Potash fertilizers are used in combination with nitrogen and phosphorus fertilizers. There are chloride and chloride free potash fertilizers:

- potassium chloride (*KCl*) (up to 60% K_2O);
- cainite (or kainit) (*KCl·MgSO4*) (up to 10% K_2O);
- silvinite (*KCl·NaCl*) (22-25% K_2O);
- carnalite ($KCl·MgCl_2·6H_2O$) (up to 17% K_2O);
- potassium nitrate (KNO_3);
- potassium-magnesia ($K_2SO_4·MgSO_4$) (up to 30% K_2O);
- K_2SO_4 (up to 47% K_2O).

The main methods for producing KCl are *flotation* (mark F) and *gallurgy* (selective dissolution and separate crystallization method) (mark K).

Gallurgical preparation of *KCl* is carried out at T_{lye} =105-115°C by vacuum crystallization.

Nitrogen fertilizers are used in the form of:

- *Ammonia fertilizers*: ammonium sulfate, ammonium chloride, ammonium bicarbonate, liquid ammonia fertilizers.
- *Ammonium-nitrate fertilizers*: ammonium nitrate, lime nitrate (ammonium sulfonitrate, leina-nitrate, montan-nitrate, ammonium nitrosulfate).
- *Nitrate fertilizers* - sodium saltpeter (sodium nitrate, the chilean saltpeter), calcic saltpeter (calcium nitrate, nitrate calcium, limy saltpeter, the Norwegian saltpeter), potash saltpeter (potassium nitrate, nitrate potassium).
- Amide fertilizers - urea (carbamide), calcium cyanamide, urea-formaldehyde fertilizers.

The technological process for the production of ammonium nitrate is carried out at T = 220° C, for 60 minutes, with a ratio of $NH_3:CO_2 = 2:1$.

The process consists of several stages:

- neutralization of nitric acid with ammonia;
- evaporation of ammonium nitrate from the solution;
- crystallization and subsequent granulation of melt;
- cooling;
- classification by size;
- dusting the product at the exit.

The production of urea is based on the interaction of ammonia with carbon monoxide (IV), followed by distillation of the synthesis products and processing of the resulting solutions. In the synthesis of urea, two reversible reactions proceed sequentially:

Ammonium carbamide formation:

$$2NH_3+CO_2 \leftrightarrow CO(NH_2)(ONH_4) - \Delta H, \text{ where: } \Delta H\text{-}125.6\ kJ \quad (1).$$

Further, the dehydration of ammonium carbamate to urea:

$$CO(NH_2)(ONH_4) \leftrightarrow CO(NH_2)_2+H_2O + \Delta H, \text{ where: } \Delta H=15.5\ kJ \quad (2).$$

The synthesis process is described by the summary equation:

$$2NH_3+CO_2=CO(NH_2)_2+H_2O - \Delta H, \text{ where: } \Delta H=110.1\ kJ$$