

The logo for NIVA, consisting of the letters 'NIVA' in a bold, blue, sans-serif font. The letter 'A' is stylized with a horizontal bar that curves upwards and to the right, resembling a wave or a drop.

Norsk institutt for vannforskning

A smaller version of the NIVA logo, located in the bottom left corner of the page. It features the same stylized blue 'NIVA' text.

Smartphone scanner for marine litter

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Norsk institutt for
vannforskning



Beach litter inventories

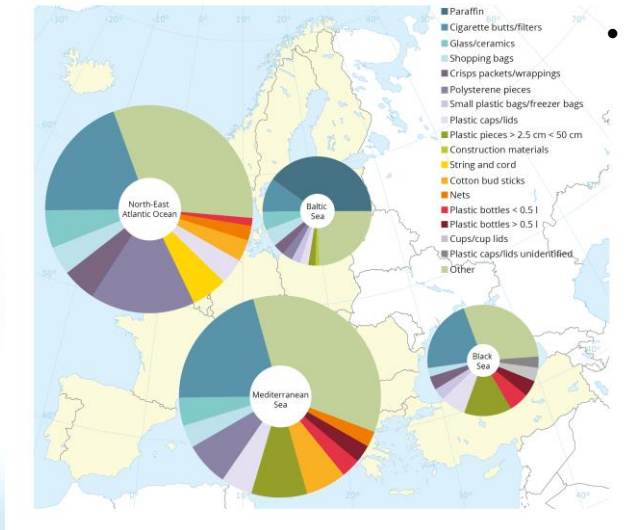


Beach Inventories

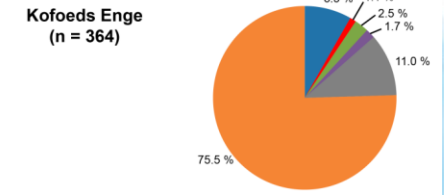
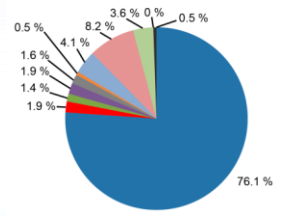
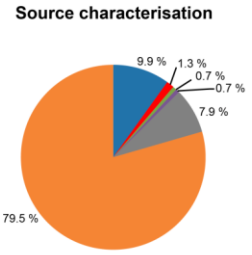
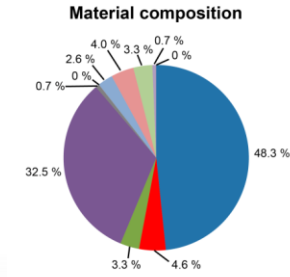
- Salt

- More than half of all litter items analysed were unidentifiable. These were usually smaller than 10 cm in length. The number of unidentifiable pieces of plastic may have been inflated as the litter sometimes broke into smaller pieces when picked up and transported (Svalbard Beach Litter Deep Dive, 2019).

