



Ing. Peter Dolezel (1976)

Senior Process Engineer

Founder/CEO of PE3Q BV (Engineering company)

Extensive experience as a Senior Process Engineer and as a Project Manager for projects up to 10M€ in the chemical sector.

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Education

Master degree at Faculty of Chemical and Food Technology – Specialization Chemical engineering (2004)

Slovak University of Technology, Bratislava, Slovakia

Specialization

- Chemical and Fine chemicals production unit design, Scale-up, Debottlenecking
- Pilot units design
- Project management (Feasibility study, Basic design, Tendering, Detail design, Procurement, Construction, Commissioning)
- Mass and enthalpic balance
- Hydraulic calculations (Newtonian fluids, Compressible gasses, Steam/Condensate systems, Non-Newtonian liquids/Slurries) – Fluid Flow SW
- Heat exchangers calculations (Design, Rating)
- Chemical reactors design (Batch, CSTR, PFR)
- Distillation column calculations and design
- Chemical engineering simulations – Chemcad, Aspen
- Computational Fluid Dynamics simulations (CFD) – SimFlow (FOAM based)
- Block schemes/PFD/P&ID development, drawing, administration (ISO, DIN, ISA...) – AutoCAD and Plant 3D
- PSV calculation and design (gas, liquid, 2-phase; sizing/rating including piping, forces and noise) – API 520/521, ISO 4126, AD 2000 Merkblatt
- Lay-out set-up (2D, 3D) – Autodesk Plant 3D
- HAZOP and LOPA (lead and administration) – Excel, PHA-Pro by Sphera
- External influence classification – AREI (IEC 60364-5-51)
- ATEX classification and area/unit design (gas, liquid, solid)
- IPPC/BREF/BAT – Environmental Impact Assessment
- Compliance
 - CE (Machine directive, PED, ATEX, EMC, LV)
 - ATEX (IEC 60079-0, 10-1, -10-2, -13, -14, -25, -29, IEC 80079-36, -37)
 - ISO 22734 (alternatively NFPA 2)
 - EIGA 211 (supplementary CGA G-5.5)
- ISO 9001 – Document control

Languages

Dutch	Good (ITNA certificate 2015)
English	Good
Slovak	Native
Czech	Very Good
German	(Passive) Good
French	Beginner

Experience

02/2022 – present

PE3Q BV

Founder, CEO, Senior process engineer

New and Existing hydrogen plant Project, Roofings Rolling Mills, Kampala (Uganda) (Dec. 2024-present) – in progress

- Safety improvement of the existing H2 plant (Compliance with IEC 60079-10-1, IEC 60079-13 and IEC 60079-29)
- Design and safety responsible for the New H2 plant Project
 - Hydrogen and Oxygen Venting system design
 - Process, utility and electrical room ventilation and fire safety design
 - 3D modeling
 - Venting panels and blast wall design
 - Safety system design and specification
 - Procurement including export form EU to Uganda (Air Cargo)
 - Compliance:
 - IEC 60079-10-1, IEC 60079-13 and IEC 60079-29
 - EIGA 211 (CGA G-5.5)
 - Construction supervision

Azeotropic distillation Project, Solvay, Herten (NL) (2022-present) – in progress

- Entire Azeotropic distillation unit revamp (DN450)
 - ASPEN Plus and ASPEN EDR process simulations
 - Comparison with Chemcad model
- L-L-G Separator design
- P&IDs
- 3D scan to 3D model (Tractebel Engie CZ as subcontractor PE3Q)
- Basic Design
- Detail Design
- Tendering
- Construction (2025)
- Commissioning (2025)

Vacuum evaporator reactor, Solvay, Herten (NL) (2023) – on hold

- Feasibility study of existing unit modification
 - Heat and Mass balance
 - Hydraulic calculation (Fluid Flow)
 - 3D layout and piping routing
 - Vacuum pump design and specification

Soda unit extension, Solvay, (BE+DE) (2022-2023) – on hold

- Supporting Brussel design team-Basic design
 - ASPEN Plus and ASPEN EDR – Equipment sizing
 - Hydraulic calculations for pneumatic transport (Fluid Flow)
 - Equipment List administration for entire unit

Reactor cooling circuit, Solvay, Herten (NL) (2022) – in operation

- Feasibility study, Basic/Detail design of new oil circuit for reactor cooling and start-up heating
 - Heat and Mass balance
 - Hydraulic calculation (Fluid Flow)
 - Layout and piping routing
 - Equipment, E&I, piping design and specification for construction

Accelera by Cummins (Hydrogenics), Belgium (Apr. 2022 – Dec. 2024)

- Hydrogen venting system design and specification for up to 1000 Nm³/h (already in operation)
- Central cooling system (1 MW) design – on hold
- Set-up of Explosion Protection Document for entire site – in operation
- Hazardous Area Classification – IECEx for Hydrogen unit in Australia – in operation
- Hydrogen PSVs design up to 5000 Nm³/h
- LOPA
- Product and Functional safety
- Compliance engineer
 - ATEX
 - ISO 22734
 - IEC 60079-10-1
 - IEC 60079-0
 - IEC 60079-13
 - IEC 60079-14
 - IEC 60079-29
 - IEC 80079-36
 - IEC 80079-37
 - NFPA 2

