

SUMMARIES

Marian Mazur, Robert Oleniacz, Marek Bogacki, Przemysław Szczygłowski: **Air Pollutant Emissions from the Graphite Process of Coal Electrodes in the LWG (Castner) Stoves. Part 1. Selected Gaseous Substances** • Inżynieria Środowiska 2005, t. 10, z. 2

In the paper the results of measurements of quantity pollutants originated and emitted to air from resistor stoves of type LWG (Castner) were introduced. The investigation was carried out during graphite process of coal electrodes, until moment of end of ventilation the stove across applied installations of cleaning of cool gases (catalytic burning and the wet desulphurization). The measurement results of CO, CO₂, HC+H₂, SO₂, H₂S, CS₂, NO, NO₂, NH₃ as well as chosen hydrocarbons (C₁-C₆) and aromatic hydrocarbons (BTX) were presented. In result of conducted investigations was qualified courses of changeability of concentrations in gases these substances before and for the cleaning system. The effectiveness of the substance removing from exhaust gases was estimated as well as range of occurrence of their maximum release. The additional investigations of catalytic burning showed, that this process causes the formation of the additional quantities of benzene.

Edeltrauda Helios-Rybicka, Magdalena Kuźniakowska, Agnieszka Gruszecka: **Chromium Pollution in the Roznowskie Lake** • Inżynieria Środowiska 2005, t. 10, z. 2

Roznowskie Lake is the reservoir of the accumulative contaminants, which are dumped into the waters of Dunajec and Poprad River. The aim of the researches was to define the level of contamination with chromium sediments and water in the Roznowskie Lake. This element was chosen for investigation, due to great spread of tannery works on this area of the river basin, that can be the source of the chromium. From the whole area of the lake it was taken

42 bottom sediment samples and 42 water samples with the suspended matter. Laboratory analyses showed, that there is very low concentration of the chromium in water and also in bottom sediments and suspended matter. Comparing the results with actual (valid) Polish Law connected with (related to) drinking waters, it can be said that with contamination of Cr, waters from Roznowskie Lake, belong to first class of cleanness. Sediments output by the processes of desludging of the water reservoirs, can be used for recultivation of soils, while the concentration of the Cr in none of the sediment samples overpass the permissible level of 200 mg/kg dry mass. Polish Legal Acts do not take under consideration defining the contamination level of pollutants in the suspended matter. According to German LAWA classification, constituents of the Roznowskie Lake with contamination of Cr, belong to the first class of cleanness (non polluted).

Dorota Przewoźnik, Katarzyna Grzesik: **Waste Oils Management System in Podkarpacki Region** • Inżynieria Środowiska 2005, t. 10, z. 2

The current situation in waste oil management system in Podkarpacki region was presented in the article. The volume of produced waste oils along with perspective future figures till the year 2014 were taken into account. The collection system of waste oils as well as the technology of oil recycling were described in detail. Consortium of Waste Oils is one of the most resiliently functioning Polish organizations in respect of a collection and recycling of used oils. This organization was established on the basis of Jedlicze Refinery (Podkarpacki region). The Consortium elaborated a concept of nationwide integrated network of collection and recycling of waste oils. This concept assumes a co-operation with local authorities. A collection of oils from dispersed and small sources can be implemented on the level of gmina (lowest level of local authority in Poland) in so-called Hazardous Waste Collection Points. Oil Refinery in Jedlicze operates an installation designed for initial refining and distilling waste oils. Collected oils are subject of refining through decantation process followed by distilling. Re-refining process is the next step of oil recycling. A modern process of waste oils recycling, complying with obligatory procedures of waste treatment is applied in Jedlicze Refinery. Recycling of waste oils results in many benefits – ecological, energetic, economic and fuel ones.

