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Navigation Thursday, September 18, 2017 Affects solids (rock or foam) are a lot softer than lignite and require additional cleaning and wear resistance. Hence, natural gas is utilized to transform nitrogen into ammonia as an alternative than urea (natural gas is a mixture of nitrogen, helium, oxygen, and carbon dioxide and contains 5 to 30% nitrogen), which in turn is then utilized as fertilizer. During the process of nitrogen conversion the gases are cooled to a very low temperature so that the ammonia becomes solid. Thus, the solid can be used to supply ammonia for agriculture. The greenhouse is quite different from the one of an annealing furnace, because it is maintained under vacuum. The ammonia acts like a solvent, helping the drying process to be faster. To accelerate the drying time, the surface of the product is sprayed with a thin film of water. It is essential to have a process of stripping, if solidified ammonia is to be used. There are two techniques of stripping: - In a strip dryer the ammonia is separated from the residual gases by heating the latter to a temperature of 110-160 °C. - A strip cooler operates at a temperature of 85-90 °C. The solids are discharged from the process by magnetic separator. A process is therefore ready for transportation by truck. Preparation of ammonia Ammonia is a gaseous substance that can be transported at a high temperature. The main component of ammonia is nitrogen and has an odor like aqueous ammonia. It is a colorless, pungent liquid of a slightly sweet odor. The process of manufacture is based on the thermochemical (Alchemy) reaction between nitrogen and hydrogen. The high temperature is needed for the destruction of the nonvolatile components of urea, which include nitrogen and carbon dioxide. The reaction may be expressed as follows: Calcium carbide (CaC₂) + urea (CH₂COONH₄) → calcium ureate (Ca(NH₂)CO₃) + 2 CO₂ + H₂ The reaction is thermodynamically favorable and there is no need to start the reaction with a catalytic agent. A catalytic agent may be included to speed up the reaction. The carbon dioxide is expelled as a gas, while the calcium ureate is in the form 2d92ce491b