Moreover, any references to pressure are references to absolute pressure unless otherwise stated.

In the context of the present invention, the activity of a catalyst will be understood to refer to the rate of conversion of ammonia at a given partial pressure for a given amount of catalyst over a given period of time at a particular temperature and overall pressure. The units used to define the activity of a heterogeneous catalyst are mole of ammonia converted per gram of catalyst (including substrate if present) per second (or mol. g^{-1} s^{-1}).

The expression "in fluid flow communication" will be understood to mean that piping or other suitable conduits will be used to convey fluid from one specified location to another. During passage between the two locations, the fluid may flow through one or more other units which may be designed and/or arranged to alter the physical condition, *e.g.*, temperature (*e.g.*, a heat exchanger) and/or pressure (*e.g.*, a compressor or a pump) of the fluid, or the composition of the fluid through reaction of components within the fluid (*e.g.*, a catalytic reactor). The expression "in direct fluid flow communication" will be understood to mean that the fluid flows directly from the one location to the other, *i.e.*, does not flow through another such unit during its passage and hence there is essentially no change to the composition or physical condition of the fluid.

The term "super-atmospheric pressure" will be understood to mean a pressure that is significantly higher than atmospheric pressure, such as a pressure of at least 5 bar, *e.g.*, a pressure of at least 10 bar, or of at least 20 bar or of at least 30 bar. Typically, the pressure is no more than 60 bar.

The term "upstream" will be understood to mean in the opposite direction to the flow of fluid during normal operation. The term "downstream" will be interpreted accordingly.

The heated ammonia gas feed of the present invention is typically generated from liquid ammonia which may be supplied at ambient pressure from either a pipeline or, more typically, a refrigerated storage tank. Water is often added to ammonia to prevent stress corrosion cracking in the storage tanks, trucks and ships used to transport ammonia. The presence of water in the feed ammonia turns the feed into a multi-component stream, and the evaporation of the feed stream would then require a higher temperature to achieve complete evaporation.

A typical composition of the ammonia feed is shown in Table 1.

Component	**Composition**
Ammonia	99.5 – 99.8 wt%
Maximum water content	0.5 wt%