

Introduction

Optimisation of sludge dewatering process

Cost focus

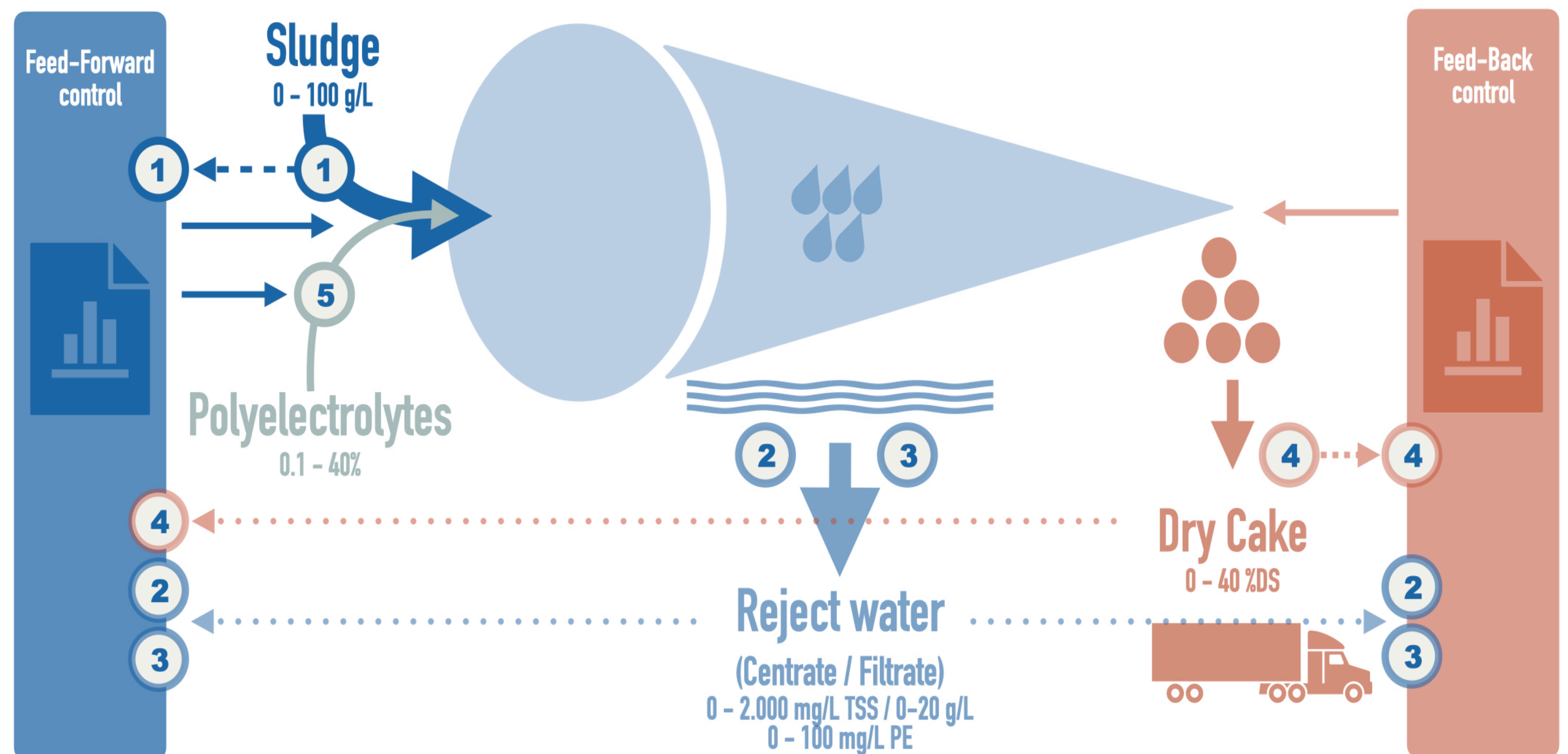
- Energy cost
- Chemical cost
- Dry Cake processing (transport, energy recuperation, land fill)

