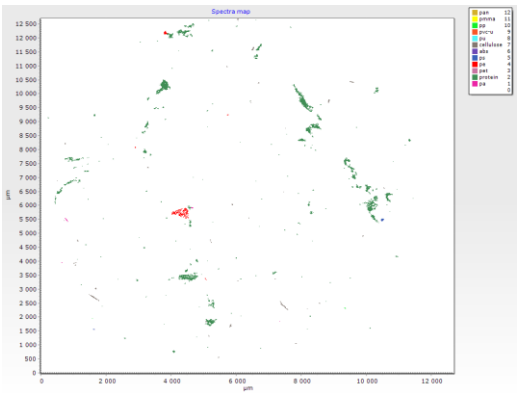
DETERMINATION OF MICROPLASTICS FROM ENVIRONMENTAL SAMPLES WITH FTIR MICROSPECTROSCOPY

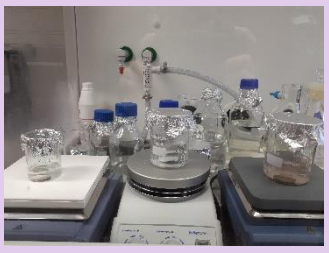
- FTIR microspectroscopy = Fourier transform infrared spectroscopy coupled to microscopy, provides spectral maps
- Particle numbers, sizes, polymer types and mass estimations are automatically calculated from the spectral map



WORKFLOW

SAMPLE PREPARATION

- Pre-treatments: density separation of inorganic and digestion of organic solids, filtrations
- Filtration to IR transparent or reflective filter
- Or application to transmission windows



Also Raman microspectroscopy is suitable for microplastic analysis!

EXAMPLES

Sample types

- Water: sea water, freshwater, drinking water, bottled water, wastewater
- Sediments
- Biota and foodstuffs

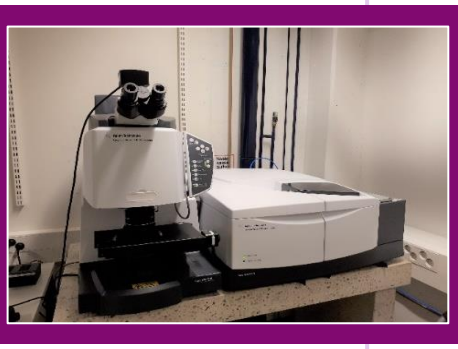
Research questions

- How much microplastics? What effects they cause?

MEASUREMENT AND DATA ANALYSIS

- Automatic particle recognition with siMPle software (https://simple-plastics.eu/) from spectral maps
- Statistics, interpretation

SIB LABS INFRASTRUCTURE



IMAGING FTIR

Agilent Cary

670/620, 128x128

FPA detector

CONFOCAL

IMAGING RAMAN

MICROSCOPE

Thermo DXR2xi

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