

PS4000: Fertilizer Operations Simulator

The PS-4000 is a simulation software package with 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
- ▶ Employability

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, Urea Concentration.

PS-4003 Sulphuric Acid Plant

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

The 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. DAP and MAP cases are simulated in the model.

PS-4006 Ammonia Storage Terminal

Atmospheric ammonia storage terminal simulator consists of storage tanks, ship unloading and transferring to the plant. The compressor cooling system continuously condenses the generated vapor from the storage tank and maintain the temperature of stored ammonia liquid. The trainees will understand how to respond safely and efficiently to disturbances and the operation of the system.