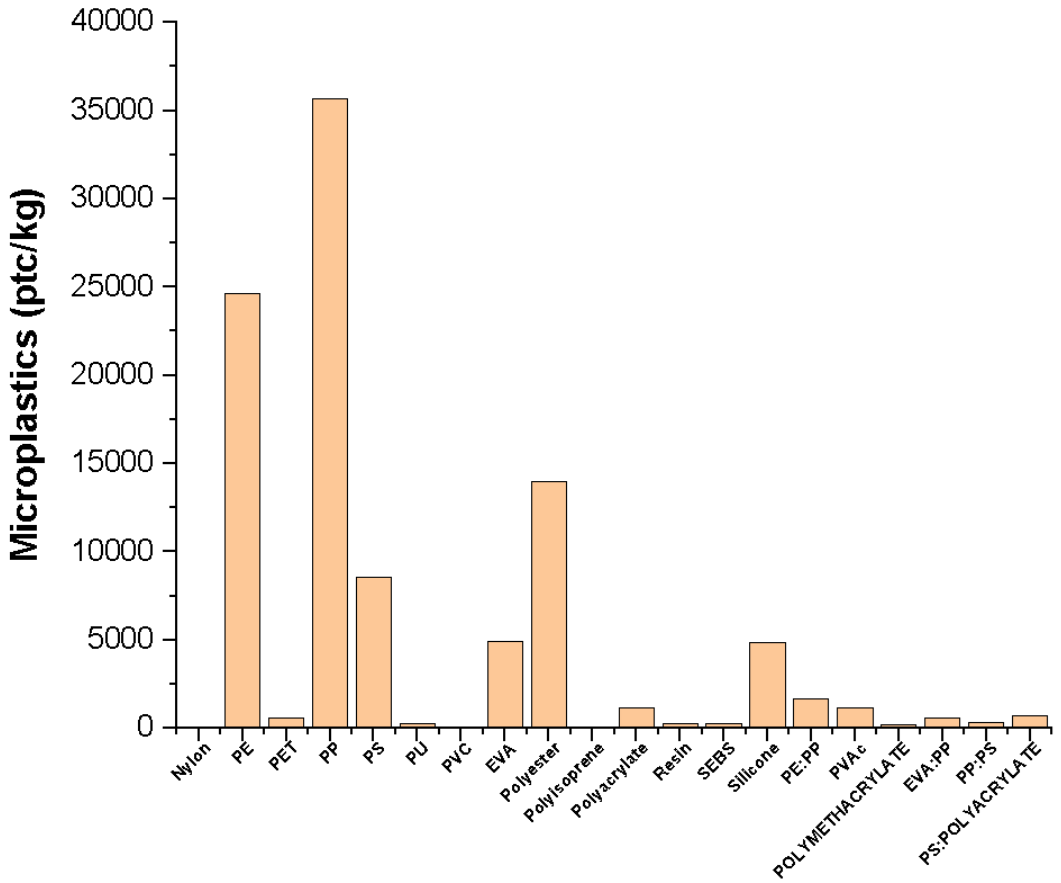
ATR (attenuated total reflection)

