near the surface layers of the polymeric material. Actually, DOP is present in the water extracts in the form of an unstable emulsion which can be easily detected with the aid of an optical microscope. After water boiling ceases the emulsion is broken in a few minutes through coagulation of the plasticizer droplets which then settle on the surface of the polymeric material and DOP in water can now be detected only in trace amounts (≤0.1 mg/liter).

Thus, this work has shown the feasibility of using PVC plastics of various formulations containing DOP as plasticizer for the manufacturing of products destined for medical use and sterilized with steam under pressure. Quantitative relationships were obtained for the transparency changes in the autoclaving process allowing a prediction of the optical properties of the finished products.

The mechanism of the DOP migration from PVC plastics into the surrounding water was explained; and the absence of a significant contamination of the CBS contents was shown.

LITERATURE CITED

STUDY OF THE SOLVENT REGENERATION PROCESS FROM THE ACETONE—BUTYL ACETATE WASTES IN THE PRODUCTION OF SOME SEMISYNTHETIC PENICILLINS

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Devising production methods creating little waste or no waste at all in order to protect the environment from contamination and, at the same time, effect savings in the raw materials necessitates devising methods for rational waste utilization. Solution of this problem is partly connected with the regeneration of the organic solvents from the wastes in the production of the new semisynthetic penicillins whose output is to be significantly increased in the years to come.

The object of this study was the development of a rational technological scheme for the solvent regeneration from the acetone—butyl acetate wastes in the production of some semisynthetic penicillins. The wastes has the following basic composition: acetone (18-24%), butylacetate (68-72%), butanol (3-6%), 2-ethylcapronic acid (ECA, 0.5~3%), water (1-3%), antibiotic (about 1%), traces of 6-aminopenicillanic acid, tar, and other admixtures of unknown nature.

The composition of the examined mixture was analyzed quantitatively using a gas chromatograph with catherometer detector and a stainless steel column of 3 m length and 3 mm internal diameter. The stationary phase was 10% polyethylene glycol of a molecular mass 400 (PEG-400) on chromosorb A-AW; column thermostat temperature was 90°C; temperature of the sample inlet was 150°C; catherometer power was 120 mA; flow rate of the carrier gas (helium) was 40 ml/min. Linearity of the detector signal was maintained in the concentration range of 1-100% for each component of the mixture. The chromatographic conditions were selected in such a manner that the antibiotics and their decomposition products remain nonvolatile thus avoiding the distortion of the analytical results. Quantitative estimations were carried out using the internal normalization method.
Fig. 1. Sorption kinetics of the contaminants with various adsorbents. 1, 2, 5) Sorption on anion exchangers in OH form, 3, 4) sorption on acidic and alkaline activated charcoal, $V_{an}/V_{cm} = 0.1$ (1, 2); $R_{coal}/R_{cm} = 0.2$ (3, 4); $V_{an}/V_{cm} = 1$ (5). Ordinate shows the degree of the contaminant extraction from the solution (in %).

Fig. 2. Automatic laboratory rectification apparatus (explanation in text).