Description of intended use:

The FTIR-microscope will be used for analysis of microplastic particles and fibres in complex matrices such as soil, sediment and sludge. The equipment must be able to detect particle sizes down to approximately 2-4 µm filtered out on a steel-mesh filter – microplastic (synthetic polymer) particles will typically be found on filter together with other micro particles and fibres such as mineral particles and cellulose fibres. Steel-mesh filters used are typically circular with a diameter of around 60 mm, and if possible the whole filter (or at least a large proportion of the filter) should be analysed without accidently moving particles on the filter from one location to another. The equipment must be able to detect and identify various polymer types including black rubber. To reduce man-hours for analysis automated sampling is an absolute must. For presentation and analysis purposes it is necessary that visible light and IR microscope pictures can be directly compared.

Specification of minimum requirements:

#	Description	Minimum requirement (MR)/wish (W)	Additional remarks	Fulfilled by offer: yes/No
1	Automated analysis	MR	Automated sampling of a larger sample area without relocation of the crystal	
2	Imaging	W	If imaging is not available for the solution offered, then an easy upgrade of the equipment to imaging at a later point should be available. Price for this upgrade should be provided in the offer.	
3	Minimum ATR pixel size ≤ 2µm	MR	In order to detect particles down to a size range of ca. 2-4 µm	
4	Possibility for analysis of macro (plastic) samples	W	If analysis of macro samples is not available in the solution offered and easy upgrade of the equipment at a later point should be available. Price for this upgrade should be provided in the offer.	
5	Library with ≥200 polymer spectra	MR	Library must include spectra for: polyethylene, polystyrene, polypropylene, polyethylene terephthalate, polyvinylchloride, polyamide (nylon), polycarbonates, poly(methyl methacrylate), isobutylene Isoprene Butyl, Styrene Butadiene, polyurethane, polyisoprene etc.	
6	Minimum 50 X 50 mm sample area	W	The larger the sample area that can be analysed without relocation of the detector the better	

7	User replaceable IR source	MR	Long lifetime of IR source expected	
8	Both transmission and reflection modes available	W		
9	Free switching between IR and visible light view	MR	Without relocation/realignment of detector	
10	Spectral search	MR	Allow for search for one or more specific predefined polymer spectra	
11	Liquid Nitrogen dewar	MR	No need for direct connection to LN_2 supply through piping for cooling of detector	
12	Price maximum 600.000 DKK (all inclusive)	MR		
13	Delivery at the latest on the 23rd of December 2016	MR	Both payment and delivery should be completed before 24th of December 2016	
14	Installation and initial instructions for use included in specified price	MR	Initial instructions offered for a minimum of 4 persons	
15	Optional service plan available in Denmark. Price(s) for service option(s) must be provided in the offer	MR	Price for service plan should NOT be included in the max. price of 600.000 DKK	

All minimum requirements are mandatory in order for the offer to be considered.
Wishes (except #6) shall be possible to install in the equipment at a later point, possibly for additional cost.

Evaluation:
The offers will be evaluated on price. Offers that meet the wishes will be preferred.

Deadlines:

Deadline for offer is 10th of November 2016
Deadline for delivery and payment is 23rd of December 2016