To effectively remove solids and COD from wastewater with flocculation-flotation systems, chemical dosing is required. Ferric chloride is added to coagulate the water into small particles. By neutralizing and adding a polymer, these small particles grow into larger flocs. These flocs can be separated by using a dissolved air flotation system (DAF).

However, the chemical dosage is not designed to handle the actual fluctuations of COD in the wastewater. In practice the COD load in the balance tank increases during production hours and decreases during cleaning. By using an intelligent chemical dosing control, costs for coagulation, flocculation and neutralization (FeCl₃, polymer and NaOH) can be substantially reduced.

Nijhuis has designed the “i-DOSE” system to comply with this real-time dosing process, significantly reducing wastewater chemical consumption costs and reduced operators presence.

**APPLICATIONS**
- New or existing flocculation-flotation systems with;
- A COD based dosing philosophy combined with a fluctuating COD load.

**CUSTOMER BENEFITS**
1. Avoid overdosing of chemicals.
2. Reduce chemical consumption costs up to 30%
4. Stable effluent concentrations.
5. Real-time control of the production process.
6. Robust measurement system.
7. Reduced balance tank footprint.
8. Reduced chemical sludge production.
9. Reduced additional operators presence due to automation
10. Gaining insight in trends of operation
i-DOSE SYSTEM, AN EXAMPLE
Nijhuis has successfully executed an intelligent dosing control system for a cattle processing company in the Netherlands. In close consultation with the customer, Nijhuis has designed a reliable intelligent dosing control system which is resistant to the pollution in the wastewater to measure the organic pollution.

Results:
- Average flow was 50 m³/h.
- 1 - 1.5 year payback period.
- Effluent quality remains similar compared to system without intelligent chemical dosing.

![Image of i-DOSE System](image-url)