Environmental optimisation

- Centrate quality
- Avoiding PE Overdosing

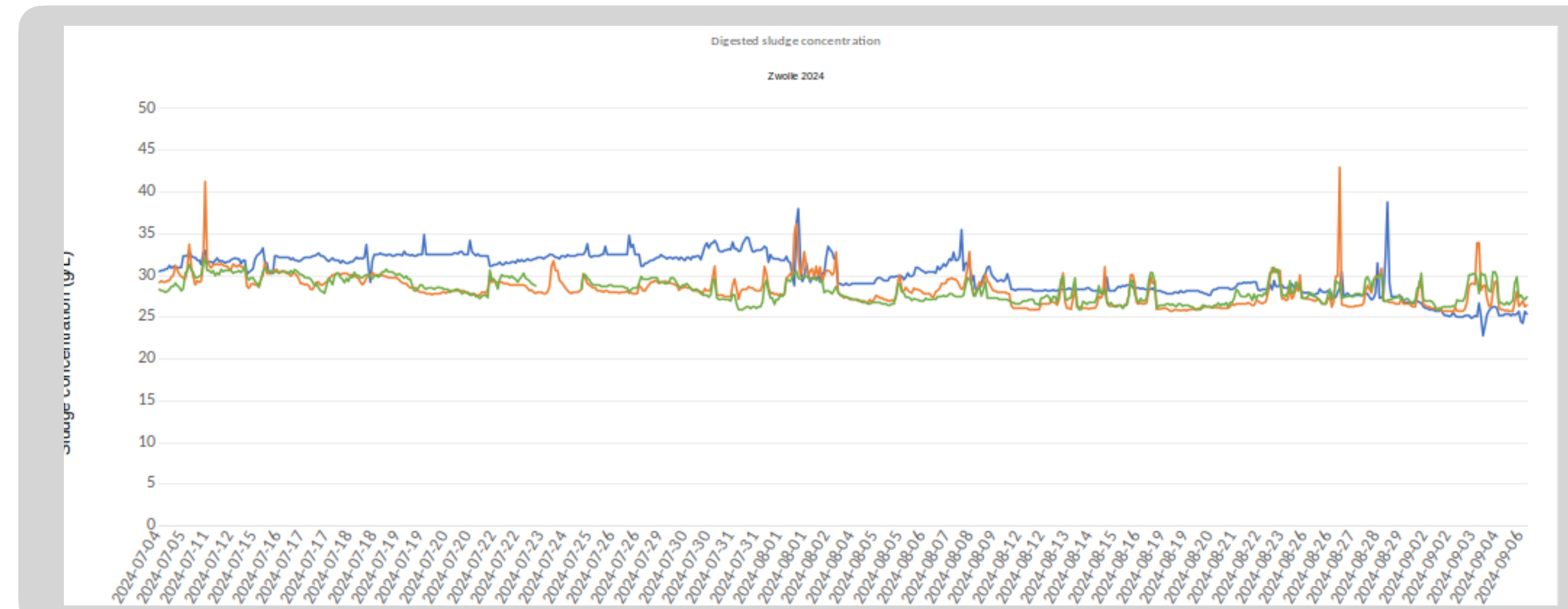
