

THE PROBLEM OF CHLOROPICRINE NEUTRALIZATION IN LATVIA

Ēriks Pālītis, Anatolijs Fedorovs, Anatolijs Jemeljanovs
Riga Technical University
PARACELS Ltd.

Chloropicrine has remained in Latvia in quantities in the storages of the former Soviet Army bases and the problem of the substance neutralization becomes especially actual now. Some methods of chloropicrine neutralization [1, 2] or utilization [3] described in literature were not convenient or economically based.

The reaction of chloropicrine with sodium or potassium hydroxide takes place with the noticeable rate only at a heat or in alcohol solution [1, 2].

The synthesis of tetramethyl or tetraethyl ortocarbonates using chloropicrine needs alkaline metals alcoholates and also complicated chemical devices for a chemical reaction, a control, a distillation, etc. [3].

On the base of the neutralization method [1, 2] we elaborated the convenient technology for the neutralization of chloropicrine for the quantity up to several hundreds kilograms.



The reaction of chloropicrine and dry NaOH or KOH takes place without external heating, only using the heat of the reaction. The used solvents of the reaction were methanol, ethanol or isopropanol. Preparation of sodium or potassium hydroxide solution in alcohol before the reaction is not necessary. The reaction has an induction period (15-60 min), so rather fast addition of the component can cause the overheat of the reaction. The reaction mainly completes in two hours after the addition of the last portion of chloropicrine. After 16-24 h no presence of chloropicrine in the reactor has been detected. The products of the reaction are not toxic. It is easy to regenerate the solvent by a filtration. The method is possible to use in "field conditions".

Literature:

1. Beilstein, Vierte Auflage, Zweites ergaenzungswerk, 1956. – 1, 76.
2. Краткая химическая энциклопедия. Т. 5, с. 724-725.
3. Л.Физер, М.Физер. Реагенты для органического синтеза. Т. 3, перевод с англ., Москва, Мир, 1970. – С. 40.