- EA

















- Miljøstyrelse Danmark



Meso and micro plastic

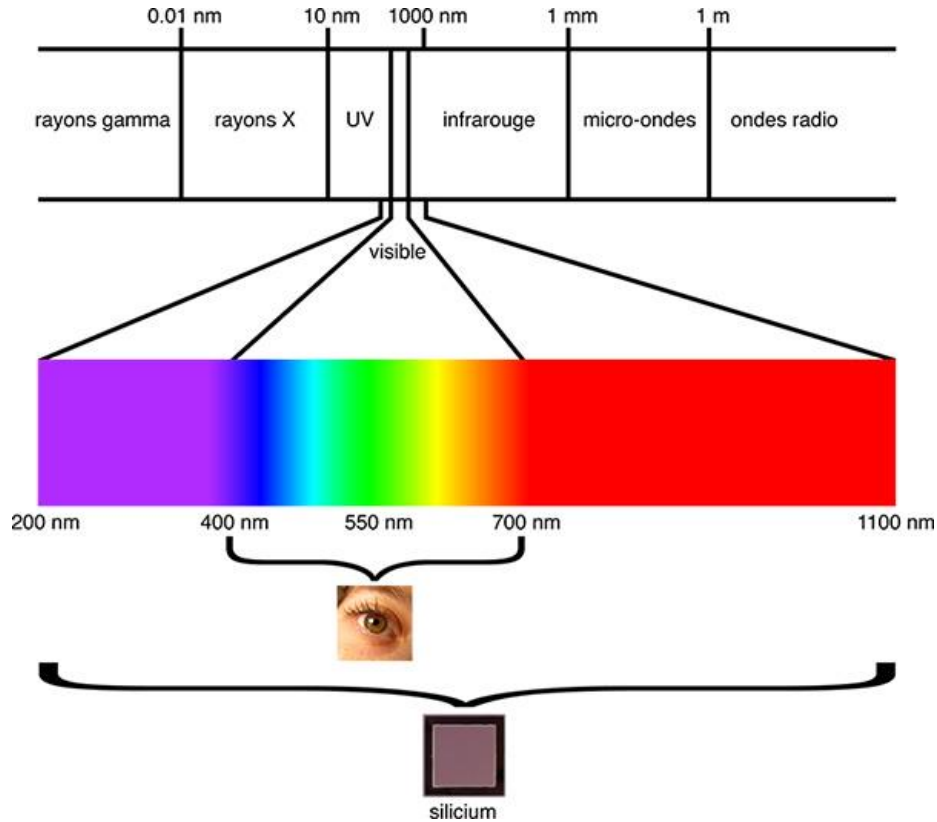


Types of plastics

		Specific gravity	Percentage production	
 PET	Polyethylene terephthalate (Thermoplastic polyester)	1.34-1.39	7%	
 HDPE	High-density polyethylene	0.94-0.95	17%	
 PVC	Polyvinylchloride	1.38	19%	
 LDPE	Low-density polyethylene	0.91-0.93	21%	
 PP	Polypropylene	0.85-0.92	24%	
 PS	Polystyrene Expanded polystyrene (EPS)	1.04-1.09 1.01-1.05	6%	
 0	Polyamide (PA)/Nylon Cellulose Acetate (CA)	1.13-1.15 1.24	<3%	

