

Ammonium Nitrate Applications Guide

1. Hydrogen Synthesis - Feedstock desulphurisation

M: Hydrocarbon e.g. methane, MEA

T: Low (50 C)

P: Medium

Apps: Reactor, regen. reactor, pipeline

Gaskets: Graphite technology. RGS3, Flexpro, SWG



1. Hydrogen synthesis - Primary & secondary reforming

M: Steam, methane, hydrogen, carbon monoxide/dioxide

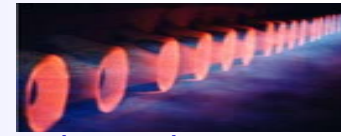
T: High (800 to 900 C and 300 to 500 C)

P: High (33 bar)

Cat: Nickel

Apps: Reactor tubes, secondary reformer, pipework, heat recovery systems, steam raising plant

Gaskets: Thermiculite and graphite technology. ring joints, Flexpro, SWG



1. Hydrogen Synthesis - CO2 removal

M: Hydrogen, carbon monoxide/dioxide, MEA or potassium carbonate

T: Low

P: Low

Apps: Scrubber, carbonate regen. pipework, pumps

Gaskets: Graphite technology. Flexpro, SWG, soft cuts



4. Ammonium Nitrate Synthesis

M: Nitric Acid (70%), ammonia, LP steam.

T: 180 C

P: 4-5 bar

Apps: Reactor (boiler, pipe, recirculator), heat recovery, scrubbers, demisters, evaporators, HX's, prilling, granulators, steam generator, pipework.

Gaskets: Graphite and PTFE technology. Flexpro, DJ's, SWG, soft cuts



3. Nitric Acid Synthesis – Nitrogen dioxide/dinitrogen Tetroxide absorption

M: Dinitrogen tetroxide, nitrogen dioxide, water, nitric acid (60 - 70%).

T: Low

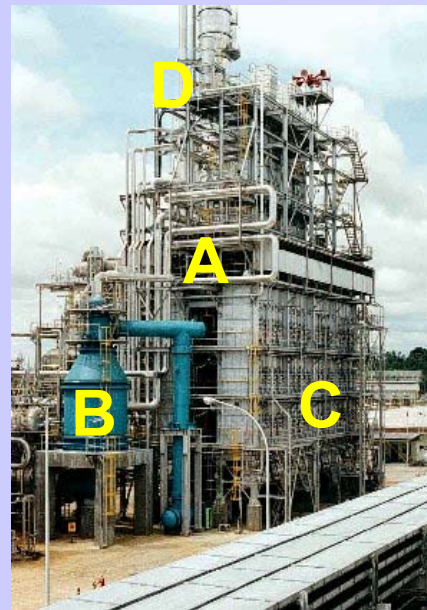
P: High

Apps: Absorption tower, pipework, compressor, tail gas adsorber

Gaskets: PTFE technology. SWG, Flexpro, soft cuts

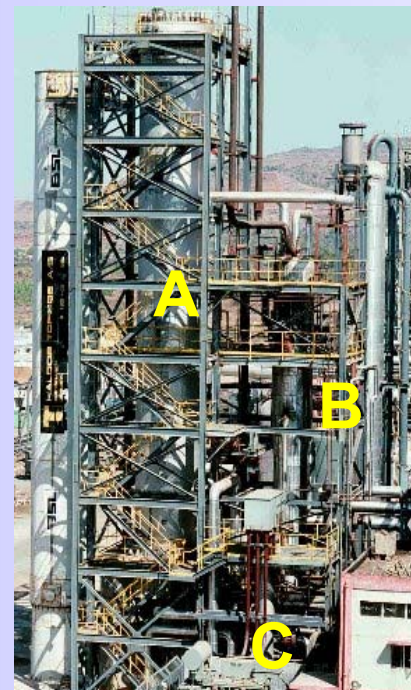


1. Hydrogen Synthesis (Steam reforming)



- A Primary Reformer
- B Secondary Reformer
- C Reactor Tube Bank
- D Desulphurisation Unit

2. Ammonia Synthesis



- A Main Reactor
- B Cooler/condenser
- C Compressors

3. Nitric Acid Synthesis

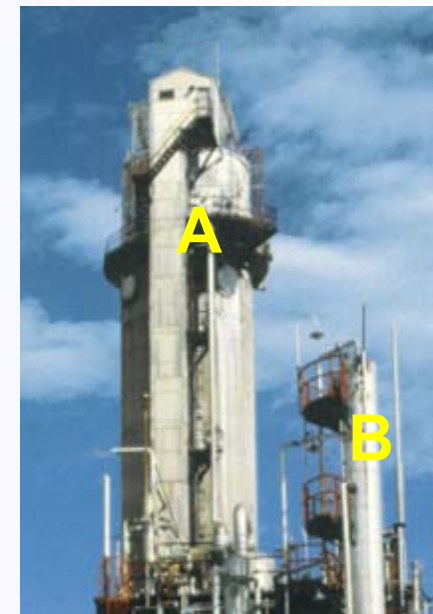


Ammonia Burner (head removed for refurbishment)



Tail Gas Expander and NOx abatement unit

4. Ammonium Nitrate Synthesis



A Prilling Tower

B Evaporator



1. Hydrogen Synthesis – Methanation (CO2 removal)

M: Hydrogen, carbon dioxide, methane

T: Med.

P: Med.

Apps: Reactor, pipework

Gaskets: Graphite technology. SWG, Flexpro, Hybrid,



2. Ammonia Synthesis

M: Hydrogen, nitrogen (air)

T: High (400 to 450 C)

P: High (150 bar)

Cat: Iron

Apps: Re-circulation reactor, condensers compressors, pipework, heat recovery (HX) tank storage.

Gaskets: Metallic, Graphite & Thermiculite. technology RTJ's, SWG, Flexpro



3. Nitric Acid Synthesis – Oxidation of nitric oxide

M: Nitric oxide, Air, Nitrogen dioxide, dinitrogen Tetroxide.

T: Low (< 38 C)

P: Low (8 bar)

Apps: Condenser, pipework, heat recovery.

Gaskets: Graphite & PTFE technology. Flexpro, SWG, soft cuts.



3. Nitric Acid Synthesis - Ammonia Oxidation.

M: Ammonia, air, nitric oxide

T: High (700 to 950 C)

P: Low (4 to 10 bar)

Cat: Platinum/Rhodium

Apps: Scrubber, burner, heat recovery (HX's), steam, catalyst recovery unit, compressor, expander, steam/gas turbines, condenser.

Gaskets: Graphite, Thermiculite, Sigma technology. 815, Flexpro, DJ's, SWG, soft cuts





SERVICES AVAILABLE

- Gasket Design Service
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- Sealing Technology- Education & Training
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GASKET APPLICATION GUIDE