Training Title

FERTILIZER MANUFACTURING & PROCESS TECHNOLOGY

Training Duration

5 days

Training Venue and Dates

REF PE075	Fertilizer Manufacturing & Process Technology	5 Days	21 – 25 April, 2019	$4,250	Dubai ,UAE

In any of the 5 star hotel. The exact venue will be informed soon.

Training Fees

- **4,250 US$ per participant for Public Training. Fees Includes Course Materials/ Handouts, Tea/Coffee, refreshments, International Buffet Lunch**

Training Certificate

Define Management Consultancy & TrainingCertificate of course completion will be issued to all attendees.

TRAINING DESCRIPTION

The fertilizer industry is essentially concerned with the provision of three major plant nutrients - Nitrogen, Phosphorus and Potassium (NPK) - in plant-available forms. All major nitrogen (N) fertilizer sources begin with the fixation of non-plant available atmospheric N2 molecules into anhydrous ammonia molecules (NH3). The process of converting N2 to NH3 is referred to as the Haber-Bosch process.

Ammonia synthesis requires large amounts of energy. Nowadays, ninety-eight percent of the ammonia produced in the world is by catalytic steam reforming of natural gas. The gas is converted to hydrogen, purified, and reacted with nitrogen to produce ammonia. The development of ever larger, gas-based ammonia plants, affording large amounts of by-product carbon dioxide allowed for utilizing this carbon dioxide in the manufacture of urea. Urea is the product of the reaction of ammonia with carbon dioxide. It contains 46% N. Consequently, it offered a further significant advance in plant nutrient concentration, and hence in savings in nutrient transportation and distribution. Today, urea is one of the most common nitrogen fertilizer. Urea manufacture is associated with anhydrous ammonia production in modern plants because carbon dioxide is a by-product of ammonia production and is thus readily available to react with the ammonia. The urea can either be dried and granulated into 46% N urea fertilizer, or dissolved in water with ammonium nitrate to make urea ammonium nitrate (UAN) solution.

In most of the modern fertilizer manufacturing plants, most of the ammonia is used on site in the production of urea. The remainder is sold domestically for use in industrial refrigeration systems and other applications that require anhydrous ammonia. The urea is used as a nitrogen-rich

P.O BOX 45304
ABU DHABI, U.A.E
T +971 2 6264455
F +971 2 6275344
www.definetraining.com

fertilizer, and as such is of great importance in agriculture and is also used as a component in the manufacture of resins for timber processing and in yeast manufacture.

TRAINING OBJECTIVES

This workshop is designed to provide engineers in the fertilizer industry with an in-depth view of nitrogen fertilizer production technologies in general and the production of ammonia and urea using natural gas in particular. The workshop will guide engineers to identify future trends and needs of this fast pace industry. The workshop will examine the status and the most recent fertilizer production technologies to produce fertilizers and intermediate materials. Looking further ahead, the workshop will review some potentially significant developments and concepts that may impact the manner in which ammonia and urea are produced. Some of these manufacturing routes are being tested or employed at few plants around the world, but have yet to be fully developed into commercial processes.

The workshop will also provide an opportunity to exchange ideas and disseminate information through discussion of the various technical, economic, safety, and environmental issues. The knowledge gained will enable the participants to solve specific problems at his/her plant as well as improve its operation and enhance its profitability. Further, the workshop will review new technologies such as isobaric manufacturing, the use of gas heat reformers, hydrogen separation, carbon dioxide removal technology, product ammonia separation, and high activity synthesis catalyst which can result in a significant reduction in energy consumption when compared with traditional technology.

WHO SHOULD ATTEND?

Process engineers and technician.

TRAINING METHODOLOGY:

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions, and motivate everybody find the right answers. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course.

Very useful Course Materials will be given.

- **30% Lectures**
- **30% Workshops and work presentation**
- **20% Group Work& Practical Exercises**
- **20% Videos& General Discussions**

Course Outline

2.1 Theory of Condensation

2.2 Theory of Conversion

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5.1.16 Granulation Section Startup

5.2 Shutdown Procedures

5.2.1 Types of Shutdown

5.2.2 Blocking – In Procedures

5.2.3 Planned Shut Down Procedures

5.2.4 Emergency Shut Down Procedures

5.2.5 Types Of Failure

5.2.6 Shut-Down Of Granulation Plant

NOTE:
Pre & Post Tests will be conducted
Case Studies, Group Exercises, Group Discussions, Last Day Review & Assessments will be carried out.

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