

Providing Circular Side Stream Solutions

Purifying Water and Recovering Materials with Mobile and Modular Installations

InOpSys, created in 2015 as a spin-off from the KU Leuven University, Belgium, is committed to providing on-site circular side stream solutions for the chemical and pharmaceutical industry, by building and operating mobile & modular purification installations on the customer site. Using a train of selective technology combinations, the start-up company efficiently closes water and material loops and helps the industry reach their sustainability goals by reducing waste and CO₂ emissions. The customers are unburdened as InOpSys takes ownership from start to finish and offers its service in a CAPEX-free way. Steven De Laet, founder and CEO of InOpSys, talks about his past and future journey.



Steven De Laet, InOpSys

PERSONAL PROFILE

Steven De Laet, CEO and founder of InOpSys, graduated as a Master of Science in Chemical Engineering at the KU Leuven University in 2000. During his professional career he worked for companies like Bayer, BASF, ArcelorMittal, and Mondi. He also gained an executive international MBA at the Vlerick Management School (2008–2010). In 2012 he started taking his first entrepreneurial steps towards solutions for a more sustainable chemistry, with the creation of AvoRe. This was the foundation for the birth of InOpSys in 2015 which originated within the Flemish Catalisti spearhead cluster.

CHEManager: You founded InOpSys six years ago. What was your motivation to start the company?

Steven De Laet: During my career, for a large part in the chemical industry, I realized that linear destruction is a common way of processing waste or side streams. During industrial production, hazardous and toxic streams are produced. Incineration of these streams is often considered the best available technology. Imagine; we are facing global water and material scarcity and increasing pollution, and yet streams are integrally incinerated, putting extra pressure on our environment. We believe that both the water and valuable elements can be recovered by introducing circular solutions. We refused to accept the status quo and wanted to make a difference.

What is the USP or differentiating feature of InOpSys?

S. De Laet: InOpSys offers solutions that reduce CO₂, waste and associated costs and create value by the recovery of materials, e.g., precious metals like palladium or platinum.

We chose a decentralized model, creating installations on-site, close to the side stream source. This enables us to work with unmixed and defined streams, and to avoid transport as a plus.

We finance the installation via a pay-per-use model, which spares our customers an investment which is not interesting enough according to their own return-on-investment guidelines. At the end of the contract period, we take back the mobile installation and reuse it for another project.

InOpSys is a one-stop shop for the industry, because we do not focus on a single technology, but on a hybrid combination of different technologies.

What kind of support did you receive, and which obstacles did you have to master so far?

S. De Laet: At the time of the spin-off in 2015 we had the support of our first shareholders, who also provided the starting capital. The InOpSys concept originated within the Flemish Catalisti spearhead cluster, built on partnerships with research institutes, companies, the Belgian Chemical & Life Sciences Association and governments. This was an interesting ecosystem for InOpSys.

Financing the model, which requires a lot of capital and R&D, was a challenge because we had not yet been able to prove our technology on a large scale. Convincing the first customer to work with InOpSys on a circular project was also a big hurdle, because the chemical and pharmaceutical sectors are risk-averse in terms of new processes and suppliers.

When did the company enter the growth phase, and where are you now?

S. De Laet: Ever since our first successful installation at Janssen Pharmaceuticals—part of J&J—in Geel in 2017, which was awarded with the first prize at the Belgian Business Awards for the Environment in 2018, the ball started rolling faster. Thanks to this reference, we could convince new customers like Ajinomoto BioPharma Services that we have the required expertise. We currently have

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five long-term installations running at different locations of two multinational customers. This obviously had a positive impact on our turnover, which has approximately doubled year by year.

In 2018 and 2020, new rounds of investment funding took place, when we welcomed new shareholders. By 2018 our headcount had risen from two to seven, and currently we are 16.

In 2020, we expanded our R&D facilities to the BlueChem Incubator

in Antwerpen, using state-of-the-art laboratories and extra office space.

What have been the most exciting projects so far?

S. De Laet: After our first award-winning project in 2017, we have developed five other installations for multinational customers. A number of these projects are focused on a combination of active-pharmaceutical-ingredient removal and metal recovery—e.g., precious metals—from water and solvent streams. The newest and biggest installation removes 23 APIs out of the process streams of a large formulation site for different medicines. This project was attributed the “Solar Impulse Efficient Solution” Label in 2021.

What will be the next steps to develop InOpSys?

S. De Laet: Today, InOpSys has taken good steps forward and is ready to expand to other European countries. Because we work for multinational companies, we must follow them wherever they have a presence. We are also excited about an interesting shift, where an existing customer has entrusted us to build an installation for the treatment of a product stream instead of a waste stream. This opens a completely new market for us.