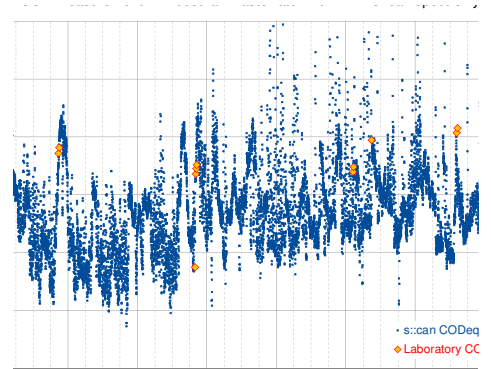




# NIJHUIS i-DOSE

Operational excellence with real-time control



# NIJHUIS INTELLIGENT DOSING CONTROL

Operational excellence with real-time control

## From fixed to real-time control

To effectively remove solids, COD,  $\text{NO}_3\text{-N}$  and  $\text{PO}_4\text{-P}$  from wastewater, chemical dosing is often applied to comply with the effluent discharge requirements. However, fixed dosing is in general not sophisticated enough to handle the actual day-to-day fluctuations in the wastewater and this can cause additional chemical and energy costs.

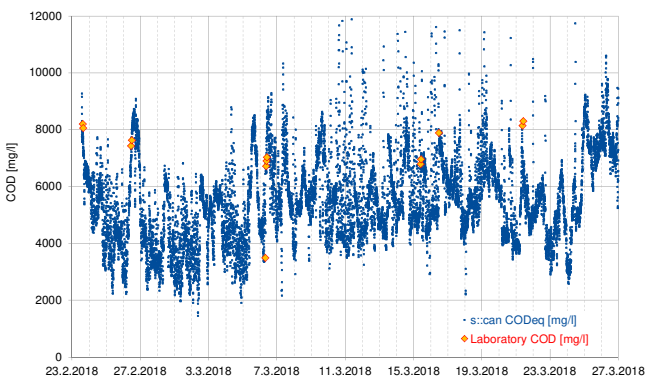
For example, the COD load in the balance tank increases during production hours and decreases during cleaning. By using an intelligent dosing control system, costs for coagulation, flocculation and neutralization can be substantially reduced, because the system can deal more easily with fluctuations in pollution load.

## About i-DOSE

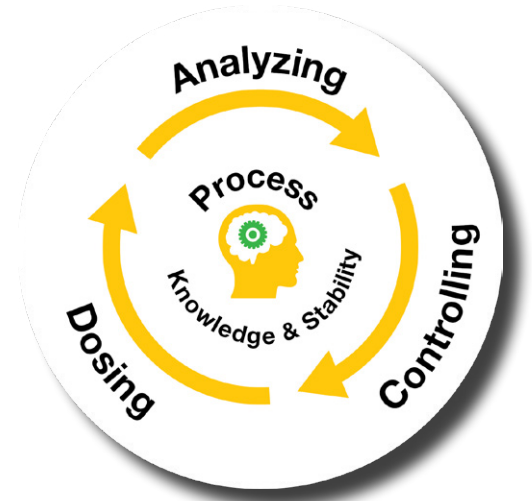
Nijhuis has designed the "i-DOSE" system to comply with this real-time control process, significantly reducing wastewater operational costs (e.g. chemicals, aeration, energy). The system also allows facilities to be operated at a maximum performance with reduced operator's presence due to the intelligent dosing philosophy. As well as our existing and proven i-DOSE pre-treatment applications, i-DOSE can also be applied within secondary and tertiary treatments.

## Principle of i-DOSE

The i-DOSE philosophy is based on analyzing, controlling and dosing the correct amount of utilities (e.g. chemicals) based on the real-time pollution in the wastewater. The Nijhuis i-DOSE consists of a UV-vis spectrometer, control & algorithm, monitoring system and automatic cleaning mechanism.



Online COD analysis result with NI-SENS sensor compared to laboratory analysis result



## i-DOSE FACTS:

- Simple, safe and plug-and-play design
- Empowered with automatic cleaning mechanism
- Real-time control of the process
- Robust system

## i-DOSE BENEFITS:

- Up to 30% savings on chemical consumption
- Up to 4 hours savings on additional operator's presence per week
- Lowest possible maintenance cost due to automatic cleaning process
- Provides peace of mind

## i-DOSE IMPACT:

- Always compliant to effluent requirements
- Allows insight into trends of operation
- More process knowledge and operational stability

"The i-DOSE philosophy is based on **analyzing, controlling** and **dosing** the correct amount of utilities"

## INDUSTRIES

- Poultry slaughterhouses
- Red meat slaughterhouses
- Dairy
- Tertiary treatment for municipal and sewage WWTPs

# NIJHUIS i-DOSE APPLICATIONS

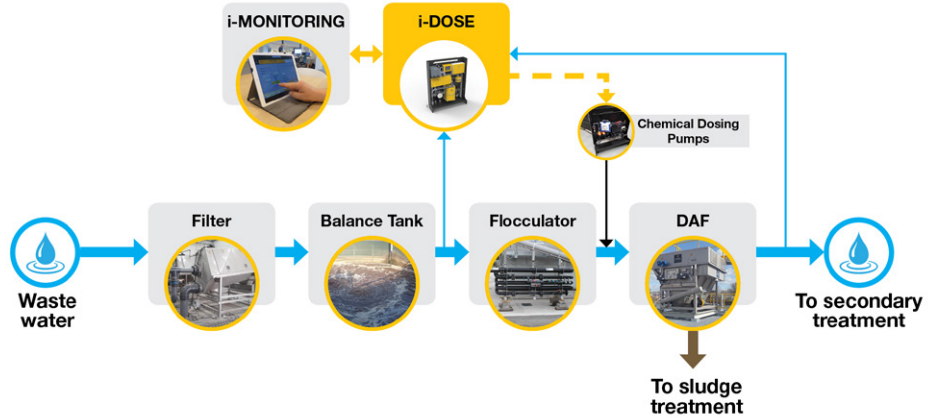
Pre-treatment | Secondary treatment | Tertiary Treatment

