

**PRODUCTION BY DISTILLATION OF ACETONE CYANHYDRIN AND
METHOD FOR PRODUCING METHACRYLIC ESTER AND SUBSEQUENT
PRODUCTS**

ABSTRACT

The invention generally relates to a method for producing acetone cyanhydrin, comprising the following steps: A.) contacting acetone and hydrocyanic acid in a reactor to give a reaction mixture, said reaction mixture being circulated and acetone cyanhydrin being obtained; B.) cooling at least part of the reaction mixture; C.) separating off at least part of the produced acetone cyanhydrin from the reactor; D.) continuous distillation of the separated-off acetone cyanhydrin product while obtaining an acetone cyanhydrin bottom product and an acetone overhead product in a distillation column; E.) returning at least part of the acetone overhead product to step A, the acetone overhead product being kept at less than 60°C during return. The invention also relates to a method for producing a methacrylic alkyl ester, to a method for producing methacrylic acid, to a device for producing methacrylic alkyl esters, to a method for producing polymers that are at least partially based on methacrylic alkyl esters, to the use of the methacrylic alkyl esters obtainable by the method according to the invention in chemical products, and to chemical products that are based on the methacrylic alkyl esters obtainable by the methods according to the invention.