03/2020 – 11/2021

Sweco Belgium bv
Senior Expert

Confidential Project, Solvay, Brussel (BE) and Tavaux (FR) (2021)

- ASPEN Plus and ASPEN EDR process simulations
 - Individual equipment and plant sectors
 - Sizing, Rating and Simulation
 - Flow stability
 - Model validation
 - Production trials

Thermosiphon reboiler, Vynova, Tessenderlo (2021)

- Detail design in ASPEN Plus and ASPEN EDR
 - Case study – Sizing, Rating and Simulation
 - Flow stability
 - Piping sizing

Acrylzuur project, Trinseo, Tessenderlo (2021)

- PFD (truck unloading, storage, circulation, scrubber, cooling unit, dosing)
- Hydraulic calculations
- Heat and mass balance (cooling and heating system)
- Gas scrubber design (ASPEN Plus)
- PSV calculations
- CAPEX

Project RECUMO, SCK-CEN, Mol (2020/2021)

- RECUMO = Recovery of Uranium from Mo-99 Production
- Detail design of a High Level Liquid Waste (HLLW) storage and transfer
- Design of risk reduction system for Hydrogen and heat generation by HLLW radiolysis:
 - Set-up of hydraulic model
 - Heat dissipation calculation
 - ATEX classification
- Functional analysis – control system design

Project Re-HAZOP, Trinseo, Tessenderlo (2020/2021)

- Re-HAZOP of the entire site
- HAZOP Chairman
- LOPA

Project Carthage, SCK-CEN, Mol (2020)

- Activities Performed HAZOP, LOPA, Hydraulic calculations, PSVs safeguarding memorandum

Project Sulfuric acid plant revamp, PVS / Ecosystems, Ghent (2019 – 2020)

- Detail design of a boiler feed water and HP steam distribution system
- Activities Performed HAZOP, Calculations, Technical specification, P&IDs

2018 - 3/2020

Ecophos Industrial Services (bankrupt in 3/2020)

Senior Process Engineer

Project Sulfuric acid plant revamp, PVS / Ecosystems, Ghent (2019 – 2020)

- Detail design of a boiler feed water and HP steam distribution system
- Activities Performed HAZOP, Calculations, Technical specification, P&IDs

Standardization project (2019 – 2020)

- Development of a standard production unit 100 kt
- HAZOP lead
- HAZOP, LOPA

Egil, India (2019 – 2020)

- Basic design
- Senior Process Engineer
- 100 P&IDs package update, process development

Chaneco, Chanhen, China (2019)

- Feed package
- Senior Process Engineer
- Mass and Enthalpic balance, process development, 36 PFDs

PSV evaluation, Imerys, Willebroek (2019)

- Preparation of Safeguarding Memoranda
- Senior Process Engineer
- Detailed heat exchanger calculations, steam system evaluation, fuel oil feeding line overpressure protection, PSV calculation (Noise and Forces calculation included)

SSP – Single Super Phosphate, Evergrow, Egypt (2018 – 2019)

- Detail engineering
- 2nd Process engineer
- Off-gas system design, Mass and Enthalpic balance of a rotary dryer, cyclone optimization, Off-gas hydraulic calculations, Wet scrubber specification

2015 - 2018

EXYTE / M+W Central Europe / M+W Group, Melsele, Belgium
Project/Process Engineer

A sustainable wood biorefinery for low-carbon footprint chemicals production, KU Leuven – Chem & Tech (2018 – 2019)

- 100 kt unit design – Feasibility study. Pilot unit – Feasibility study
- Process Engineer
- Equipment development and sizing, Heat balance optimization, Waste optimization, Feed package for CO2 footprint evaluation, CAPEX, OPEX, Capital costs analysis, Sensitivity study
- Published in SCIENCE 20 Mar 2020: Vol. 267, Issue 6484, pp. 1385-1390
DOI: 10.1126/science.aau1567
<https://science.sciencemag.org/content/367/6484/1385>

Confidential Project, Sanofi, Geel (2018)

- Technical support
- Process Engineer
- ATEX, HAZOP, Calculations, Technical specification

Thermal upgrade Walking beam furnace 1, Arcelor Mittal, Ghent (2017)

- Detail design
- Process Engineer
- HAZOP Lead, Hydraulic calculations, Piping Design and insulation, 3D piping model coordination

Confidential Project Polypeptide, Braine l'Alleud (2017 - ...)

