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PRODUCTION OF ACTIVATED CHARCOAL SAMPLER TUBES FOR SAMPLING AIR CONTAMINANTS

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Abstract:

The importance of the use of activated charcoal tubes for sampling gases and vapors is very well-known. For producing these tubes in the country, their production started in the laboratory of the department of occupational health using activated charcoal, polyurethane foam and glass wool and consequently two types of foamed and foamless tubes were produced. To investigate the quality of the raw materials used, 186 tubes were exposed to various proportions of solutions of different volumes of known percentages of four compounds of benzene, toluene, O-xylene and P-xylene. The adsorption of various parts of sampler tubes was done by a chemical method using CS₂ and the final analysis was done by gas chromatography. The results obtained show that the amount of the above named compounds adsorbed by glass wool and foam in comparison to the activated charcoal isn't significant (respectively $P < 0.001$ & $P, 0.05$). Also the experiments don't show any significant differences between the total amount of adsorbed chemicals by charcoal in the back-up layer and the sample layer of the foamed tube and the amount adsorbed in the foamless tube, when treated with various compounds ($P, 0.001$). Considering the equal adsorption of both types of tubes and the advantage of foamed tubes in controlling the time duration and the flow rate of sampling, the foamed type was recommended for production and use.

Keywords:

Polyurethane foam . Air contaminates

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