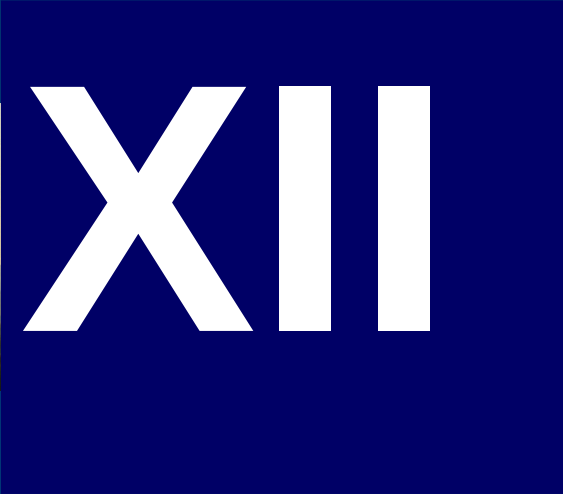


UNIVERSITY OF BELGRADE
TECHNICAL FACULTY IN BOR

PROCEEDINGS



XII

International Symposium on RECYCLING TECHNOLOGIES and SUSTAINABLE DEVELOPMENT

Editors:
Grozdana Bogdanović
Milan Trumić

Hotel Jezero, Bor Lake, Serbia
13 – 15 September 2017



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TABLE OF CONTENTS

PLENARY LECTURES	1
Zorana Naunović <i>ECONOMIC AND ENVIRONMENTAL VIABILITY OF A MUNICIPAL WASTE TO ENERGY RECOVERY SYSTEM</i>	3
Slavomír Hredzák, Marek Matik, Anton Zubrik, Michal Lovas, Katarína Štefušová, Miroslava Václavíková, Ingrid Znamenáčková, Silvia Dolinská, Oľga Šestinová <i>COMPOSITION OF LOW-GRADE NICKEL ORE LEACHING RESIDUUM IN SLOVAKIA</i>	13
Stojan Simić <i>REDUCTION OF HARMFUL EMISSIONS IN ENVIRONMENT BY OPTIMIZATION OF HEAT ENERGY CONSUMPTION IN INDUSTRY AND ENERGETICS</i>	21
SECTION LECTURE	31
Slađana Č. Alagić <i>VARIOUS ROLES OF PLANTS IN HEAVY METAL PHYTOREMEDIATION FROM POLLUTED SOILS</i>	33
PAPERS BY SECTIONS	41
Vladislav Ivanchenko and Yuri Chugunov <i>RECYCLING OF INDUSTRIAL WASTE IN THE VORTEX AIR-MINERAL FLOW - NEW TECHNOLOGY FOR THE PRODUCTION OF METALS, ORE CONCENTRATES AND BUILDING MATERIALS</i>	43
Ksenija Milicevic, Stephanie Kruse, Karoline Raulf, Bernd Friedrich <i>RECOVERY OF RARE EARTH OXIDES FROM NDFEB MAGNET GRINDING SLURRIES AND THEIR REUSE IN MOLTEN SALT ELECTROLYSIS</i>	48
Yildirim İsmail Tosun <i>RECYCLING AND CONCENTRATION OF IRON SLIME WASTES AS BY PRODUCT OF IRON WORKING FOUNDRIES AND FLY SLAG WASTE OF BLAST FURNACE</i>	51
Yidirim İsmail Tosun <i>MODELLING OF THE CAPITAL COST FOR LOW GRADE IRON ORE CONCENTRATION AND RECYCLING PLANT - ASSESMENT ON THE WASTE QUALITY OF FURNACE</i>	53
Jelena Čarapić, Miloš Čabarkapa, Vladan Milošević, Dejan Todorović, Branislav Ivošević, Sonja Milićević, Serbia <i>INFLUENCE OF THE COOLING PROCESS ON THE SLAG PROPERTIES</i>	54
Jovica Sokolović, Zoran Štirbanović, Rodoljub Stanojlović, Zoran Marković <i>ANALYSIS OF THE INDUSTRIAL RESULTS OF COPPER SLAG PROCESSING BY FLOTATION</i>	60
Zoran Štirbanović, Milica Đorđević, Novka Živadinović, Jovica Sokolović, Ivana Jovanović, Daniela Urošević <i>OPTIMIZATION OF SMELTER SLAG FLOTATION IN FLOTATION PLANT BOR</i>	67

