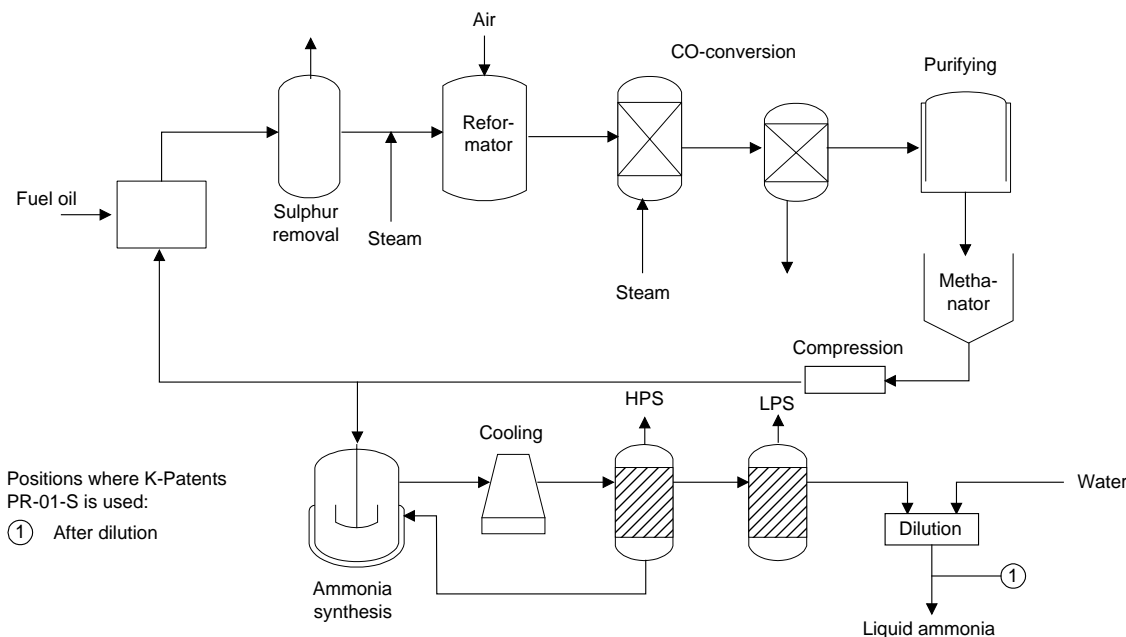


### Ammonia



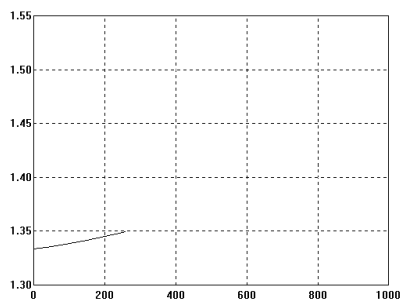
### Ammonia (NH<sub>3</sub>)

Soluble in water

Typical end products/uses

Manufacturing of nitric acid, fertilizers, explosives, resins

Chemical curve: R.I. per g/l



R.I. Ref. temp. 20°C

### Introduction

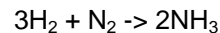
Ammonia (NH<sub>3</sub>) is a colourless gas, which can be dissolved easily in water. The concentration of ammonia in water is usually 25%. Ammonium hydroxide, NH<sub>4</sub>OH, is formed during the liquefaction.

### Application

Ammonia is mainly produced by the Haber process. The raw material is earth gas or fuel oil (nafta), which gives the hydrogen by the steam reforming process. The nitrogen is extracted from air.

The process is divided into five steps. Sulphur removal, steam reformation, CO-conversion, purifying and ammonia synthesis.

After the sulphur removal, steam is added to the raw gas to obtain CO. Then it is reacted with water in the CO-converter which gives H<sub>2</sub> and CO<sub>2</sub>. The purified hydrogen/nitrogen gas is led into the ammonia synthesis where the reaction



occurs in 300 bars (4350 psi) and 500°C (932°F).

After the ammonia reactor the gas is cooled down and liquefied in the high pressure separator (HPS). The impurities in the dissolved ammonia liquid will evaporate in the low pressure separator (LPS).

### Installation

K-Patents Process Refractometer, PR-01-S is used to measure the concentration of liquid ammonia after dilution. Final concentration of ammonia is 16-25% and the measurement temperature is ambient.