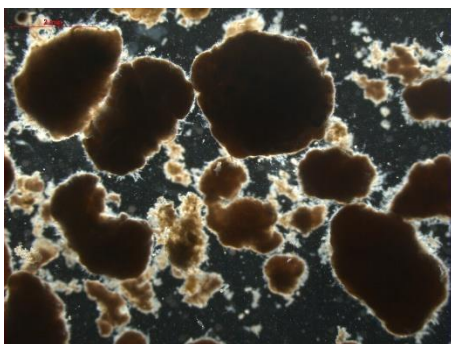


**Cellu2PLA:** [https://www.hhnk.nl/portaal/werk-in-de-buurt\\_3550/item/renovatie-en-capaciteitsuitbreiding-rwzi-beemster\\_2654.html](https://www.hhnk.nl/portaal/werk-in-de-buurt_3550/item/renovatie-en-capaciteitsuitbreiding-rwzi-beemster_2654.html)

At the moment, approximately 150,000 tonnes of bio-based plastic is produced worldwide each year in the form of PLA (poly lactic acid) from renewable raw materials, such as cellulose. However, the starting material is often derived from the food chain and is relatively expensive. The intended breakthrough in this project is to produce PLA from the cellulose fraction in raw municipal wastewater, called screenings. Screenings is the fraction captured, using rotating belt fine screens, behind the coarse screening. The toilet paper, in particular the cellulose fibers present in it, is a very suitable raw material for the production of bioplastics.

**CENIRELTA:** <http://www.cenirelta.eu/>



CENIRELTA stands for Cost-Effective Nitrogen Removal from waste water by Low-Temperature Anammox. The ANAMMOX® process (anaerobic ammonium oxidation) is an innovative biological process and constitutes a significant breakthrough in the removal of nitrogen. It is a cost-effective, robust and sustainable way of removing ammonium from waste water and waste gas. Compared with conventional nitrification/denitrification operational costs are reduced to 90%, as are CO2 emissions. In the demonstration plant

experience is being gained with the so-called cold ANAMMOX process and this involves waste water streams with a low concentration of nitrogen and a temperature between 6-16 °C



**ISR Innovative Sludge Reduction (Ephyra® and Themista®):**

Ephyra® is a compact and sustainable technology for sludge digestion. The concept is based upon a plug flow digestion in which the hydraulic retention time (HRT) and solids retention time (SRT) are separated.

Themista® is a straightforward and sustainable technology for pretreatment of sludge. During a thermal/chemical process sludge is cracked, to increase the biogas yield of the sludge digestion process.

<https://www.schielandendekrimpenerwaard.nl/werk-in-uitvoering/zorgen-voor-droge-voeten-en-schoon-water/themista/themista>

**OMZET:** <http://www.omzempuntamersfoort.nl/>

The main objective of the OMZET project is to develop a new approach to wastewater treatment that will demonstrate net energy production, optimal recovery of phosphates and economic viability. Its main innovation will be to implement an extra de-nitrification process for the reject water coming from sludge dewatering. The project aims to demonstrate the cost effectiveness and economic viability of the OMZET process by reducing the operational costs for wastewater treatment by 15%

**PHORWater** developed a demonstration plant to recover phosphorus from wastewater. A process of precipitation to extract phosphorous in a crystallised form - magnesium ammonium phosphate, known as struvite is used. <http://phorwater.eu/en/>