

## Supply urea

Marco Janssen & Claudia Plessers

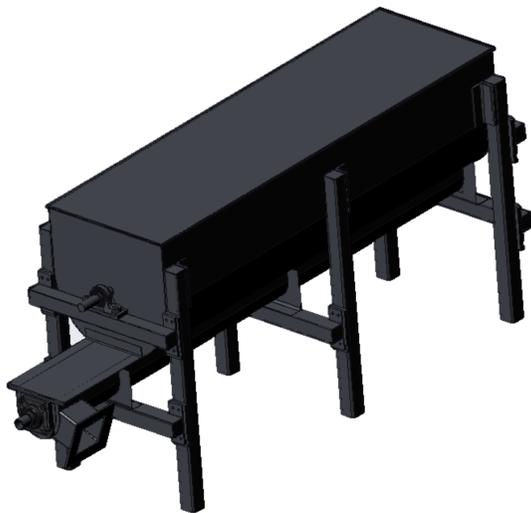
**Specialization** Bridging programme for Master of Electromechanical Engineering Technology

### Situating

We're located at Martens, a brewery who needs to purify their wastewater. Therefore they need an urea supply at the outdoor basin, who is 6m high.

### Input

There's gonna be a manual input of urea into this buffer, who will keep the urea dry and separated.



### Requirements

The most important things are an ergonomic and ground level input for the urea and has a constant dosage.  
A buffer big enough to bridge 3 days, who is waterproof.  
Lastly a feedback of the effective input.

### Process

We use an Archimedes screw for transportation to the upper level.



### Current problems

Urea is an element who quickly attaches to each other.  
An other problem is that the current dosing isn't autonomous and precise enough.

### Output

We apply a load cell to the tube to have a correct dosage of the urea into the basin. A butterfly valve will drop it.



### Solutions

We're gonna apply a subsoiler in the buffer to prevent the adhesion of the urea.  
We use Archimedes screws for the ground level and sustained supply.  
For a precise dosage and to know if it was dropped we utilize a load cell.

Supervisors / cosupervisors: Extern: Mr. Vanhoef Erik

Intern: Dr. Ing. Kellens Karel  
Ing. Bijmens John  
Prof. Dr. Ir. Daenen Michael