



32nd Annual European AIChE and Delta Process Academy Seminar
October 11th, 2016

Safe start-up of chemical Plants

Consequences for design, engineering, commissioning and operation

Excellence in safety is the key to address the increasing complexity of industrial production processes and the increase of rules and regulations both in Europe and internationally. One of the priorities is reduction of the number of incidents during start-up and non-routine operation of chemical plants.

Experts in the field of Safety in Design will give an overview of methodologies and programs developed to improve process safety in the chemical industry and related sectors.

The 32nd annual European AIChE and Delta Process Academy Seminar is an effective platform for interacting and sharing insights with industry leaders and senior professionals.

Location

Domein Martinus
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Belgium

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32nd Annual European AIChE and Delta Process Academy Seminar October 11th, 2016

- 13.30 **Registration and coffee**
- 14.00 **Opening**
Frank Daman – President Delta Process Academy, General Manager Evonik Antwerp, Board Member of essenscia Flanders
- 14.15 **'25 years lessons learned start-up and non-routine operation of a cracker plant'**
Prof. **Geert Vercruysse** – Process Safety Expert, BASF
- 15.00 **'Safe Start-up culture'**
Marcel Beekman – Process Technology Manager, Fluor
- 15.45 **Break**
- 16.15 **'Pressure Relief Systems – Thinking Ahead for a Safe Start-up'**
Bob Siml – Process Safety Consulting, Siemens
- 17.00 **'Design considerations for switching a cracking furnace between normal operations and decoke mode'**
Menno van der Bij – Deputy Manager Electrical and Instrumentation department, Technip
- 17.45 **Closure**
Joost Van Roost – President, ExxonMobil Benelux
- 18.00 **Drinks**
- 18.30 **Dinner**

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Gijs van Lammeren Treasurer - O&GBISS BVBA
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Geert Vercruysse, Process Safety Expert - BASF
Jan Seynaeve – Bayer, Co-founder Safety Engineering KULeuven

The Netherlands / Belgium Section of the **American Institute of Chemical Engineers** is a regional association of professionals promoting Chemical Engineering and related disciplines, and facilitating exchanges and interaction between all actors of the process industries and related sectors. We organize lecture dinner meetings, plant visits and Seminars. AIChE NL/B events address chemical engineering and technology in the industrial context.

Delta Process Academy (DPA) is a knowledge platform for the chemical industry in Flanders to exchange experience on process safety. The stewardship of DPA lies within essenscia vlaanderen, the federation for the chemical and life sciences industry, that provides organizational, logistical and administrative support.

Geert Verduyts

BASF

25 years lessons learned start-up and non-routine operation of a cracker plant

The process safety concept of a plant is determined during the engineering phase of a project. Once the process is started this safety concept will be validated during the life cycle of the plant, based on operational experience and lessons learned from incidents. In the presentation three incidents, related to start up and shutdown, will be elaborated in detail and its impact given on the process safety concept. Further it will be illustrated that similar scenarios can/could occur in different process unit set ups.

Prof. Ir. Geert Verduyts graduated in 1992 at the University of Ghent. He started his career at BASF Antwerp as a production manager for the EB/Styrene plant where he became project manager in 1998 and plant manager in 2001. As of 2004 he became plant manager at the Steamcracker, which is also located on the Antwerp site. In October 2012 he took the responsibility of the Butadiene Project as Project Manager.

At present he is responsible for aligning all acquisitions in BASF Netherlands towards the BASF internal guidelines for process safety.

Since October 2010 Geert combines his professional activities with the role of guest professor in Process Safety Engineering at KU Leuven and University of Ghent.

Marcel Beekman

FLUOR

Safe Start-up culture

Safe Startup development should be done early in design phase. Considerations for Design, Engineering and Construction phases are discussed:

- Company Culture
- Design and good operability practices
- Safety in Construction
- Turn Over Development and Safe Hand Over
- Training and familiarization of Operations
- Pre-commissioning
- PSSR/Operational Readiness
- Commissioning and Start-up

Marcel is chemical engineer with 30 years operational and engineering experience.

