

## **Reclamation and biological management of coal mining wastes taking into special consideration central heaps**

### **Summary**

Mining wastes make up the considerable percentage of the total number of industrial wastes produced in Poland. In the Silesian province, this number exceeds 80%. Coal mining wastes are located on heaps and are the subject of biological reclamation by sodding, tree planting and afforesting. Coal wastes are well examined since their investigation was initiated by the Polish Academy of Sciences in 1954 and finished in years 1980–1985. The study included the petrography, mineralogy, chemical and grain composition of Carboniferous rocks following the stratigraphic units, i.e. from libiąskie- to jakłowieckie- and porębskie-formations. The pH value, buffer-properties, salinity and composition of mineral salts, absorbing capacity, nutrient and heavy metal content were also determined. A special attention was paid to the forms of nitrogen and phosphorus occurring in wastes, and to the role of the weathering processes in activation of these nutrient components. In this study the role of sulphides in the weathering processes as well as influence of acidification on biological reclamation was examined in detail. In central heaps “Przezchlebie”, “Smolnica” and “Brzezinka” 40 species of trees and bushes (10 maples, poplars and various grass species) were tested.

The collected data were used to draw up the directives for biological reclamation of mining wastes. The selection of grass mixture, trees and bush species for different stages of reclamation process was of great importance. Another significant task for this kind of reclamation was to work out a fertilization system in dependence on the physico-chemical properties of the ground.