

The invention relates to a method and apparatus for the production of carbamide from ammonia and carbon dioxide. The method of the carbamide production includes interaction of ammonia and carbon dioxide in the synthesis reactor at the elevated temperature and pressure with the reaction mixture formation, which contains carbamide, ammonium carbamate and free ammonia in the aqueous solution. The flow of the initial carbon dioxide is divided into two parts, one of which is forwarded into the stripper, and other part is used as technological flow for the gas flow injection from the stripper into the tube condenser.

The apparatus for the carbamide production comprises a synthesis reactor, a stripper for the partial decomposition of ammonium carbamate and partial separation of free ammonia in the initial carbon dioxide flow, a tube condenser for mixing of gas flow from the stripper with initial liquid ammonia and its partial absorption-condensation, a scrubber for removal of ammonia and carbon dioxide from gas flows from the synthesis reactor and tube condenser.

The apparatus also comprises devices for supplying the initial carbon dioxide and liquid flow from the reactor into the stripper, initial ammonia and gas flow from the stripper into the lower part of the tube condenser, aerosol flow from the tube condenser into the reactor, aerosol flow from the stripper into the apparatuses for performing the processes of the further ammonium carbamate decomposition and carbamide separation, gas flow from the synthesis reactor into the scrubber, the devices for the gas flow injection from the stripper into the tube condenser by means of the part of the initial carbon dioxide flow.

A method for the modernization of the apparatus for the carbamide production consists in the introduction of devices for the gas flow injection from the stripper into the tube condenser by means of the part of the initial carbon dioxide flow. The technical result of the invention is in the increase of the conversion level of initial reagents into carbamide and the reduction of the recycling level of the unconverted reagents.