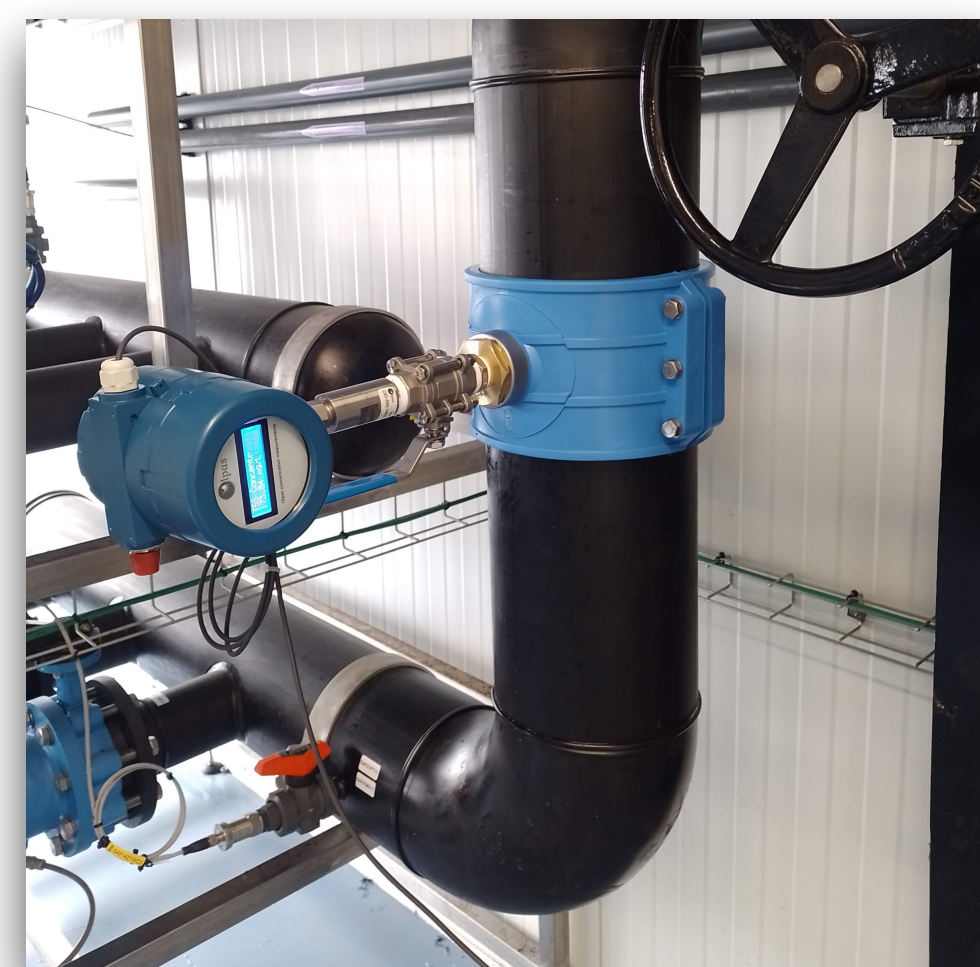
Characterisation of an efficient dewatering process

