

07.Manufacturing of urea

Urea: $\text{CO}(\text{NH}_2)_2$ (42 to 46% N)

The main principle involved in the process of manufacture is combining pure ammonia with pure CO_2 and removing one molecule of H_2O from the resulting NH_4CO_3 to form Urea. The CO_2 and NH_3 are allowed to react in the liquid phase under greatly elevated pressure and temperature and this process requires highly specialized equipment. The CO_2 and NH_3 are compressed and heated as they enter the converter where urea is formed. A large excess of NH_3 is used in order to increase the conversion rate. The un reacted NH_3 and CO_2 are removed by means of an evaporator still and are then recycled. The urea solution is pumped to the crystallizer where cooling and crystallization take place. The urea crystals are centrifuged and dried.

FLOW CHART FOR UREA MANUFACTURE

