

ABSTRACT

Diploma thesis

Employment of gas chromatography in the field of drug analysis III.

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The gas chromatography represents a sensitive analytic method. Effective and fast separation of complicated compounds and manipulation with small amounts of samples using a relatively simple equipment characterise the GC method in particular.

Butan-1,3-diol is a substance used in chemical industry as a solvent and a carrier of aromatic substances, or for plastics and explosives production. It is added to antifreeze mixtures in radiators. Another usage possibility constitute cosmetic products, the substance also occurs in pesticides. Because of its antimicrobial effects, butan-1,3-diol is added to cleansing articles. It extends the effect of certain syringe articles and increases the effect of dissolved effective substances. This method was used in this diploma thesis to determine the volume of butan-1,3-diol and the method was validated.

The work was realized with gas chromatograph Shimadzu GC-2010 with flame-ionization detector. Hydrogen was chosen as the carrier gas. Supelcowax TM-10, Fused silica capillary column, 30 m × 0,53 mm × 0,5 μm was used. The inner standard method was used for volume determination of butan-1,3-diol. Propylenglycol was chosen as an inner standard for its similar retentive properties and substance characteristics as butan-1,3-diol. Validation was accomplished by checking specificity, accuracy, linearity, intermediate precision and robustness. In terms of robustness,

chromatographic conditions were changed (e.g. the initial and final temperatures, the rate of flow and the rate of gradient rise) and the sample stability was verified.