1. Known content of ingoing sludge (ton/hour) fed to the dewatering system
2. Low Total Suspended Solids (TSS) content in the centrate or filtrate
3. Low content of (residual) polyelektrolyte in the centrate or filtrate
4. High dry solids or dry matter content in the dewatered sludge



1/ Sludge Concentration (Ultrasound)

- Direct replacement of optical concentration sensors: Improved maintenance interval, larger dynamic range and increased performance
- Fast & easy installation (inline mounted probe), superior to microwave based sensors

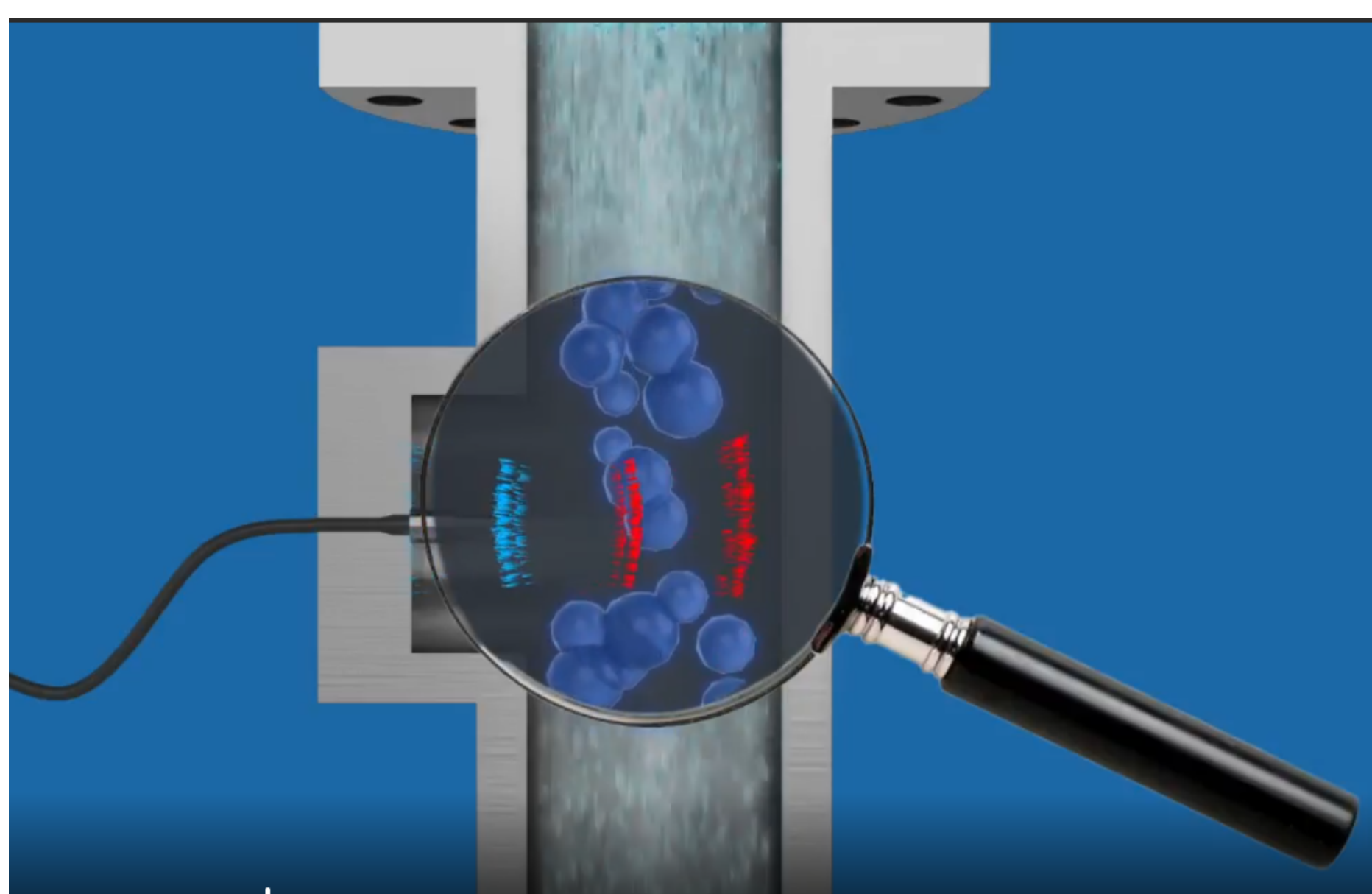


Technology & Instruments

Ultrasound backscattering/impedance

Compared to reflections, time-of-flight measurements or optical technology

- Signal independent of temperature and speed of sound in medium
- Short pulse-echo path (signal attenuation is not an issue at high concentrations)
- No impact of liquid colour/turbidity (e.g. due to dissolved substances)