These main 6 types of plastic = 94% of all produced plastic

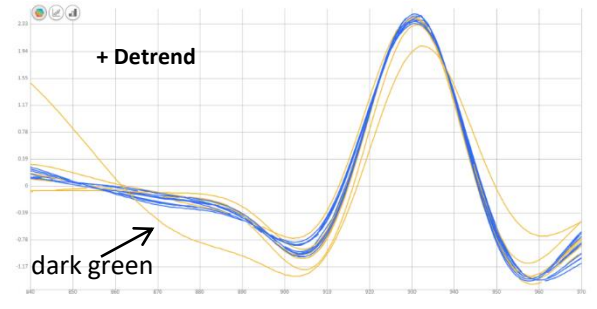
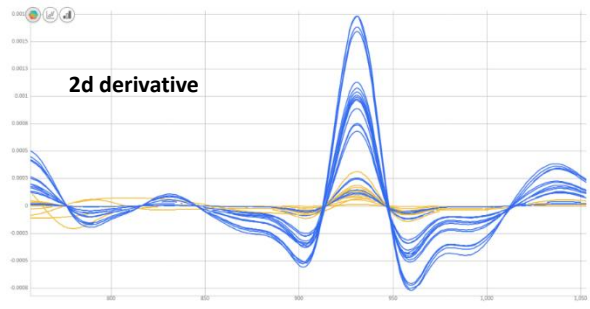
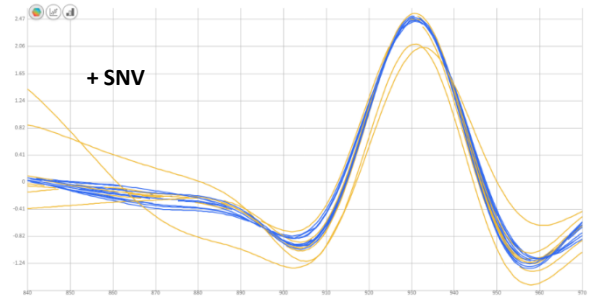
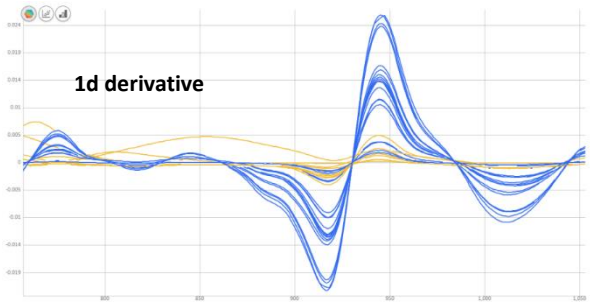
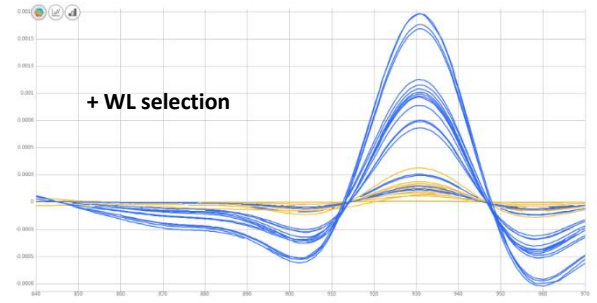
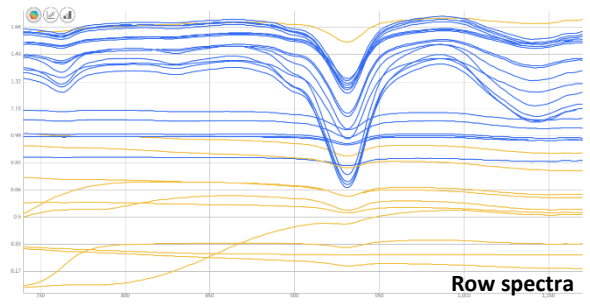
Near Infra Red



