

Development of the method of liquid-phase synthesis vinyl chloride dichloroethane dehydrochlorination

© Rustem R. Daminev,¹ Radik N. Asfandiyarov,² Lilia R. Asfandiyarova,^{1*}
and Guzel V. Yunusova¹

¹Branch of Ufa State Petroleum Technological University in Sterlitamak.
October St., 2. Sterlitamak, 453118. Russia.

²JSC “Bashkir Soda Company”. Tekhnicheskaya St., 32. Sterlitamak. Republic of Bashkortostan. Russia.
Phone: +7 (3473) 24-25-12, +7 (9649) 64-26-06. E-mail: asfand_lilya@mail.ru

*Supervising author; ⁺Corresponding author

Keywords: ethylene dichloride, vinyl chloride, synthesis, technology, dehydrochlorination, alkyltin, electrochemistry.

Abstract

We have established the possibility of the synthesis of vinyl chloride by the reaction of 1,2-dichloroethane (DCE) with a quaternary ammonium alkoxides; conducted a series of experiments on the synthesis of vinyl chloride by liquid phase dehydrochlorination of DCE quaternary ammonium alkoxides derived electrochemically from alcoholic solutions of quaternary ammonium salts. The main factors affecting the results of the synthesis of vinyl chloride, are temperature, duration of the process and the concentration of alcohol solution, quaternary ammonium alkoxide. It is found that vinyl chloride is released at 0 °C in a yield of 85-90%, with an increase in temperature, an increase yield of vinyl chloride and at a temperature of 20 °C was 98.0-99.7%. Raising the temperature above 250 °C leads to intensive foaming, as a result of the entrainment of the liquid reaction zone and its accumulation in the receiver BX to collect. Isolation of vinyl chloride in a dehydrochlorination reaction occurs fairly quickly, so the determining factor for the output time of dosing is DCE. In the course of the experiments it was found that as dehydrochlorinated agents may use different quaternary ammonium alkoxides, it is therefore of interest to explore the possibility of using alkoxide synthesized from waste products of allyl chloride in the synthesis of VC.