



inprocess



simulation  
knowledge  
profit

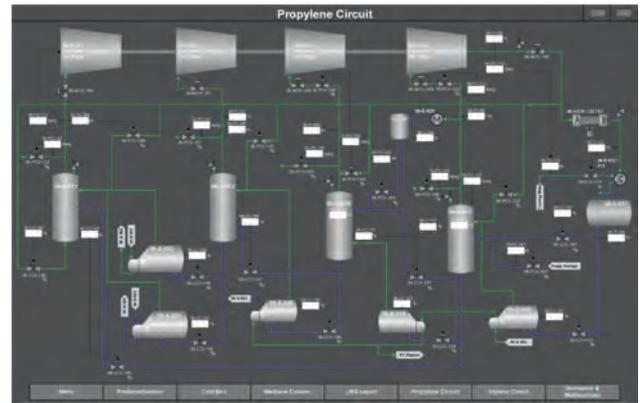
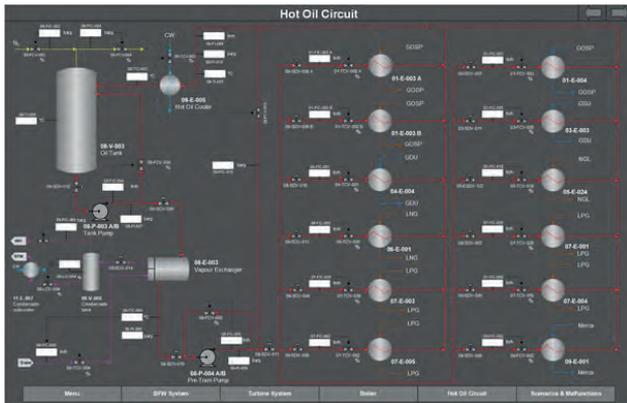
# INGENO



**Generic Operator Training Simulators** are extremely powerful training tools for acquiring the generic knowledge required by students and plant operators to understand the way complex producing units are operated from the plant control room consoles.  
**Inprocess' INGENO** replicates rigorously the behavior of the real processes by using first-principles dynamic process simulators

With the Generic OTSs of **INGENO** Instructors teach the characteristics of the processes and the utilities where the unit is located; they explain the need for the unit in the whole process; and they show how to act during normal and abnormal conditions (alarm management, start-up and shutdown of the unit, load changes etc.)

# INGENO



## Benefits

Your benefits with **INGENO** start at:

- Increased qualification & confidence of all plant operators
- Higher process understanding
- Optimized operator interventions:
  - safe handling of malfunctions
  - training experience on different process strategies
- Time savings on start-up & product change
- Increased plant uptime
- Better control of quality requirements
- Cloud installation provides easy-to-scale virtual training rooms and location independent access.
- The generic OTS provides true value for beginners as well as for the most experienced operators and even engineers.

The use of the Generic OTSs of **INGENO** are extremely valuable in cases:

- of corporations, with different producing sites in different locations, who are in need of setting up a **corporate training centre** where employees receive a common education on the processes and the units that the corporation owns
- of students in training or **educational institutions**, looking for a wide-ranging instruction
- where operators need a refresh (or a deeper training) on the generalities of the processes, units and plants where they work daily
- where the operators work in plants with frequent staff rotation from unit to unit



## INGENO Overview

All models are based on first principles of chemical engineering with rigorous thermodynamics calculation and physical component properties database. Inprocess Generic OTSs accurately represent plant start-up and shutdown, in addition to a variety of design and abnormal operating conditions.

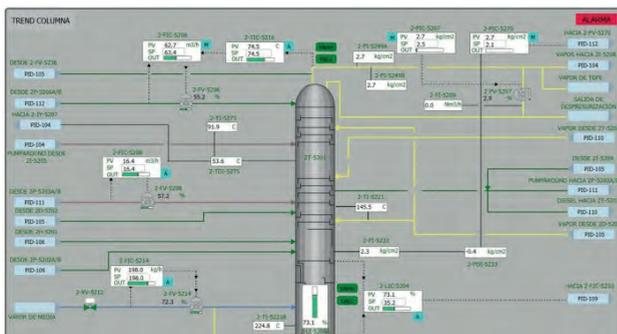
They can be run locally, on a network or remotely via a web browser for web-based e-Learning.

They can be used on a self-training basis or an instructor-led basis. They are SCORM

compliant and can easily be integrated with Learning Management Systems (LMS).

**INGENO** offers cost effective training solutions to teach concepts and fundamentals of equipment, process control and plant operations. They can be used to train console operators in typical and upset conditions, start-up and shutdown, etc.

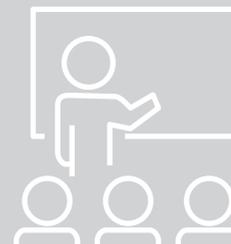
Delivered with generic control and safety system emulation, detailed documentation and advanced instructor features, the results obtained running the **INGENO** exercises can be utilized for operator evaluation.



## Features



**INGENO** benefits from a student interface that mimics a generic commercial DCS, so operators feel like if they were in front of a real console in a plant control room. Depending on specific client request, Inprocess has replicated interfaces of most of the commercial Distributed Control Systems (DCS).



**The instructor**, in a separate computer, through an easy-to-use graphical interface, interacts with students

- starting and stopping the sessions,
- initiating scenarios,
- launching malfunctions,
- recording student actions and, when required,
- acting in the simulated exercises like the field operators would have in the real world.

Inprocess has developed generic operator training simulators for different common producing units in the **upstream, fertilizer** and **oil refining** processing plants. Our collection of Generic OTSs contains a broad range of high-fidelity process models and realistic DCS system emulations:



## Oil & Gas Upstream

- Oil-Gas Separation Unit
- Gas Compression Unit
- Gas Sweetening with Amines Unit
- Gas Dehydration Unit (Glycol)
- Natural Gas Liquids Recovery Unit (Turboexpander)
- Liquefaction of Natural Gas (Cascaded Cycle) Unit
- Liquefied Petroleum Gases Unit
- Merox Unit
- Energy Unit (Steam Turbines)

## Oil Refining

- Crude Distillation Unit (CDU)
- Vacuum Distillation Unit (VDU)
- Diesel Hydrotreater Unit (HDS)
- Fluid Catalytic Cracker (FCC)
- Continuous Catalytic Reformer (CCR)
- Isocracker Unit (ICU)
- Hydrocracker Unit (HCU)
- Mild Hydrocracker (MHC)
- Delayed Coker Unit (DCU)
- Product Blending System



## Fertilizer Industry

- Hydrogen Production Unit (HPU)
- Ammonia Plant
- Urea Plant
- Methanol Plant

**Inprocess is actively developing additional processing units to add to its list of Generic OTSs. Ask for anyone you might be interested in that does not appear in the lists above**

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