- Technical support - confidential
- Process Engineer
- ATEX, P&IDs, Calculations

HAZOP, Fuji, Sint Niklaas (2017)

- HAZOP of all production and storage units
- HAZOP Lead
- Safety Level increasing

NLP, Kemira, Botlek, the Netherlands (2016 and 2017)

- Basic Design Project
- Lead Process engineer
- Design of new emulsion polymerization line. Raw material storage, Monomer reactor, Polymerization reactors, Stabilizing-braking, Sieving, Thin film evaporation, Mixing, Final storage, New chilled water circuit

Improved Benecel K-grade, Ashland, Beveren (2016 and 2017)

- Basic Design Study for new GMP product
- Project and Process engineer
- Design of pneumatic transport, Dust collection, Air classification, Grinding. 3D Lay-out. Budget ±10%

Heat loss calculation, ITC Rubis, Terminal Antwerp (2016)

- Heat loss calculation of two 1500 m3 tanks
- Process engineer
- Design of steam heating coil

AMF Mondelez , Halle (2015)

- Increasing of storage capacity and setup of new formula
- Process engineer
- Hydraulic calculations, N2 blanketing

Latex up-concentration, CTF 2000, Zele (2015)

- Up-concentration of latex off-spec
- Process engineer
- Feasibility study: Lab tests, Scale up, simulations, process design – P&IDs, CAPEX + OPEX

P&IDs set up, Muylle Facon, Izegem (2015)

- Process design
- Held Process engineer
- Scale up, on-site tests, process design – P&IDs, CAPEX + OPEX

Different projects, BASF, Antwerp (2015)

- Preparation of safety files
- Process engineer
- Safety valve calculation, defining of new and evaluation of existing safety valves

As-Built, Martin Mathys, Zelem (2015)

- Reconnection of existing process vessels
- Process engineer
- P&IDs (Auto CAD P&ID)

2006 - 2014

Tractebel Engineering a.s., Pardubice, Czech Republic
Process Engineer

Kerosine/Jet A1 storage and loading, Ceska rafinerska a.s., Litvinov – CR (2012 – 2014)

- Scale up of bulk storage, railcar loading for kerosine
- Project manager/Lead process engineer
- Feasibility study, process calculations, piping design

Rebuild sulfuric acid production plant, Precheza a.s., Prerov – CR (2012 – 2013)

- Increase of production capacity with connection to new steamturbine
- Process engineer
- Hazop lead

Caustic dosing, Mondi Steti a.s., Steti – CR (2012)

- Design new and safer dosing system
- Lead process engineer
- Detailed engineering

NaCN Production plant, Korund, Dzerzhinsk, Rusland (2008)

- Scale-up of full production site based on an existing site
 - HCN production – Andrussow-process
 - NaCN production

- Lead process engineer – collaboration with Lucebni zavody Draslovka as the licensor
- CAPEX for an EPC contract
HCN absorption column debottlenecking, Lucebni zavody Draslovka, Kolin – CR (2008)

- Lead process engineer
- Feasibility study

EDN (Cyanogen/Sterigas - Biocide) synthesis plant, Lucebni zavody Draslovka, Kolin – CR (2008 – 2009; 2012 – 2013)

- Full plant design based on lab scale model
- Project manager / Lead process engineer
- Feasibility study, Set up all documentation for environmental permit; basic engineering
- Second period: detail engineering

Bulk storage and preparation of NaCl and KCl solution for electrolysis, Kovoprojekta Brno as, Brno – CR (2008)

- Storage and production of NaCl and KCl solutions
- Process assistant
- Hazop lead

Production XPS boards, Synthos Kralupy, Kralupy nad Vltavou – CR (2008)

- Process assistant
- Hazop

Formaldehyde and resins production plant, Maring s.r.o./Dukol a.s., Ostrava – CR (2008)

- New batch reactor and turbo blower
- Process engineer
- Hazop lead

Rearranger, Wacker Chemie, Stuttgart / Nüchritz - DE (2007 – 2008)

- Feasibility study + 3D design
- Project manager, assistant process engineer
- Lay-out work, P&ID, Energy optimizing

LPG bulk storage and transport, Ceska rafinerska, Kralupy nad Vltavou - CR (2007)

- Feasibility study
- Process engineer
- Design and evaluation of 3 options.

Conversion of MTBE to ETBE production unit, Ceska rafinerska – CR, Kralupy nad Vltavou (2006 -2007)

- Basic engineering project
- Process engineer
- Basic engineering (P&IDs, specifications)

Storage and mixing of bio fuel, Cepro a.s., Tremosna – CR (2006 – 2007)

- Detail engineering for storage and mixing
- Lead process engineer
- Setup of P&IDs, process calculations, testing

Production of synthetic paints, Telluria, spol s.r.o., Letovice – CR (2006 – 2008)

- New factory for paint production
- Lead process engineer
- P&ID design, calculations, VOC reduction

Project Biturox, Paramo a.s., Pardubice – CR (2006)

- Commissioning
- Assistant Engineer
- Testing and commissioning in cooperation with license holder

2004 - 2006

Protechnik Consulting s.r.o., Moravska Trebova, Czech Republic
Project Manager

Increasing of production quality
(2004 – 2006)
Moravska Trebova – CR
Protechnik Consulting s.r.o.

- ISO implementation, production planning and development
- Project manager
- Operations responsible/ design automated machining process, quality improvement