2 & 3/ Filtrate & Centrate monitoring

TSS concentration

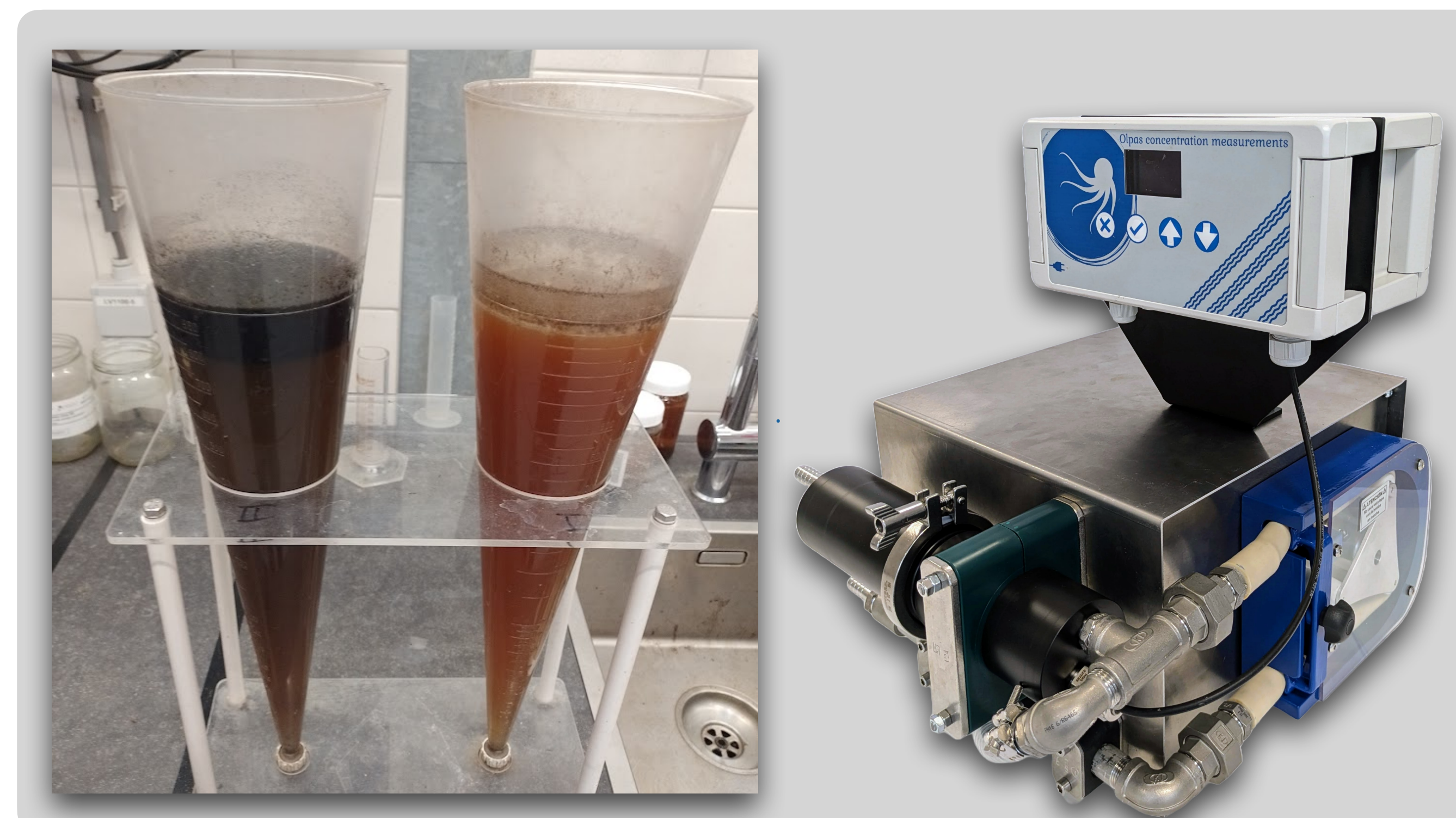
