



# InoChem Simulator

## A NEW PERSPECTIVE

Operator Training simulator (OTS) at InoChem provides the most effective ways to train new operators, refresh the skills of experienced ones, and qualify or re-qualify all operators to retain knowledge, help ensure efficient operations, and avert potential disasters. InoChem advanced training simulators for Soda Ash and Calcium Chloride plants allow realistic, hands-on training for normal operations, start-ups, shut-downs, familiarizing people with workflows, and for abnormal or emergency response to situations without compromising the health or safety of operators, the plant, or the surrounding community.

# INOCHEM SIMULATOR

## A NEW PERSPECTIVE

### • BACKGROUND

Khair Inorganic Chemical Industries Co. (InoChem) operates a Greenfield of Soda Ash and Calcium Chloride Industrial Complex on 800,000 square meters (sqm) of land in Ras Al-Khair, Saudi Arabia with an annual capacity of 300,000 MT of Soda Ash and 348,000 MT of Calcium Chloride in various grades, densities, shapes, and sizes, utilizing the latest in advanced technologies and equipment.

The plant is the first Soda Ash producer in the GCC, the largest in the Middle East and North Africa (MENA), and the largest Calcium Chloride manufacturer in the world.

Sim Infosystems has developed and implemented the state-of-art simulators for InoChem Soda ash and Calcium Chloride plants during March 2023.

### • ProSimulator™ INSTRUCTOR STATION

ProSimulator Instructor station enables the instructor to control and direct the training sessions. From the Instructor station, multiple independent training sessions can be invoked by the Instructor and each training sessions can be assigned to work with one or more operator stations. Using this software the Instructor can load a model, invoke malfunctions and monitor the performance of the trainee.

### • ProSimulator™ OPERATOR STATION

The simulator is provided with emulation for Emerson Delta V DCS. All functions and features that are essential for training are included in the emulation. The controls and interlock logic are also simulated and provides exact replica of the real plant systems. The field operations are simulated through separate FOD graphics on the operator station.

### • ProSimulator™ PROCESS MODELS

ProSimulator simulation models are based on rigorous application of first principles calculations. It provides a comprehensive Physical Property methods Database, thermodynamic, unit library, instrument/control library and Numerical methods.

## BENEFITS OF INOCHEM SIMULATOR

- ✓ Familiarize with various refinery and gas plant configuration and key operating parameters
- ✓ Practice Normal plant operations
- ✓ Practice Standard Operating Procedures including Startup & shutdown
- ✓ Familiarize with the control system
- ✓ Familiarize with Safety system
- ✓ Trouble shooting
- ✓ Ability to respond to Emergencies
- ✓ Optimize production



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The following simulation models are installed in the InoChem Simulator:

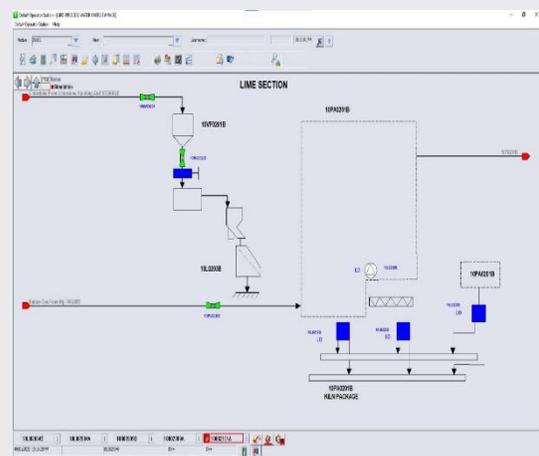
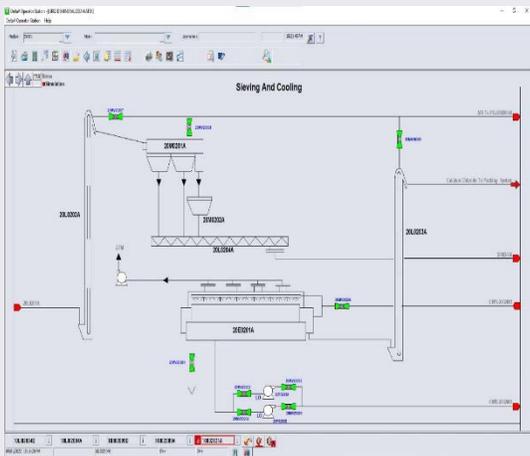
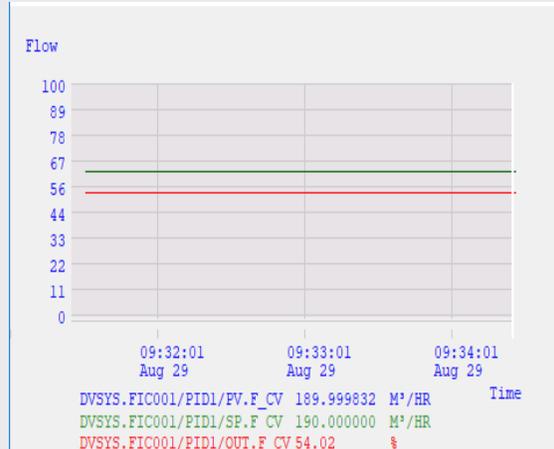
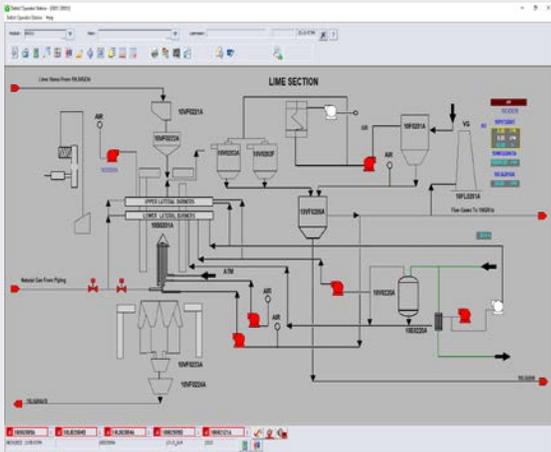
### **SODA ASH PLANT (300,000 MTPA)**

- Lime Kiln Section
- Brine Section
- Absorption & Distillation Section
- Calcination Section
- Carbonation Tower and Filter Section
- CO<sub>2</sub> screw compressor
- Waste Liquor Treatment Section

### **CALCIUM CHLORIDE PLANT (300,000 MTPA)**

- Evaporation and Concentration Section
- Granulation section
- Flaking Section





**10PIC02003**

50.00      0.98

100.00      Bar A      4.00

0.00      0.00

AUT  
MAN  
AUT

Owned by:  
Unit:

Ack	Param	Help

ALM I/O TUN VAR GRP PPRM I-RTN THR

**10C0202B**

STOP

START

**STOPPED**

CAS    AUT    AUT

Device State  
Confirmed STOPPED

Operation State  
Normal

Failure State  
Clear

Owned by:  
Unit:

Ack	Param	Help
<input type="checkbox"/>	FAILED	

ALM I/O VAR DEL

User: InoChem Industries  
Project: Operator Training Simulator

Title: Site Acceptance Test (SAT) Procedure  
Doc. No.: InoChem-NAIZAK-SIM-OTS-005

OTS FAT and SAT Completion Certificate  
OTS ACCEPTANCE TEST COMPLETION CERTIFICATE



PACKAGE NAME	OPERATOR TRAINING SIMULATOR (OTS)
PROCESS MODEL	SOAD ASH AND CALCIUM CHLORIDE MODELS
SYSTEM DESCRIPTION	OTS FACTORY AND SITE ACCEPTANCE TEST

This is to certify that the Operator Training Simulator (OTS) for the Soda Ash and Calcium Chloride units has been tested during the OTS Site Acceptance Test [OTS SAT]. It is found to function as per project specifications and requirements and is accepted as a deliverable material requirement.

[Remarks]

Signed in agreement by:

	Name	Signature	Date
Test Conducted by: NAIZAK/ SIM INFOSYSTEMS	Wahid Al-Jassal WILLIAM HAZUT		29.3.2023
Test Accepted by: INOCHEM	Faisal Al-harbi		29.3.2023