Spectra processing

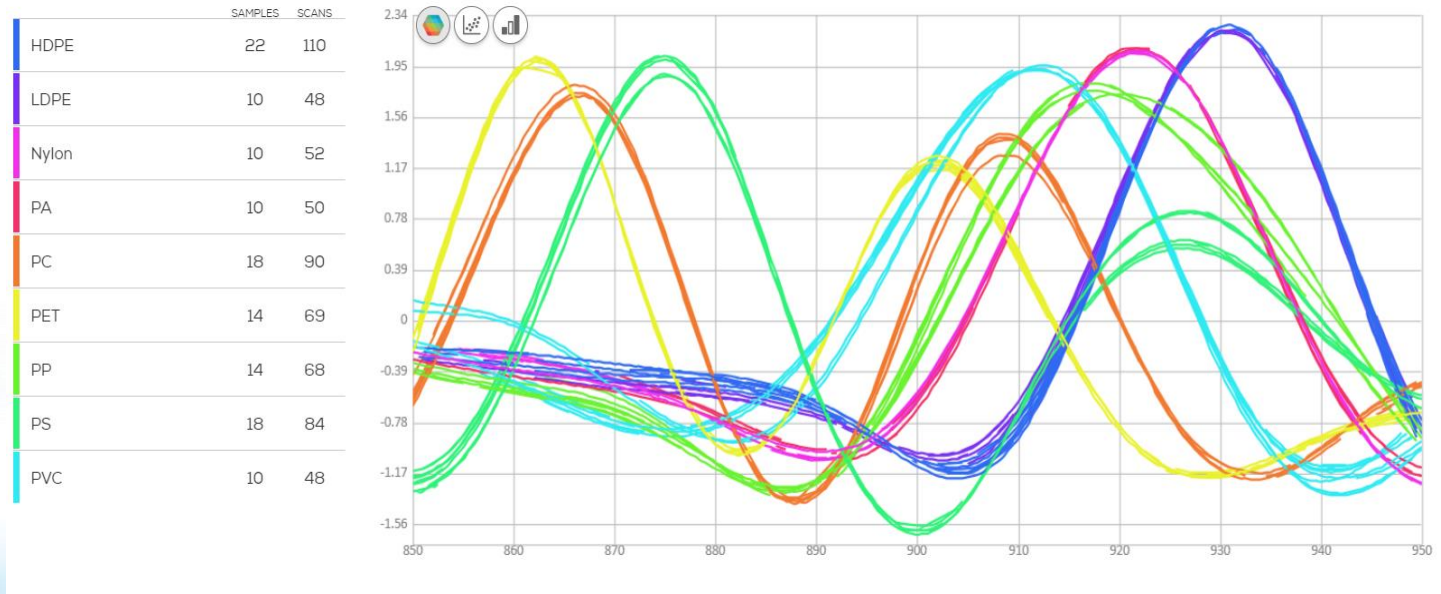
HDPE

	SAMPLES	SCANS
HDPE	22	110
HDPE_col	11	45



Database with reference material

2-3 different samples with different particle size (from “powder” to 4 mm) for each plastic type measured with two SCiO devices:



Database with reference material

Test model on household plastic

PP

⊗	wrong determination		
⊗	undefined		
		Svetlana	
PP		Model_5	Model_4
transparent 1	matboks	84-92	😊
transparent 2	jar, smooth/rough	100/64	😊
transparent 3	matboks, PP-R	90-94	😊
transparent 4	matboks, PP-R, scratch	100	😊
transparent 5	beaker, PP 3, clean/dirty	78/⊗	😊
transp pink	matboks	56-60	😊
transp brown	matboks	38/⊗	😊
silver	matboks	⊗	⊗
blue	matboks	98-100	😊
red	ketchup	⊗	⊗
white	matboks, PP-C	100	😊



Database with reference material+ household plastic



Merged collection “Svetlana_mix_final” – RMs and HP

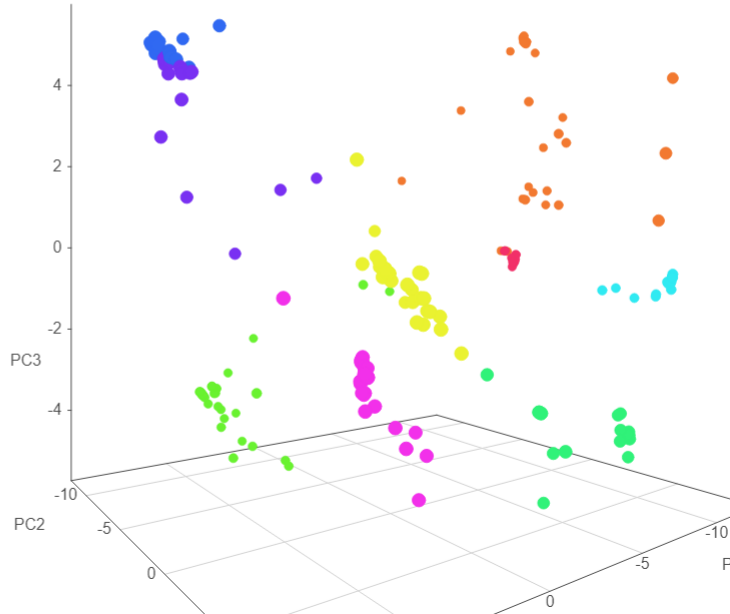
Database with reference material + household plastic

polymers type ▼

	SAMPLES	SCANS
HDPE	33	155
LDPE	22	105
PA	29	140
PC	18	90
PET	35	179
PP	35	156
PS	35	171
PVC	20	100
Silicone	16	81



Average Scans



collection "Svetlana_final", the same processing as in "Svetlana_mix_final"

SciO



The Lab



SciO



Litterati



TeamViewer



Thank you for your attention!!