

PS4000: Fertilizer Operations Simulator

The PS-4000 is a simulation software package is rigorous and detailed simulation models of Fertilizer plants. The benefits of this package are:

For Academic

- ▶ Industrial Exposure for Students
- ▶ In-depth Process Understanding
- ▶ Carry out In-house projects
- ▶ Sound Fundamental Concepts of Process Control and safety with DCS Operations
- ▶ Understanding the Intricacy & Complexity of process dynamics

For Industries

- ▶ Improved Plant Safety
- ▶ Smooth Startup & Shutdown
- ▶ Evaluation of Operator Proficiency
- ▶ Faster Recovery from External/Internal Process Disturbances
- ▶ Increased familiarity of Controls & Interlock Systems



The package consists of simulation models for various Fertilizer plants. Each model simulates a fertilizer plant with its control, instrumentation and safety systems and field devices. The Instructor can invoke malfunctions, disturbances and instrument failures and evaluate the trainee performance. Trainee can perform normal operations, emergency operations as well as startup / shutdown operations on these models.

PS-4001 Ammonia Plant

The model simulates an Ammonia plant of a fertilizer complex which includes Primary Reformer, Secondary Reformer, HT and LT Shift Converters, CO₂ removal section, Methanator, Synthesis Gas Compressor, Synthesis Converter, Purification section, Ammonia / Hydrogen recovery sections and Steam system.

PS-4002 Urea Plant

The model simulates a typical Urea manufacturing plant of a fertilizer complex which includes Urea Synthesis and High Pressure Recovery, Urea Purification: Medium and Low Pressure Recovery,

PS-4003 Sulphuric Acid Plant

The model simulates a Sulphuric Acid plant of a fertilizer complex which includes Furnace, Air blowers, Boiler, Converter, Intermittent Absorption Tower (IAT), Final Absorption Tower (FAT), IAT and FAT coolers, Economizer and Steam System, DT Plate Cooler, Drying Tower and Product Acid section.

PS-4004 Phosphoric Acid Plant

This simulated plant includes Rock feed to the Reaction tank/attack tank, Digestion, Filtration lines, Gypsum Disposal, Gas scrubber, Acid Clarification and Storage, Concentration Units and Fluorine Recovery, Strong acid Cooling, Concentrated Acid: Clarification and Export to Storage.

PS-4005 DAP / Granulation Plant

The DAP / Granulation plant simulator consisting of Ammonium Phosphate Reactor, Scrubbers, Granulator, Dryer, Solid Conveying System, Process Screening and Milling System, Intake system and Ammonia Loading Operations and Product System. MAP, DAP and MAPS cases are simulated in the model.

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Besides supply of above standard simulation plants, we develop rigorous custom simulation models for your plant based on the plant configuration, design parameters, operating data, instrumentation and safety systems. These custom models are very useful for training / re-training your operators / engineers as well as control / safety system verification, validating operating procedures, de-bottlenecking studies and what-if analysis.

Our Experience in Custom simulator for Fertilizer plants

- ▶ [Mangalore Chemicals & Fertilizers Limited, India](#)
 - Ammonia Plant Simulator - ICI's Steam Reforming and HT Ammonia Synthesis (2008)
 - Urea Plant Simulator – Stami Carbon (2016)
- ▶ [Coromandel International Limited, India](#)
 - Sulphuric Acid Plant Simulator - 2010
 - Phosphoric Acid Plant Simulator – 2015
- ▶ [Paradeep Phosphate Limited, India](#)
 - Sulphuric Acid Plant Simulator - 2013
- ▶ [Foskor Pte Ltd, Richards Bay, South Africa](#)
 - Phosphoric Acid Plant Simulator – 2015
 - Sulphuric Acid Plant Simulator – 2015
 - Granulation Plant Simulator – 2016
- ▶ [MATIX Fertilizers Ltd, India – 2013 \(thru Yokogawa India\)](#)
 - Urea Plant Simulator (SAIPEM)
- ▶ [IndoRama Eleme Fertilizers Limited, Nigeria – 2015 \(thru Yokogawa India\)](#)
 - Ammonia Plant Simulator (KBR)
 - Urea Plant Simulator (Toyo)
- ▶ [Rashtriya Chemicals and Fertilizers Limited, India](#)
 - Sulfuric Acid Plant Simulator – 2015
- ▶ [MA'ADEN Fertilizers, Saudi Arabia 2015-16 \(thru Yokogawa Middle East\)](#)
 - Phosphoric Acid Plant Simulator
 - Sulphuric Acid Plant Simulator
 - DAP/NPK Plant Simulator
 - Beneficiation Plant Simulator
- ▶ [CAMAU Fertilizers, Vietnam – 2017-18 \(thru Yokogawa Electric International Pte Ltd, Singapore\)](#)
 - Ammonia plant (Haldor Topsoe)
 - Urea plant (SAIPEM)
 - Utilities

