

plot was used. The juices of 10 plants were examined. The pH of the juices was determined using the NOVA 5000 electronic chemistry biological laboratory.

In a sociological survey, in order to find out whether the students of the gymnasium are facing this problem at home (88.9% – yes), whether the scum and corrosion fighting costs the family budget a lot (55% – yes, it's expensive), whether the students are familiar with the possibility of using plants in fighting the scale and corrosion (47% are not), whether nontraditional ways of dealing with the scale and corrosion are used in the students' families (40% – yes, but not regularly, 27% – yes) and what non-chemical means of dealing with the scale are used more often in gymnasium students' families (45% – boiling with lemon acid, 34% – a metal brush), 650 people (students of the 5th – 11th gymnasium classes) took part.

The anticorrosive properties of the juices of selected plants were evaluated by examining their ability to slow the corrosion of steel and iron (wire and nails). To conduct the experiment, 50 ml of juice were poured into a beaker with a capacity of 150 ml, 50 ml of distilled water were added and steel and iron samples were placed in it (in different beakers). The time of the experiment was 7 days. Controls were flasks with distilled water, a widely advertised means of metal corrosion control- Coca-Cola and anticorrosive means AC-4722 rust converter with active crystalline hydrates, Antiruster series (50 ml of distilled water were also added to all control samples).

The antiscaling properties of the juices of selected plants were studied in the process of boiling. 100 ml of juice were poured into a kettle with scum, 400 ml of distilled water were added and boiled for 5 minutes. The control was the descaling agent "Anti-Nakipin" and lemon acid (as according to the opinion poll it is used in 45% of the families of the respondents).

We tested the possibility and efficiency of using plant juices for purification of silverware and came to a conclusion that this is not effective. The juice of any of the selected plants did not give a noticeable result.

Analysis of the pH of the juice of the plants tested showed that the highest acidity is found in Yellow dock (2.942), Geranium lemon (3.203), (3.276) Peat moss and Kalanchoe Daigremont (3.284), and the lowest pH in the Waybread juice (5,984). Having obtained such data, we assumed that plants with a higher pH would better protect metal against corrosion and cope with the scale. Regarding the protection against scale, our assumptions have been confirmed, since the Yellow dock juice and Geranium lemon juice cope with the scum in the kettle not worse than the lemon acid. Slightly less is the effect when using the Peat moss juice and Kalanchoe Daigremont juice. The application of the juice of the remaining plants did not give a positive result.

The use of plant juices to deal with the corrosion of metal products was not effective. Perhaps, the time allotted for the experiment was not enough, or the juice used should be more concentrated.

So the working hypothesis put forward by us was partially confirmed. Expecting the economic effect of using plant juices in comparison with traditional means, we relied on the prices of the store "Euroopt" and the data of the sociological survey (questions № 2 and № 5). Practically, by checking the possibility of using plant juices to control the scale and corrosion of metal objects (rubbing, soaking, boiling) and analyzing the data obtained, we made recommendations on the most effective of them.

ANALYSIS OF ENVIRONMENTAL ASPECTS AT THE OJSC "GOMEL PLANT OF CASTING AND NORMALS»

A. Paulovich, C. Mukina

Belarusian state University, ISEI BSU,

Minsk, Republic of Belarus

arseniy0709pavlovich@mail.ru

Gomel plant of casting and normals is located in the city limits and borders from the North – West with the village of Krasny Bogatyr, from the East-with the village of Nizhnyaya Brilevo and the microdistrict of Gomselmash, from the South – with the village Milcha. In accordance with the sanitary classification of enterprises, the plant belongs to the group of metallurgical, machine-building and Metalworking enterprises. to class 2 (foundry), to class 5-the rest of the production, for which the size of the sanitary protection zone is 500 m and 50 m, respectively, from the main sources of pollutants. There are no residential buildings in the sanitary protection zone.

Keywords: water supply, industrial waste management, gas cleaning equipment, sources of pollutant emissions, environmental activities.

The plant consists of 10 main and 10 auxiliary production units and services. The plant of molding and normals is the specialized enterprise for release of forage harvesting equipment for fodder production and animal husbandry.

The plant produces:

Reaper GSC-6, pick-up PPK-6 ,Reaper herbal KIS 02 ,KIS the pick-up-09 ,Reaper corn KIS-06 ,rotary corn harvester PKK-02 ,pick-up the PAC-035 ,Reaper herbal KPT-046 ,Reaper herbal GAC-04 ,pick-up PTF-2.2-01 ,Reaper, ICE-3,0 ,Reaper zht-f-4,2 ,pick-up PTF-2.2 ,spare parts for all manufactured products, consumer goods.

Analysis of gas cleaning equipment revealed that the company has:

64 no. 23 cyclone, wet dust collectors 29, no. 3 "aviation industry". Most of the cyclones are manufactured by the plant. Currently, 135 emission sources are equipped with dust and gas cleaning systems. A total of 119 dust and gas treatment plants are involved.

Environmental activities in the organization include the following areas:

– implementation of integrated management of environmental safety of the organization and rational use of natural resources;

– planning and organization of works on environmental protection;

– compliance with environmental requirements in the implementation of production activities;

– protection of atmospheric air, water basin;

– waste and plant management;

– development of measures for the implementation of effective resource-saving, low-waste and non-waste, safe technologies and equipment.

In accordance with the "Act of inventory of emissions of pollutants into the air" at present, 488 sources of emissions of pollutants into the air, including: – organized – 484 sources; – unorganized – 4 sources, are operating at the industrial sites of the open joint stock company "Gomel plant of casting and normals".

At the same time, 65 pollutants are emitted into the air from the existing production facilities. Currently, the industrial sites of the plant is installed and operated 151 gas-cleaning installation.

In addition, 34 grinding machines are equipped with individual dust-gas-collecting units ZIL-900M with an efficiency of cleaning polluted air from dust 99.3%.

In 2017, 25 welding stations are equipped with filters FMKS m / K 1600-OP with the effect of cleaning polluted air from dust 99.9%.

Analysis of water consumption and water disposal showed: the total amount of sewage – 1866 m³/day, including; household – 733,3 m³/day; production 1133,3 m³/day of clean – 1109,0 m³/day; storm – 913,7 m³/day.

Water recycling systems are used in the organization for cooling process equipment, as well as to save fresh water.

The company has 85 types of waste: 1 hazard class: 6 types of waste; 3 hazard classes: 33 types of waste; 4 hazard classes: 25 types of waste; non-hazardous: 21 types of waste;

Storage of production waste in the territory of the organization is carried out only in the authorized places of collecting and temporary storage of waste according to the developed "maps-schemes of places of temporary storage of waste" in the volumes established in YN 568-093.

Accumulation and storage of production waste in the territory of the organization is allowed temporarily:

– when accumulating up to the amount required for transportation by one transport unit;

– in the temporary absence of landfills;

– before determining the hazard class of waste;

– until the issue of disposal or use is resolved.

THE USE OF VOXEL PHANTOMS IN NUCLEAR MEDICINE

A. Pechnikova, A. Tumaev, N. Tushin

Belarusian State University, ISEI BSU,

Minsk, Republic of Belarus

foxaltfox@gmail.com

This article is about the prospect of using voxel phantoms in nuclear medicine. And also about the development of new types of phantoms.

Keywords: nuclear medicine, voxel phantom, the Monte Carlo method.