

ABSTRACT

The invention concerns a process and apparatus for cracking ammonia in which heated ammonia gas at super-atmospheric pressure is partially cracked in at least two adiabatic reactors in series with interstage heating in which the feed temperature to a first reactor is higher than the feed temperature to a further reactor to produce a partially cracked ammonia gas which is then fed to catalyst-containing reactor tubes in a furnace to produce a cracked gas comprising hydrogen gas, nitrogen gas and residual ammonia gas. The use of the adiabatic reactors enables more efficient heat integration within the process and the higher temperature in the first reactor enables the use of a nickel-based catalyst in that reactor as an alternative solution to the potential problem of the presence of oil in the ammonia.

(Abstract to be published with Fig. 1)