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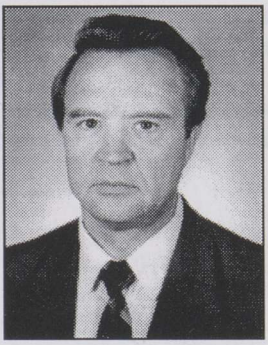
EDITOR'S PAGE

PROBLEMS IN PURIFICATION OF OIL SHALE BASIN WASTEWATERS



This special issue offers papers submitted to an international meeting on possibilities of purification and analysis of wastewaters in Kohtla-Järve region.

The results of researches are quite novel and dealing with a most live issue: pollution of water bodies (and even of subsoil waters) and purification of any kind of wastewaters are burning questions not only in Ida-Virumaa (Estonian Republic) but in several other industrial regions of the world.

Ida-Virumaa needs special measures for removing phenolic pollution resulting from specific features of kukersite thermal destruction.

Phenolic compounds represent ubiquitous substances arising during various natural processes and thermal treatment of fuels. They are characterized by high biological activity (up to carcinogenic properties of some phenols), and on several cases the dependence between this activity and their structure has been demonstrated.

Phenolics liberated by human activities are taken up in the natural processes of circulation. Continuously growing anthropogenic phenolic load exceeding the tolerance of local biocenozis brings about a threatening expansion of environmental pollution. It is clear, therefore, that any studies enabling to broaden our knowledge and to work out new effective purification methods or to improve essentially the efficiency of purification units in operation need every support.

Examination of the history of thermal treatment of Estonian kukersite shows that environmental pollution has become an especially urging topic during the recent decades and there are different reasons for the growing interest in the research in this field.

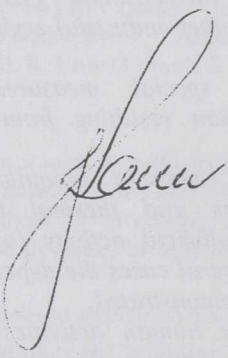
First of all, we have to bear in mind that in the former U.S.S.R. the priority was given to the development of industry ignoring the problems of environmental pollution and hence investing not nearly enough to protect the nature. In our oil shale basin harmful substances were emitted solely into atmosphere by thousands of tons daily.

One cannot say that Estonian public has not been informed about problems arisen from air pollution caused by oil shale mining and processing enterprises. Already in 1938, O. Tooming published a paper "Bitter contrasts of smoky Kiviõli. Living conditions of workers, and rising gigantic factories." ("Week in Pictures", 1938, No. 18. P. 432-433, 435).

The reduction and liquidation of phenolic pollution load represents a most serious scientific and technical problems. Besides other common methods, microbiological detoxification methods deserve a continuous attention. We know that quite a number of microorganisms like Pseudomonas, Trichosporon cutaneum, Candida tropicalis etc. are able to metabolize phenols. Numerous individual enzymes and enzymatic complexes participating in biological oxidation of phenolics have been identified.

Tremendous development of genetic engineering has opened new horizons in many fields. There is every reason to expect that application of these methods would supply environmentalists with new transgenic microorganisms able to purify polluted soil and water, and to avoid future pollution of the environment.

The results of research work published in this issue will certainly offer valuable information to all who work in the field themselves or are interested in preventing pollution of the environment.



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