

SPECIALIZED COURSE  
HAZARD ANALYSIS  
OF REACTORS,  
CHEMICALS  
& PROCESSES

04 – 07 September 2023

GHENT | RED LOFT



## DEAR MEMBER,

essenscia would like to present the details of the specialized course in hazard analysis of reactors, chemicals and processes, organized by Process Safety Academy, essenscia and the Laboratory for Chemical Technology (LCT) of Ghent University.

For additional information concerning these topics please feel free to contact Mr. Geert Boogaerts (+32 476 906 663 | gboogaerts@essenscia.be).



This new course offers the essentials of hazard analysis based on theoretical insights and practical applications in different types of reactors, chemicals and processes.

### Aims

Hazard and operability analysis is the cornerstone of reliable operations, process safety engineering and process safety management. During the first day we focus on the characterization of the hazardous products and insight in the reactions proceeded by an introduction on HAZOP. Processes and scaling up are part of the subject matter. The second day illustrates the implementation of the HAZOP methodology in the process safety management of a major chemical company. A practical insight and exercise on pre-reactor installations is part of the afternoon sessions. The third day starts with the illustration of HAZOP on a real life batch process followed by the theory of LOPA. This day closes with an exercise on a batch reactor. The fourth day start with an example of a continuous reactor followed by a guided exercise on a continuous reactor.

### Lecturers

- ✓ **MSc. Geert Boogaerts**, Process Safety expert essenscia
- ✓ **MSc. Bart Van Den bossche**, Process Safety Manager at INEOS Styrolution Belgium NV
- ✓ **PhD. Wim Dermaut**, R&D manager Chemical Process Development at Agfa Materials, Visiting Professor U Antwerp
- ✓ **PhD. MSc. Oliver De Waele**, Process safety expert Eastman, Ghent
- ✓ **PhD. MSc. Paul Van Steenberge**, Laboratory for Chemical Technology (LCT), Associate Professor Ghent University, academic coordinator
- ✓ **MSc. Geert Vercruysse**, Process Safety expert BASF, Visiting Professor KU Leuven and Ghent University
- ✓ **PhD. MSc. Eveline Volcke**, UGent - Department of Green Chemistry and Technology
- ✓ **PhD. MSc. Maarten Bekaert**, Process safety manager, Borealis
- ✓ **MSc. Nico Hertoghe**, ExxonMobil Research & Engineering
- ✓ **PhD. MSc. Thomas Pintelon**, Board Member Polinivo.

### Attendees

Professional engineers with industry experience for whom understanding and applying process safety thinking is an integral part of their jobs and who would benefit from an design engineering view on process safety for deepening the expertise in their roles and for their career development (e.g. operations, engineering, maintenance, R&D, safety professionals, etc.).

### Governance board and steering committee

- ✓ **MSc. Ivan Pelgrims**, President essenscia Process Safety Academy, General Manager Evonik, Board Member of essenscia
- ✓ **MSc. Koen Colpaert**, Group Process Safety Manager, Borealis
- ✓ **MSc. Nico Hertoghe**, ExxonMobil Research & Engineering
- ✓ **PhD. MSc. Pol Hoorelbeke**, Vice president Safety, Total
- ✓ **MSc. Frank Quaeys**, Head of Technical Services Covestro
- ✓ **MSc. Marnix Mahieu**, Managing Director, Kronos
- ✓ **MSc. Jan Weckx**, Antwerp Process Safety Lead Bayer Crop science, Bayer Agriculture
- ✓ **MSc. Benny Ghoos**, Senior Operations Support Manager, Johnson & Johnson
- ✓ **MSc. Geert Vercruysse**, Process Safety expert, BASF
- ✓ **MSc. Filip De Proft**, Environmental, Health and Safety Director Janssen Pharmaceutica

DAY TO DAY OVERVIEW OF THE PROGRAMME :  
**08:30 – 17:00**

DAY 01



**MONDAY 04 SEPTEMBER 2023**

## **Intrinsic hazards of molecules and introduction to HAZOP**



Welcome speeches

**MSc. Geert Boogaerts**

Why to start with hazard analysis?



Introduction to HAZOP

**MSc. Geert Boogaerts**

Essential features of the most important technique



Introduction to reactive chemistry

**PhD. Wim Dermaut**

Essential insights



Reactive chemistry and process hazard analysis

**PhD. Wim Dermaut**

Design in function of the desired and undesired reaction

DAY 02



**TUESDAY 05 SEPTEMBER 2023**

## **HAZOP analysis in PSM and HAZOP for pre-reactor installations**



HAZOP and the practical implication in our industry

**MSc. Olivier De Waele**

Integration of HAZOP in the PHA and PSM



HAZOP/ WHAT-IF on the pre-reactor installations

**MSc. Geert Vercruysse**

Practical explanation and exercise

**HOST CITY**

Ghent

**LOCATION**

Zebrastraat  
Zebrastraat 32  
9000 Gent

**LUNCH**

Business menu 3-course diner

**TOTAL REGISTRATION FEE**

€2200



DAY TO DAY OVERVIEW OF THE PROGRAMME :

08:30 – 17:00

DAY 03

3

WEDNESDAY 06 SEPTEMBER 2023

## Batch reactors and Hazop analysis



Piping and instrumentation diagrams

**Prof. Eveline Volcke**

Essential features of the most important tool



HAZOP and Safeguarding on a Batch Reactor

**MSc. Koen Gerard**

A practical illustration



From HAZOP to LOPA: the ultimate goal

**MSc. Nico Hertoghe**

Layer of protection analysis



A demonstrator case for mechanical recycling of polyolefins

**MSc. Bart Van Den Bossche & PhD. MSc. Thomas Pintelon**

DAY 04

4

THURSDAY 07 SEPTEMBER 2023

## HAZOP on continuous reactors



Chemical Hazard Engineering Fundamentals

**MSc. Maarten Bekaert**

A real life example



HAZOP and continuous reactors

**MSc. Geert Vercruysse**

An exercise in real time

**Granting the certificates by Prof. dr. ir. Joris Thibaut**

[www.essenscia.be/process-safety-academy](http://www.essenscia.be/process-safety-academy)

The Module is limited to 30 participants because a high level of interaction is foreseen.



## SUBSCRIPTION FILE

The essenscia Process Safety Academy and the essenscia Chair Safety Engineering organize a 4-day Advanced Course on Process Safety

## PARTICIPANT

FIRST NAME

LAST NAME

EMAIL

COMPANY

FUNCTION

## THE INVOICE OF €2200 (TOTAL REGISTRATION FEE, EXCL. VAT) CAN BE SENT TO

COMPANY

STREET AND NUMBER

POSTAL CODE AND CITY

V.A.T.

PURCHASE ORDER

SIGNATURE OF THE PARTICIPANT

To be sent by mail

to **Ms. Michèle Celis** (mcelis@essenscia.be)

For additional information please feel free to contact

**Mr. Geert Boogaerts** (+32 476 906 663 | gboogaerts@essenscia.be) or

**Ms. Michèle Celis** (mcelis@essenscia.be).



where chemistry meets life sciences