- Fouling resistant probes

PE concentration

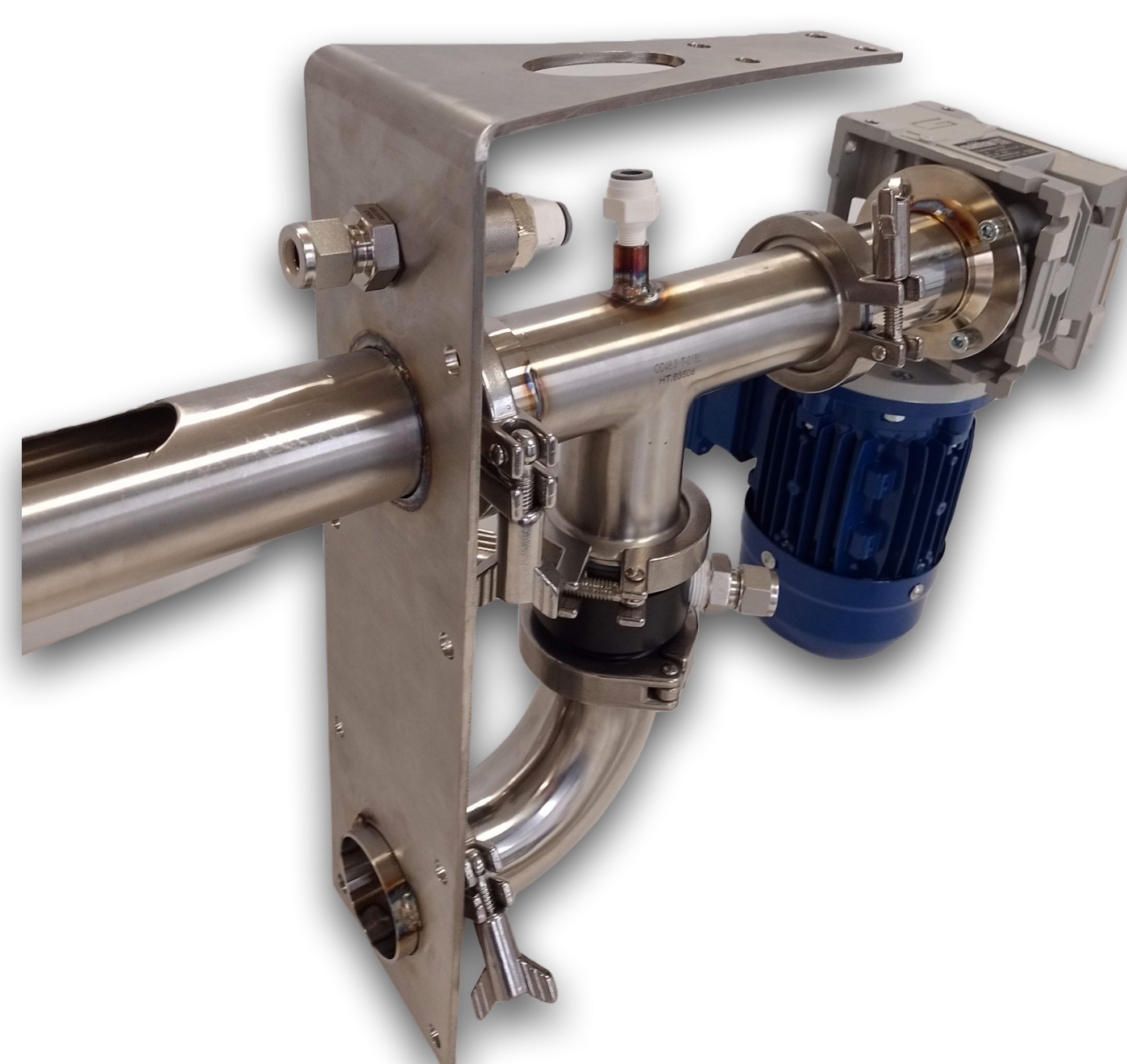
- Overdosing detection (0-100 mg/L)

