

SPECIALIZED COURSE
HAZARD
ANALYSIS OF
REACTORS,
CHEMICALS
& PROCESSES

02 – 06 September 2024
GHENT | ZEBRASTRAAT



DEAR MEMBER,

essenscia herewith presents the details of the specialized course on Hazard Analysis of Reactors, Chemicals and Processes, organized by the Process Safety Academy, essenscia and the Laboratory for Chemical Technology (LCT) of Ghent University.

For additional information concerning these topics please contact Mr. Geert Boogaerts (+32 476 906 663 | gboogaerts@essenscia.be). To register, [please click here](#).

Aim

Hazard and operability analysis is the cornerstone of reliable operations, process safety engineering, and process safety management. During the first day of this programme, we focus on an introduction to HAZOP as well as the characterization of the hazardous products and insight in the reactions. Processes and scaling up are part of the subject matter. The second day illustrates the implementation of the HAZOP methodology in process safety management of a major chemical company. Practical insight and exercise on pre-reactor installations are part of the afternoon sessions. The third day commences with the basics of a P&ID (optional for industry members) followed by the illustration of HAZOP on a real-life batch process. In the afternoon, we introduce the theory of LOPA and an illustration of reactor modeling on the recycling of plastics. The fourth day starts where process safety always starts, general engineering practices followed by the application of HAZOP on a continuous reactor. The fifth day is a guided workshop to develop HAZOP skills. Starting with an example, we then dive into a guided exercise on a continuous reactor

Governance board and steering committee

- ✓ **MSc. Ivan Pelgrims**, President, essenscia Process Safety Academy, Director, Evonik
- ✓ **MSc. Koen Colpaert**, HSE Group Process Safety Manager, Borealis
- ✓ **MSc. Nico Hertoghe**, ExxonMobil Research & Engineering
- ✓ **Phd. MSc. Pol Hoorelbeke**, Vice President Safety, Total
- ✓ **MSc. Frank Quaeyhaegens**, 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, Jnj Innovative Medicines
- ✓ **MSc. Geert Vercruyssen**, Process Safety Expert, BASF, Visiting Professor KU Leuven and Ghent University
- ✓ **MSc. Filip De Proft**, EHS Director, Campus Belgium, Jnj Innovative Medicines
- ✓ **MSc. Peter Jacobs**, Safety and Health Manager, Ajinomoto Bio Pharma Services

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



Attendees

This course is designed for safety, design, and process engineers with industry experience who benefit from understanding the intrinsic hazards of molecules and applying the concepts of HAZOP and engineering on chemical installations. Apart from theoretical insights, the course offers practical use-cases and competence building on HAZOP and safety engineering.

Lecturers

- ✓ **MSc. Geert Boogaerts**, Process Safety and Sustainability Director, essenscia
- ✓ **Phd. Bart Van Den Bossche**, Process Safety Manager, INEOS Styrolution Belgium NV
- ✓ **Phd. Wim Dermout**, R&D Manager Chemical Process Development, Agfa Labs, Visiting Professor, UAntwerp
- ✓ **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 Vercruyssen**, 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

DAY TO DAY OVERVIEW OF THE PROGRAMME :

08:30 – 17:00

DAY 01



MONDAY 02 SEPTEMBER 2024

Intrinsic hazards of molecules and introduction to HAZOP

The Importance of Process Safety

Marnix Mahieu, Kronos

Welcome speech



Hazard and Operability Study

Geert Boogaerts, essenscia

An introduction



Introduction to Reactive Chemistry

Wim Dermaut, Agfa

Essential insights



Reactive Chemistry and Process Hazard Analysis

Wim Dermaut, Agfa

Design in function of the desired and undesired reaction

DAY 02



TUESDAY 03 SEPTEMBER 2024

HAZOP analysis in PSM and HAZOP for pre-reactor installations



HAZOP and the Practical Implication in our Industry

Olivier Dewaele, Eastman

Integration of HAZOP in the PHA and PSM



HAZOP/ WHAT-IF on the Pre-Reactor Installations

Geert Vercruyssen, BASF

Practical explanation and exercise

HOST CITY

Ghent

LOCATION

Zebrastraat

Zebrastraat 32

9000 Gent

FOOD & BEVERAGES

Welcome coffee at 8am

3-course business menu at noon

REGISTRATION FEE

€2700 Member / €3200 Non-member

REGISTRATION LINK

[register here](#)



DAY TO DAY OVERVIEW OF THE PROGRAMME :

08:30 - 17:00

DAY 03



WEDNESDAY 04 SEPTEMBER 2024

Batch reactors and Hazop analysis



Piping and Instrumentation Diagrams

Eveline Volcke, UGent

Essential features of the most important tool



HAZOP and Safeguarding on a Batch Reactor

Koen Gerard, Covestro

A practical illustration



From HAZOP to LOPA: the Ultimate Goal

Nico Hertoghe, ExxonMobil

Layer of protection analysis



HAZOP Introduction to a Practical Case based on a Modelled Scenario by Polinivo

Bart Van Den Bossche, Ineos, & **PhD. MSc. Thomas Pintelon**, Polinivo

Mechanical recycling of polyolefins

DAY 04



THURSDAY 05 SEPTEMBER 2024

HAZOP on continuous reactors



Chemical Hazard Engineering Fundamentals

Maarten Bekaert, Borealis

A real life example



HAZOP and Continuous Reactors

Geert Vercruyse, BASF

An exercise in real time

DAY 05



FRIDAY 06 SEPTEMBER 2024

HAZOP in practice



HAZOP: Guided Workshop and Exercise

Bart van den Bossche, Ineos

Can I execute?

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

