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.

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%
Minimum water content	0.2 wt%
Oil	5 ppm max
Inerts (*e.g.*, Ar)	<10 ppm
Iron	< 1 ppm

TABLE 1

Oil may be present in the ammonia due to a boil-off gas compressor used for the ammonia storage, either at the local storage tank, production location, or any other storage tank in between. The presence of oil is an issue because it presents a blockage and/or contamination risk. This may lead to malperformance in the heat exchangers or reduced catalyst activity in the reactors. Therefore, if present, the oil may need to be removed in some way. In this regard, the oil can be removed by passing the liquid ammonia through a bed of activated carbon. However, in preferred