

Coromandel International Limited

CIL Kakinada Simulator

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.

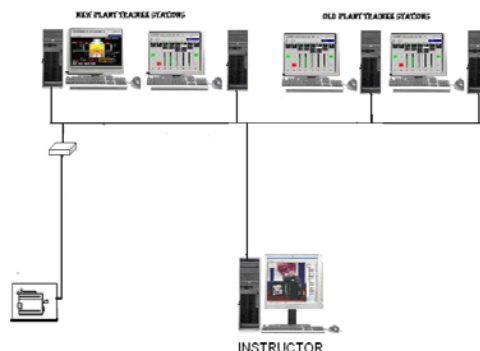
The CIL Kakinada Plant consists of Sulphuric Acid plant, Phosphoric Acid plant, Complex fertilizer plant, effluent treatment plant and Atmospheric Ammonia Storage Terminal.

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 and 2025. The simulator was installed and commissioned at Coromandel Kakinada training center and consists of the following major components:

- Simulator computers and peripherals
- Instructor Station software
- Operator Station – DCS emulation
- Custom simulation models for:
 - Sulphuric Acid Plant
 - Phosphoric Acid plant
 - Complex Fertilizer plant
 - 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

Sulphuric Acid plant

- Sulphur melting section
- Sulphur Filters
- Air Compressor
- Sulphur furnace
- Steam superheater
- Waste Heat Boilers
- Converters (5 beds)
- Inter absorption tower
- Economiser
- Cold heat exchanger
- Hot heat exchanger
- Final absorption tower

Phosphoric Acid plant

- Phosphate rock Reaction
- Digestion System
- Horizontal Belt Filter System
- Fume Scrubber and Stack
- Evaporator and FRU Section
- Ball Mill
- Conversion Tank (DH to HH)
- Desulphation Section

Complex Fertilizer plant

- Product Stream
- Granulator fumes stream
- Drier Gas stream
- Cooler & de-dusting fumes stream
- Pre Scrubbing Liquid stream
- Scrubbing Liquid stream
- Tail Gas scrubbing liquid stream

Atmospheric Ammonia Storage Terminal (AAST)

- Ammonia Cross country pipeline
- Ammonia storage tanks
- Vapor refrigeration system
- Centrifugal transfer pumps

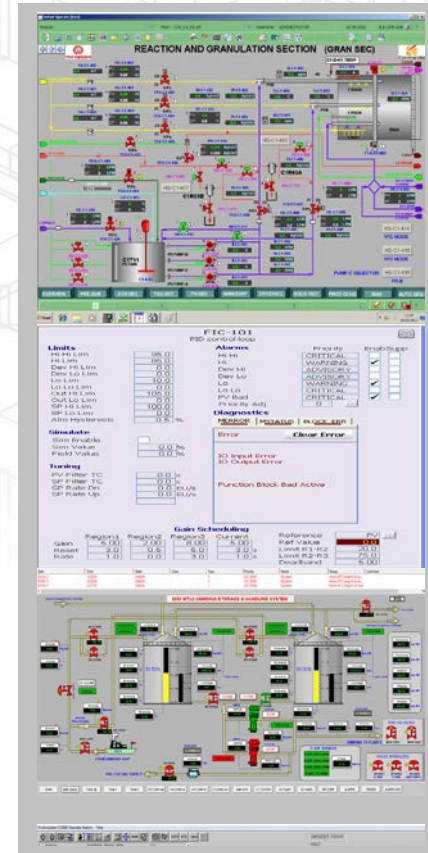
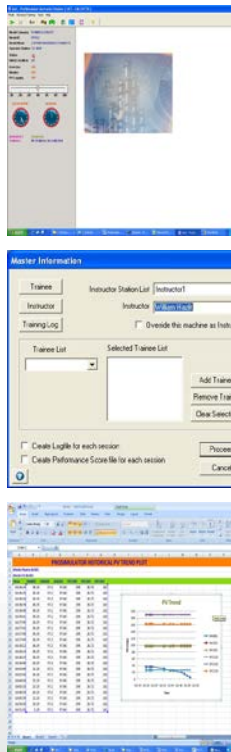
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INSTRUCTOR STATION

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.



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