Coromandel International Limited

CIL Kakinada Simulator

For Operator Efficiency & Safety

Background

Coromandel International Limited (CIL), India's second largest Phosphoric fertilizer player, is in the business segments of fertilizers, specialty Nutrients, crop Protection and retail. The Company manufactures a wide range of fertilizers and has the capacity to manufacture over 3.5 million tons of Phosphoric fertilizers and 1 million tons of single super phosphate, making it a leader in its addressable markets.

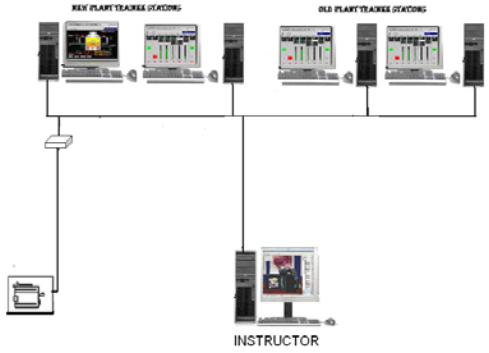
The CIL Kakinada Plant consists of Sulphuric Acid plant, Phosphoric Acid plant, Complex fertilizer plant, effluent treatment plant and Atmospheric Ammonia Storage Terminal.

CIL Kakinada plant has a dedicated Learning Center for imparting technical and managerial to its employees. The Center along with Sim Infosystems has implemented the State-of-art Operator Training Simulator for SAP, PAP, Complex Fertilizer plant and Atmospheric Ammonia Storage Terminal to train new operating

SCOPE OF SUPPLY

Sim Infosystems has developed simulator during 2020-21. The simulator was installed and commissioned at the CIL Kakinada training center and consists of the following major components:

- Simulator computers and peripherals
- Instructor Station software
- Operator Station – DCS emulation
- Standard simulation models for Sulphuric Acid Plant, Phosphoric Acid plant
- Custom simulation models for Complex Fertilizer plant and Atmospheric Ammonia Storage Terminal.



The simulation models are developed on the state-of-the-art "ProSimulator" dynamic simulator. ProSimulator is an integrated dynamic simulation environment consists of Instructor station s/w, real-time database, operator station emulation s/w, interface s/w to DCS and dynamic simulation development package.

Simulation models

The Complex Fertilizer plant simulator consisting of:

Product Stream: PR Acid tank, Pipe Reactor, Granulator, Drier, Screens, Cooler, Polishing screens

Granulator fumes stream: Pre scrubber, Main scrubber, Granulator fan, Tail gas duct scrubber, Tail gas scrubber

Drier Gas stream: Drier Air Blower, Air pre heater, Drier, Drier cyclone, Drier scrubber, Drier scrubber fan, Tail gas duct scrubber, Tail gas scrubber

Cooler & de-dusting fumes stream: De-humidifier, Cooler fan, Cooler, Cooler cyclone, De-dust cyclone, Cooler scrubber, Cooler scrubber fan, Tail gas duct scrubber, Tail gas scrubber

Pre Scrubbing Liquid stream: Pre Scrubber vessel, Pre Scrubber separator

Scrubbing Liquid stream: Scrubber vessel, Granulator scrubber separator, Drier scrubber separator, Cooler scrubber separator

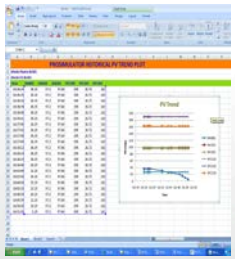
Tail Gas scrubbing liquid stream: Tail Gas scrubber

This simulator is provided with Emerson Delta V DCS Emulation HMI.

The custom simulation models for Atmospheric Ammonia Storage Terminal (AAST). The plant comprises of four storage tanks for the storage of the ammonia. The Ammonia in the tanks is continuously cooled by condensing the generated vapor from the tank and maintain the temperature of the stored ammonia liquid. It is done with the help of the cooling setup comprising of the compressors, condensers, receiver tanks, economizer and expansion valves.

This simulator is provided with Triconex PLC Emulation HMI.

CIL Kakinada Simulator

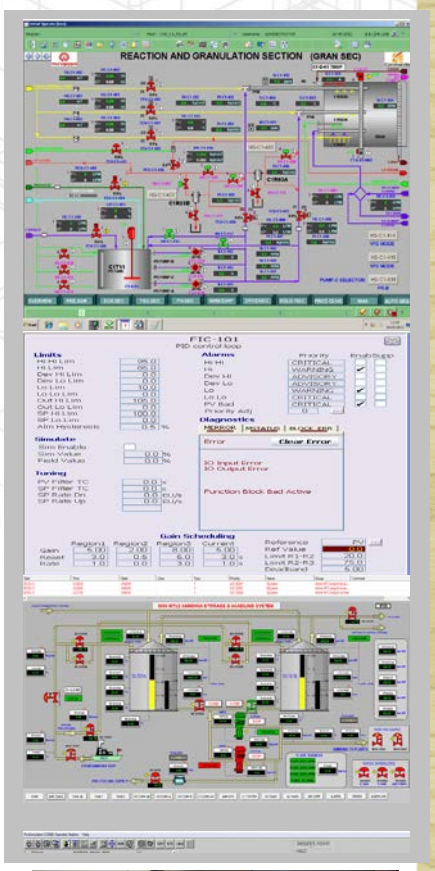


INSTRUCTOR STATION

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.

OPERATOR STATION

The simulator is provided with emulation for Emerson Delta V DCS and Triconex PLC. 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 field operation graphics on the operator station.



Sim Infosystems Pvt Ltd
11, 1st Cross St, Nehru Nagar
Kotivakkam
Chennai 600041
INDIA
Tel: +91-44-24542617
sales@siminfosystems.com