## Pre-treatment - Savings on chemical consumption

Rapid COD measurement for coagulant dosing control

### Typical benefits

1. Avoid overdosing of chemicals.
2. Reduce chemical consumption costs up to 30%
3. Better performance of flotation system.
4. Always compliant, stable effluent.
5. Robust measurement system.
6. Reduced balance tank footprint.
7. Reduced chemical sludge production.

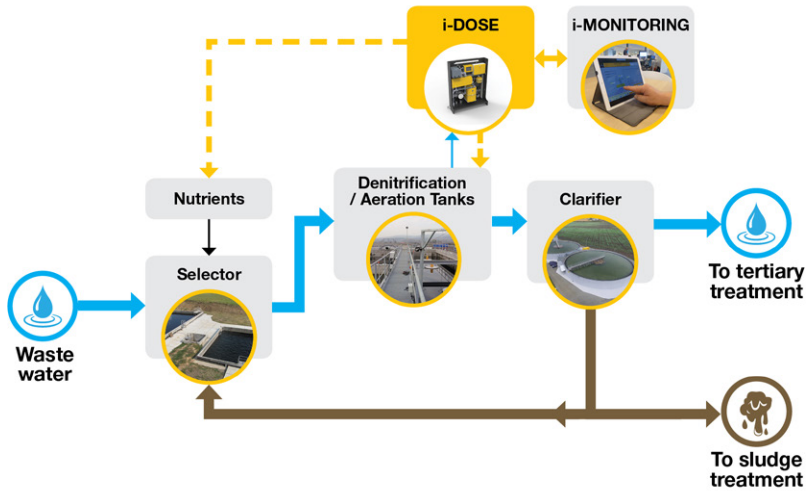


## Secondary treatment - Savings on aeration and energy

Rapid BOD/TSS, NO<sub>3</sub>-N measurement for denitrification control

### Typical benefits

1. Controlled (de)nitrification, savings on aeration and energy.
2. Always compliant, stable effluent.
3. Stable nutrient balance, savings on additional nutrients.
4. Peace of mind.

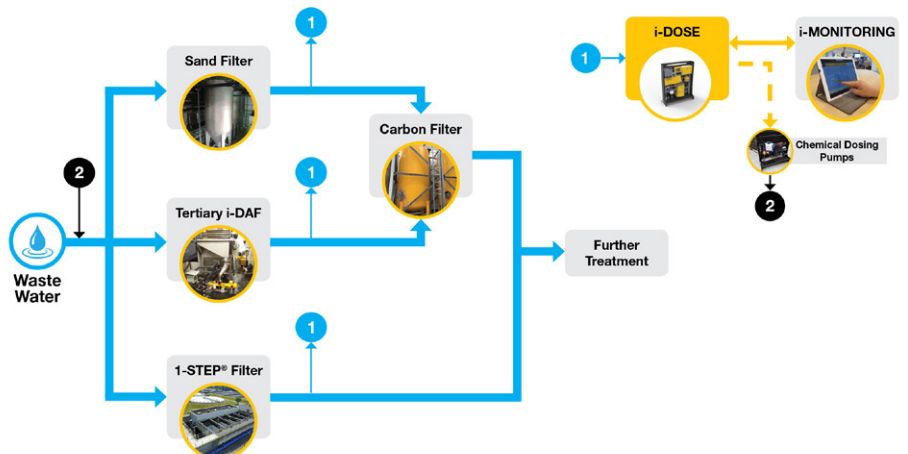


## Tertiary treatment - Always compliant to effluent requirements

Rapid COD, TSS, or PO<sub>4</sub> measurement control

### Typical benefits

1. Always compliant, stable effluent.
2. Well-monitored, optimal treatment performance.
3. Always dosing the right amount of chemicals.



# NIJHUIS i-DOSE

## Reference examples

**Prime Pork - Poultry slaughterhouse | USA**

i-DOSE application: Pre-treatment



**Roskar - Poultry slaughterhouse | Russia**

i-DOSE application: Pre-treatment



**Azomures - WWTP | Romania**

i-DOSE application: Secondary Treatment



**United Utilities - Sewage Treatment Plant | England**

i-DOSE application: Tertiary Treatment



**Contact your local Sales & Service Center - [www.nijhuisindustries.com](http://www.nijhuisindustries.com)**

With Headquarters in the Netherlands, Nijhuis Industries is active in all geographical regions around the world, serving over 2,600 references from its Sales & Service Centers in China, Dubai, England, Poland, Russia, Singapore, USA & Latin America.

### About Nijhuis Industries

Nijhuis Industries delivers solid solutions for sustainable water use & resource recovery, with the highest level of intelligent innovations across a wide range of industries. We meet today's challenges as well as those of the future, as a response towards a CIRCULAR economy in a 'fluid' world. To accommodate the customer's requirements, Nijhuis offers customized installations, to create profit out of (waste)water, process water and waste.

At Nijhuis Industries it is our mission to help customers to reduce, reuse and recover water and resources to create profit. We help our valued customers to meet their increasingly demanding sustainability requirements, lower their environmental footprint, combine productivity and energy efficiency and reduce life cycle cost at the same time.

