

INCITE PROJECT: UPDATE AFTER THREE YEARS OF WORK

The construction of the two chemo-enzymatic demo plants is progressing

Launched in September 2019, the INCITE project aims to demonstrate novel integrated upstream and downstream processing paths involving flow chemistry and membrane technology in chemo-enzymatic processes. The modularity and flexibility of the developed processes will be showcased through two demonstration cases in real industrial settings. Oleon installs the oleochemical esters demo plant on its production site in Oelegem, Belgium, while Endura installs the agrochemical demo plant on its site in Ravenna, Italy.

CONSTRUCTION PROGRESS

The construction of the demo plants is now well under way. Overall, civil works started for the agrochemical demo plant, the structure is in place. In the oleochemical demo plant, civil works, structure, reactor vessels, and main supporting equipment have been installed.



The oleochemical demo-plant in Oelegem, Belgium

VITO created a [video](#) explaining the project and showing the advancements of the plant construction at the Oleon site in Belgium.

GET YOUR FREE SAMPLE

The oleochemical demo plant aims at the production of isopropyl palmitate, an emollient that is used in health and beauty formulations. Interested organizations can get free samples of high-quality isopropyl palmitate for testing in their current or future formulas. It is also possible to get enzymatically produced isoamyl laurate.

These esters, which are produced by an enzymatic process with lower reaction temperatures than conventional chemical reactions, can be characterized as a “green product” with the following advantages:

- Higher purity
- Lower odour score (less VOCs)
- Lower environmental footprint

Are you interested? You can get a 250ml sample for free! Please send your request for a sample of [enzymatic isopropyl palmitate](#) and/or for [enzymatic isoamyl laurate](#).

INTERESTED IN INCITE ENZYMATIC ISOPROPYL PALMITATE?

Get your **FREE** sample!

A 250 mL sample of product grade Isopropyl palmitate and associated legal documents

The advertisement features a yellow background with a blue banner at the top. On the left, there is an illustration of a white bottle with a blue cap and a stack of white documents with the INCITE logo. On the right, there is a blue speech bubble containing the text 'A 250 mL sample of product grade Isopropyl palmitate and associated legal documents'. The INCITE logo is also visible in the top right corner.

TRAINING

One key activity of the project is the development of a series of 10 online learning modules, which are accessible for free on an open platform. Anyone with a background in basic chemistry or physics is welcome to follow the learning modules. The expected learning time is about 4 to 6 study hours per module.

All INCITE partners have the content ownership of one or more modules, which are about topics related to the enzymatic production of green chemicals. The totality of the learning modules forms a coherent set starting with the considerations, advantages and disadvantages of the more general underlying technologies and green chemistry principles used in INCITE to the more advanced and applied integrated demonstration cases developed in the project.

Enzymes are highly selective biocatalysts

- Higher substrate specificity and stereoselectivity
- Act under milder temperatures and pressure condition

Enzymes also act under milder temperature and pressure conditions and do not need environmentally toxic organic solvents.

The screenshot shows a woman in a grey jacket and red top speaking. To her left is a diagram of a process flow and a list of enzyme characteristics. At the bottom, there is a text box highlighting that enzymes do not need environmentally toxic organic solvents.

Exercise: Enzymatic esterification process

Thank you for trying out HSP. To get started with HSP read our [getting started guide](#)

Process development (T, S, L scales)	Lipase selection	Process conceptualization	Pilot testing	Process in mL scale	Techno-economic evaluation
<ul style="list-style-type: none">• Technical aspects• Sustainability analysis• CO₂ emission• Energy usage	Free / Immobilized	<ul style="list-style-type: none">• Reaction conditions• Enzyme kinetics• Pure & technical grade substrates• Definitions of figures of merit• Yield• Productivity• Specific & total productivity	<ul style="list-style-type: none">• Process conditions• Process intensification: In situ water removal• Enzyme stability & Re-use	<ul style="list-style-type: none">• Use of model to combine technical and economic data• Identification of most influential parameter(s) on process economics	<ul style="list-style-type: none">• At own or industrial site• Mobile Pilot equipment

Check

The screenshot shows a process flow diagram with six colored arrows (orange, grey, yellow, blue, green, orange) pointing right. Below the arrows is a table with six columns corresponding to the stages of process development. The table contains technical and economic details for each stage. At the bottom left, there is a blue 'Check' button.

Enroll for free on the [website of CAPTURE Academy](#) coordinated by Ghent University.

A series of webinars is offered with intertwined content to the learning modules. Each webinar relates to a learning module and includes a Q&A session. The webinars are recorded and made available on the [INCITE YouTube](#) channel for replay. In spring 2022 the webinar series was launched with 5 sessions. The second part of the series is foreseen in the first semester of 2023.

GENERAL ASSEMBLY IN BELGIUM

In October 2022, the INCITE project partners met in Belgium to discuss overall progress of the project activities. The next meeting will be held in 2023.



The INCITE consortium at VITO in Mol, Belgium

INCITE brings together 8 European partners from 4 countries:



Duration: 52 months (September 2019 - December 2023) | Total budget: € 17.4 M

INCITE has received € 13.3 M funding from the European Union's Horizon 2020 Research and Innovation Programme on the Topic CE-SPIRE-04-2019 - Efficient integrated downstream processes (Grant Agreement number 870023)

INCITE website: www.project-incite.eu **LinkedIn:** INCITE Project **Twitter:** @INCITE_EU

European Commission website: cordis.europa.eu/project/rcn/224852/factsheet/en



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