Stanisław Kowalik, Jerzy Wójcik: **Symptoms of the Development of Soil-Making Process under Young Reclamation Forestations on the Floor of the Old Working of the Sand Mine „Szczakowa”** • Inżynieria Środowiska 2005, t. 10, z. 2

On the reclaimed floor of the old working of the Sand Mine „Szczakowa” the studies on chemical properties of soils under 10 years old larch (*Larix europaea*) and pine (*Pinus silvestris*) forest were carried out. Similar symptoms of the differentiation of the morphological picture of both initial soils (made of loose sand) were detected. Both under larch and pine about 1-cm thick layer of overburden humus were found as well as a very weakly marked initial humus level. Close to surface mineral layer (0–10 cm) of both soils were characterized with much higher than other content of organic C and N total. To the depth of 30 cm also big acidification of ground was found, compared to the initial state and at present, compared to deeper layers. Both soils are characterized by very low content of nutrients, small capacity of sorption complex, with a low degree of saturation with alkali. Despite very unfavourable properties of ground both larch and pine have high growth rate, which indicates a significant role of shallowly situated (0.7–0.9 m) layer of ground water.

Przemysław Szczygłowski, Marian Mazur: **Application Calmet/Calpuff Model to Calculating Pollutant Concentration from High Point Sources** • Inżynieria Środowiska 2005, t. 10, z. 2

The presented research material is the attempt of application Calmet/Calpuff model to calculating pollutant concentration from high point sources. In the paper Gauss puff model was generally described. There was also calculated dispersion of air pollutant (SO₂) in atmosphere from source with constant and variable emissions.

Natalia Florencka, Maria Chmiel: **Influence of Soil Contamination by Mercury Compounds on Microbial Activity** • Inżynieria Środowiska 2005, t. 10, z. 2

Presented paper concern studies on influence of soil contamination by mercury compounds (HgCl₂, HgO, Hg(NO₃)₂) in five different doses (0,1; 0,5; 1,0; 5,0; 10,0 mg/kg) on number of vegetative and resting stages of mesophilic bacteria, *Azotobacter* genus, the number of *Actinomyces* and microfungi. The results of laboratory investigations displayed the mean reduction of vegetative stages of mesophilic bacteria on sites with mercury oxide (HgO) already in lowest dose – 0,1 mg/kg and the *Actinomyces* number on sites with doses over 0,5 mg/kg Hg(NO₃)₂. HgCl₂ (corrosive sublimate) was the most toxic compound to *Azotobacter* sp. Filamentous fungi were the most resistant group of soil microorganisms.

Marcin Chodak: **Application of Near Infrared Spectroscopy to Determine Contents of C, N, S, P and Metal Cations in Forest Floors** • Inżynieria Środowiska 2005, t. 10, z. 2

Fast and cost-effective analytical methods may be required in landscape-scaled soil research. The objective of this study was to assess the usefulness of near infrared spectroscopy (NIRS) to measure total contents of C, N, P, S, Na, K, Ca, Mg, Mn, Fe, Al, Zn, Cu, Cd and Pb in organic layers of forest soils. The forest floor samples ($n = 158$) were analysed for contents of the considered elements using standard methods. The spectra were recorded in Vis-Nir region (400–2500 nm). A half of the sample population was used to develop calibration equations and a second half was used for validation. NIRS predicted well the contents of C, N, S, Na, K, Fe, Al and Pb – the regression coefficients a of a linear regression (measured against predicted values) ranged from 0.89 to 1.05 and the correlation coefficients r from 0.88 to 0.97. The contents of Ca, Cu and Cd were predicted satisfactorily ($r = 0.81$ – 0.85 ; $a = 1.09$ – 1.13). NIRS failed to predict the contents of P, Mg and Zn ($r = 0.69$ – 0.78 ; $a = 0.67$ – 1.19). This failure was probably due to restricted number of samples used for calibration (P) or due to the presence of the samples from limed forest stands. The presented results indicate usefulness of NIRS to measure contents of several elements in forest floors in landscape-scaled monitoring.