

1,000 TPD Ammonia Plant for Sale

Capacity

Design 907 metric tons per day
Operating 1,000 metric tons per day

Plant History

Built in 1980
Many revamps after 1990
Currently in excellent condition, ready to operate

Process Technology

Kellogg

Major Equipment

- Synthesis compressor (Delaval - USA)
- Air compressor (Delaval - USA)
- Methane compressor (Delaval - USA)
- Ammonia compressor (Delaval - USA)
- Synthesis column
- Absorber / Desorber
- Methane gas desulphurators
- N2 recovery plant (Air Products – USA)
- Ammonia pumps
- Methanator
- Primary reformer
- Secondary reformer
- High temperature converter
- Low temperature converter
- Boiler steam generator
- Liquid ammonia gas cooler
- Liquid ammonia separator
- Condensate stripper
- Gas boiler water cooler
- Expansion vessel
- Secondary reformer burner



BRIEF PLANT DESCRIPTION

The plant has three process sections. (1) Syngas generation. In this section, natural gas goes through compression and desulphurization, and then enters medium pressure primary reformer and secondary catalytic reformer. Carbon monoxide catalytic conversion occurs in two temperature stages. (2) Syngas purification. Benfield system is used to remove carbon dioxide from raw syngas. CO₂ is converted into methane. (3) Ammonia synthesis and refrigeration. A centrifugal compressor powered by steam turbine compresses purified syngas, which is then sent to ammonia synthesis reactor. Product ammonia is chilled by a refrigeration system and then delivered to storage tanks. This plant had several major upgrades after 1990, including: (a) synthesis column upgrade in 1996, (b) new technology for nitrogen recovery from purged gases in 1994, (c) new monitor system for the ammonia synthesis compressor and the refrigeration compressor in 1996, (d) replacement of tubes in the primary reformer in 2008, (e) new secondary reformer burner in 2014.

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