Expert areas are Process Plant Startup, Chlorine-Alkali plant technology and QHSE management.

Project experience include design, plant replacements and revamps, Commissioning and Start-up and environmental projects. He is experienced in construction support, Punching, Commissioning and Start-up, Plant turnover, Safety and HAZOP Studies, Plant troubleshooting and optimization, research activities and QHSE-improvement.

Bob Siml

SIEMENS

Pressure Relief Systems – Thinking Ahead for a Safe Start-up

It is essential to have a thorough Management Of Change (MOC) process in place to identify pressure relief systems that may need to be adjusted.

Analysis tools can improve the detailed analysis of complex pressure relief systems such as dynamic simulation, QRA and Safety Instrumented Systems. Non-normal operations during start-up should also be considered to ensure proper safeguards are in-place. Further, training, operational procedures and the limitations of relief systems must be considered.

One of the challenges is to consolidate all documentation in a digital platform to facilitate PHA's and prestart-up reviews. Also addressed are lessons learned in the design, procurement, and commissioning process.

Bob Siml is a Fellow Engineer / S.M.E. with Siemens Process Safety Consulting. He has 37 years of hands-on experience in research, design, construction, and startup in specialty/commodity chemicals, petrochemicals, pharmaceutical, and refinery industries with 29 years of specialization in overpressure protection and relief disposal systems. He is currently serving at the technical lead and advisor. His responsibilities also include leading the continuous improvement program, developing internal guidelines / training material, and assisting the quality assurance auditing process. Notable achievements include an award from the Board of Directors of Dow Chemical for innovations in the relief system design and disposal systems for chlorine liquefaction plants, evaluation of several flares at BP Texas City after the Isom explosion, and involvement in incident investigations associated with relief systems.

(SME = Subject Matter Expert)

Menno van der Bij

TECHNIP

Design considerations for switching a cracking furnace between normal operations and decoke mode

This paper presents the design considerations for the change-over system for the motor operated cracked gas valve (CGV) and decoke effluent valve (DEV) of ethylene cracking furnaces.

A steam cracking furnace regularly requires decoking due to coke formation inside the radiant coil. The furnace is at end of run (EOR) condition when the furnace reaches one of the EOR criteria. Then the furnace has to be switched from cracking mode to decoking mode. During decoking mode, air is introduced into the furnace in order to gently burn off the coke layer.

Switching a furnace from cracking mode (steam-hydrocarbon service) to decoking mode (steam-air service) requires an adequate handling of the involved risks in order to guarantee safety for people and environment.

This paper will explain the functionality and the safety principles of the system resulting from the performed hazard and operability (HAZOP) study and safety integrity level (SIL) review meetings. It addresses how the cracking and decoking mode switch-over can be designed to comply with today's standards.

Menno van der Bij is Deputy Manager Electrical and Instrumentation department at Technip Benelux in The Netherlands. He joined KTI, now Technip Benelux, in 1985 as instrument designer and has been responsible for instrument design and engineering in Hydrogen, Ethylene and Gas treatment projects (onshore and offshore). He is member of ISO/TC 244 and CEN/TC 186 "Industrial furnaces and associated process equipment" standardization committees. He participates in the WIB WG functional safety and the NEN SIL-Platform.

Registration form

**Yes, I would like to participate in the 32nd Annual European AIChE /
Delta Process Academy Seminar, October 11th, 2016**

Name: _____

Company: _____

E-mail: _____

Special _____ diet _____ required?

Send invoice to: _____

Fees*

AIChE member € 110

Non-member € 120

Company member/sponsor € 110

Members of Delta Process Academy first participant free

Early registration discount 10% (on or before Sep 16th)

Cancellation fee € 35 (on or before Oct 4th)

Cancellation after October 4th cannot be accepted; delegate substitutions may be made at any time at no costs.

* includes admission, drinks & dinner

Location

Registration and information

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Who we are and what we do

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