End-to-end setup

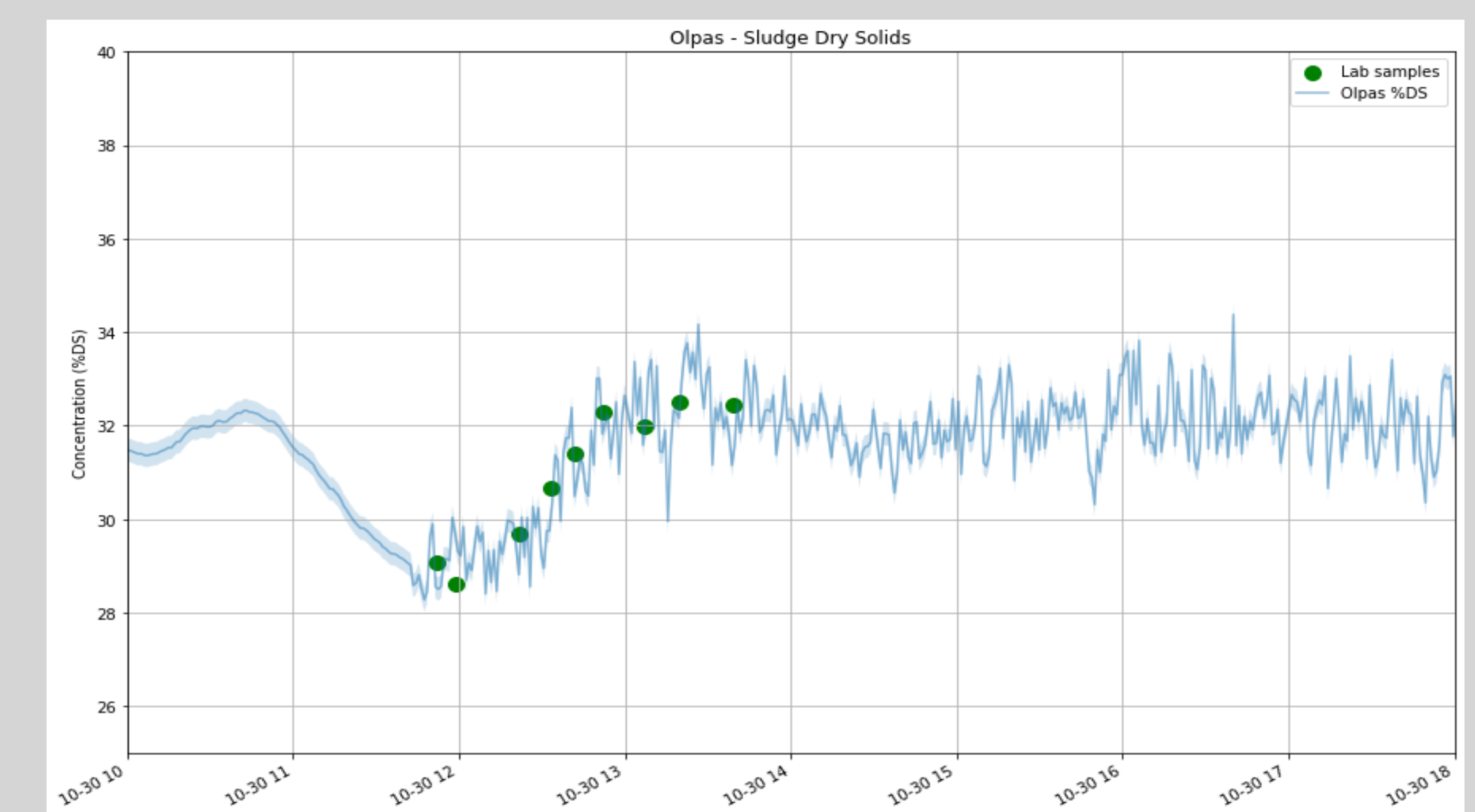
- Automatic sampling
- Flushing



4/ Dry Solids measurements (Ultrasound)



Validation in real world cases



Inline concentration sensor

- Default: 6 bar, 55°C
- Harsh environment range: 30 bar, 230°C