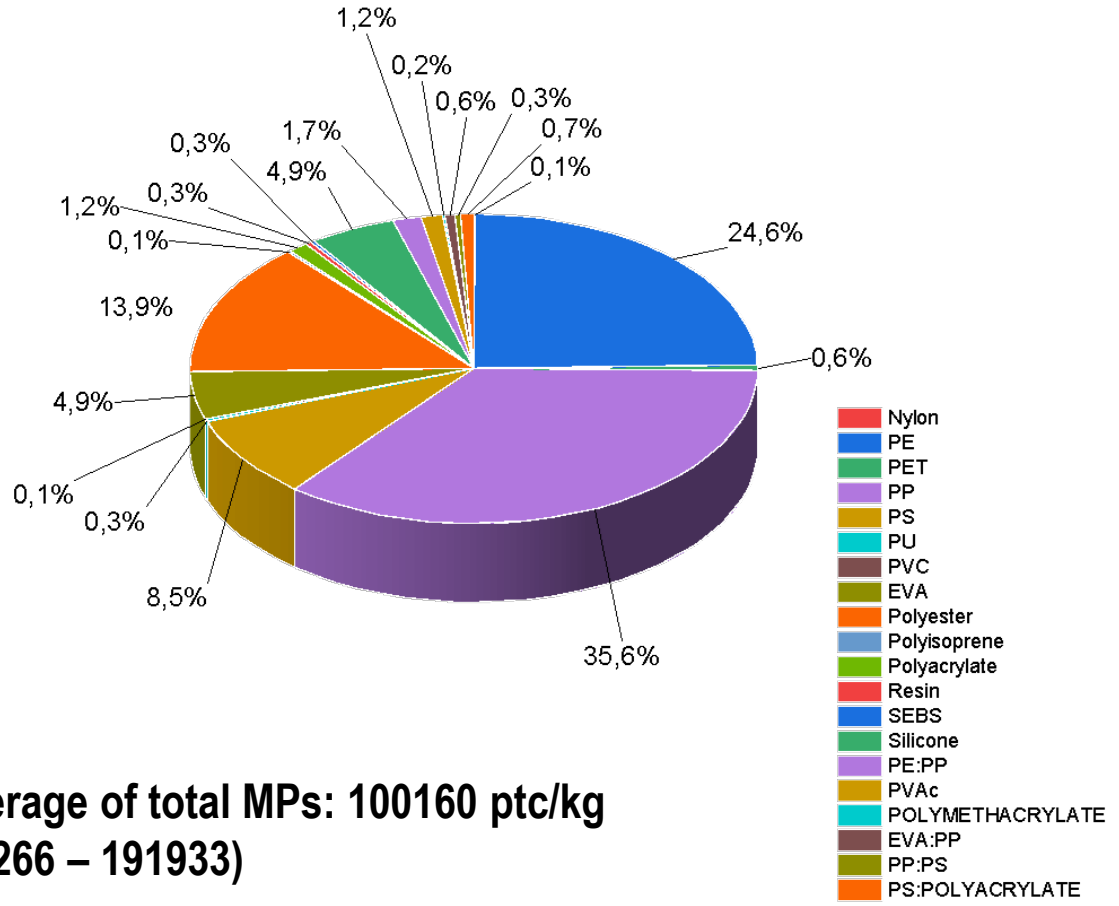
µFTIR / CHEMICAL IMAGING

Analytical capability to create a **visual image of components distribution** from simultaneous chemical identification and particle size detection: generate **chemical images** showing differences - each **pixel corresponds** to IR spectrum



MPs in Compost





Average of total MPs: 100160 ptc/kg (18266 – 191933)

ECSIN – MxNS CAPABILITIES IN A NUTSHELL

Mérieux NutriSciences

Our Capabilities

OUR EXPERTISE AND CAPABILITIES

The vast array of different plastic types available on today's consumer market makes the qualitative or quantitative analysis of microplastics extremely challenging and there are no officially recognized methods available by now.

However thanks to **Mérieux NutriSciences progress in scientific research**, **specific methods applicable to different matrix types** - including detergents, cosmetics, drinking water, milk, beverages, mineral salts, fish products and environmental matrices (e.g. waste water, soil, sludge) - were **developed and validated** through:

- **Verification** of process and possible contamination through blank analysis
- **Recovery assessment** of the number of microplastics added
- **Assessment** of the integrity (size and shape) of added microplastics
- **Verification** of chemical nature of added microplastics

VALIDATED PROCEDURES FOR

Water
Salt
Milk
Soft drinks
Mollusks
Fish
Grocery and/or consumer goods



Waste water
Fresh water / Sea water
Sludge
Soils
Digestate
Air





Detergents
Cosmetics

Microplastics detection and identification

OUR EXPERTISE AND CAPABILITIES

ACCREDIA
L'ENTE ITALIANO DI ACCREDITAMENTO

ECSIN - ECAMRICERT SRL Corso Stati Uniti 4 35127 Padova PD	Numero di accreditamento: **0699 L** Sede **B**
	Revisione: **3** Data: **04/06/2020**
	pag. **1** di **2** UNI CEI EN ISO/IEC 17025:2018

ELENCO PROVE ACCREDITATE - CATEGORIA: 0

Alimenti ad uso umano, Alimenti ad uso zootecnico, Acque -
Food for human use, Food for zootechnical use, Waters

Food stuff Feed stuff Water

Denominazione della prova / Campi di prova	*Metodo di prova*	*Tecnica di prova*	*O&I*
Microplastiche: presenza/assenza Microplastics: presence/absence	MI_551_2019_Rev.0	microscopia FTIR	

Legenda

Il QRcode consente di accedere direttamente al sito www.accredia.it per verificare la validità dell'elenco prove e del certificato di accreditamento rilasciato al laboratorio.

L'eventuale simbolo "X" riportato nella colonna "O&I" indica che il laboratorio è accreditato anche per fornire opinioni e interpretazioni basate sui risultati delle specifiche prove contrassegnate.

L'eventuale simbolo (*) indica che è attiva una sospensione dell'accreditamento per la specifica attività riportata a fianco

OUR ACCREDITATIONS



Microplastics detection and identification

APPROACHES:

SCREENING – QUALITATIVE APPROACH

- PRESENCE / ABSENCE OF MPs
- QUALITATIVE ANALYSIS BY EXPRESSING RESULTS AS A PERCENTAGE

FULL CHARACTERIZATION - QUANTITATIVE APPROACH

- CHEMICAL IMAGING for simple matrices (e.g., water for human consumption, air) (Number of particles / kg or L)
- QUANTITATIVE ANALYSIS for complex matrices (e.g., food, feed, environmental samples) (Number of particles / kg or L)

Therefore…

OUR EXPERTISE AND CAPABILITIES

➔Application of a proper sample preparation based on sample typology

➔Application of procedure in a clean room to avoid any environmental or lab contaminations

➔Use the right analytical approach to get both size and chemical identity

➔Highly qualified team thanks to participation in ILC, PT and projects to continously improving our knowledge on this highly topical issue

APPLICATION OF VALIDATED, RELIABLE AND ACCREDITED METHODS!



Mérieux NutriSciences

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Better Food. Better Health. Better World.

Thank You!

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