

Investigation of antibacterial resistance of aliphatic quarterly ammonium salts in polyurethane dispersions

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Abstract

In this work we investigated the possibility of using different structures of biocides to detect the stability of dispersion and the antibacterial properties of polyurethane water-dispersion coatings to combat the negative impact on materials, bio-damage, which can affect the quality of the human environment. This allows the use of polyurethane aqueous dispersions, where the constancy of aseptic conditions of quality is combined with good properties of polyurethane coatings. The oasheaters have been used in the first year of the 19th century to reduce the number of people. Coatings used dispebrsionnye water-based polyurethane dispebrsii complex poliefrov different structure (polietilenglikoladipinat, polietilenbutilenglikoladipinat, and polibutilenglikoladipinat polidietilenglikoladipinat) 2,4-diisocyanate, ionic agent and chain extenders, at a concentration of dry matter of 20-50% by weight. One of the most commonly used methods for determining the activity of antimicrobial agents is the method of diffusion of substances into agar. Evaluation of the activity of antimicrobial agents by this method is carried out according to the diameter of the zone of inhibition of growth of microorganisms (*Escherichia Colli* and *Bacillus subtilis*) on the surface of the substrate. As a result of the research, it was revealed that the actions of the used antimicrobial agents can be arranged in the following order: alkyltrimethylammonium chloride > didecyldimethylammonium chloride > dialkyldimethylammonium chloride. Maximum concentrations of biocides were found at which polyurethane dispersions are stable and do not coagulate: for quaternary amine compounds with one alkyl, the maximum permissible concentration is 10%, with dialkyl the maximum permissible concentration is 7.5%, with trialkyl the maximum permissible concentration is 3%. The increase in the diameter of the suppression of the growth of microorganisms is also influenced by the concentration of the polyurethane dispersion, which makes it possible to introduce antibacterial compounds much more.

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