Mira Cocić , Mihovil Logar, Viša Tasić, Snežana Dević, Saša Cocić <i>THE POSSIBILITY OF USING THE FINAL FLOTATION WASTE FOR OBTAINING THE GLASS-CERAMICS</i>	74
Yıldırım İsmail Tosun <i>RECOVERY OF HEMATITE FROM THE COAL BOILER'S BOTTOM ASH BY COLUMN FLOTATION – OPTIMUM CONCENTRATION PLANT DESIGN</i>	82
Ivana Jovanović, Slađana Krstić, Jasmina Negrojević, Sanja Petrović, Dragan Milanović <i>EFFECT OF CLASSIFIED FLY ASH ON THE SETTING TIME OF CEMENT MIXTURES</i>	83
Grozdanka Bogdanović, Dejan Antić, Maja Trumić, Milan Trumić, Velizar Stanković <i>AGITATION LEACHING OF A LOW-GRADE COPPER ORES</i>	91
Dragan S. Radulović, Milan Petrov, Maja Trumić, Milan Trumić, Grozdanka Bogdanović, Ljubiša Andrić <i>POSSIBILITY OF USING LIMESTONE FROM "GIGOVIĆI"-ULCINJ DEPOSIT AS FILLER IN VARIOUS INDUSTRY BRANCHES</i>	97
Daniela Urošević, Slađana Krstić, Vesna Krstić, Zoran Štirbanović <i>MINERALOGICAL-PETROLOGICAL ANALYSIS OF IRON ORE FROM SURFACE MINE "DUGE NJIVE", BORANJA</i>	105
Dragana Marilović, Maja Trumić, Milan Trumić, Grozdanka Bogdanović <i>INFLUENTIAL PARAMETERS ON DEINKING FLOTATION EFFICIENCY</i>	111
Ana Popović, Aleksandar Marinković, Jelena Rusmirović, Vladimir Pavićević, Bojan Janković <i>RECYCLING OF PVC WITH PLASTICIZERS OBTAINED BY CHEMICAL RECYCLING FROM PET</i>	116
Tihomir Kovačević, A. Božić, J. Rusmirović, M. Stamenović, V. Alivojvodić, N. Tomić, A. Marinković <i>POLYURETHANE PRODUCTS BASED ON POLYOLS SYNTHESIZED FROM WASTE POLY(ETHYLENE TEREPHTHALATE)</i>	121
Maja Trumić, Milan Trumić, Nevena Munćan, Dragan Radulović <i>FLOTATION SEPARATION OF THERMAL HEAT TREATED ABS AND PS PLASTICS</i>	128
Dragana V. Medić, Boban R. Spalović, Mile D. Dimitrijević, Ivan N. Đorđević, Uroš S. Stamenković <i>PRETREATMENT CATHODE MATERIAL FROM SPENT LI-ION BATTERIES</i>	135
Suzana Dragulović, Dragana Božić, Vesna Conić, Silvana Dimitrijević, Danijela Simonović, Zdenka Stanojević Šimšić, Dana Stanković <i>PRODUCTION OF SILVER – SULPHATE FOR CATALYSIS OF THE SULPHIDE MINERALS PROCESS</i>	142
Predrag Stolić, Danijela Milošević <i>IMPROVING OF E-WASTE MANAGEMENT USING DATA SCIENCE ELEMENTS</i>	147
Slavica Miletić, Dejan Bogdanović, Dragan Milanović, Vesna Conić, Zdenka Stanojević Šimšić <i>AHP ANALYSIS OF ORGANIZATIONAL CULTURE OF SUSTAINABLE BUSINESS IN MINING COMPANY</i>	154
Vladimir Pavićević, Darko Radosavljević, Ana Popović, Marina Stamenović, Vesna Alivojvodić, Aleksandra Božić <i>TECHNICAL CRITERIA FOR INFRASTRUCTURE PROJECTS – CONDITION FOR SUSTAINABLE DEVELOPMENT</i>	162
Cipriana Sava, Gheorghe Pinteală <i>ASPECTS REGARDING ENVIRONMENTAL PROTECTION AND SUSTAINABLE SPORT FISHING IN ROMANIA</i>	169

Vladimir Nikolić, Milan Trumić, Maja Trumić, Ljubiša Andrić <i>MODERN DIRECTIONS OF USING NATURAL ZEOLITES IN THE WORLD</i>	177
Miodrag Žikić, Mira Martinović, Saša Stojadinović, Jovica Sokolović, Dejan Tanikić <i>RECLAMATION OF VELIKI KRIVELJ MINE WASTE DUMP SARAKA POTOK – SUCCESSFULNESS ANALYSIS</i>	184
Slađana Č. Alagić, Mile D. Dimitrijević, Snežana B. Tošić², Maja M. Nujkić, Boban R. Spalović <i>THE POTENTIALS OF THE GRAPEVINE AND PEACH TREE FOR THE APPLICATION IN ZINC PHYTOREMEDIATION: A COMPARATIVE ANALYSIS</i>	189
Zoran Stević, Ilija Radovanović, Vojkan Nikolić, Misa Stević, Oleksandr Bondarenko <i>HIGH-FREQUENCY WOOD DRYING SYSTEM WITH HIGH ENERGY EFFICIENCY</i>	195
Žaklina Tasić, Marija Petrović Mihajlović, Ana Simonović, Milan Radovanović, Snežana Milić, Milan Antonijević <i>ANTIBIOTICS AS POTENTIAL CORROSION INHIBITORS FOR COPPER</i>	200
Ilhan Bušatlić, Šefkija Botonjić, Azra Halilović, Nadira Bušatlić, Amna Karić <i>POSITIVE EXAMPLES OF WASTEWATER TREATMENT EFFECTIVENESS IN "NATRON-HAYAT" MAGLAJ FACTORY</i>	207
G.V. Mitrofanova, V. A. Ivanova, A.V. Artemiev <i>EVALUATION OF THE POSSIBILITY OF USING PROCESS WATER FROM THE DRESSING PLANT WITHOUT SETTLING IN THE TAILINGS POND.</i>	215
Ljubiša Obradović, Jasmina Stevanović, Radmila Marković, Suzana Stanković <i>CHARACTERIZATION OF THE DRAINAGE WASTEWATER FROM DAM 1A AND 3A ON VELIKI KRIVELJ TAILING DUMP</i>	216
Vojka Gardić, Radmila Marković, Nobuyuki Masuda, Jelena Petrović, Stefan Đorđievski, Jovica Sokolović, Dragana Božić <i>SLUDGE LEACHABILITY AFTER LIME NEUTRALISATION OF ACID MINE DRAINAGE FROM SARAKA AND ROBULE LOCATIONS</i>	223
Grozđanka Bogdanović, Žaklina Tasić, Nikola Pičorušević, Andjelija Bogdanović <i>THE APPLICATION OF MEMBRANE FILTRATION PROCESSES IN WASTEWATER TREATMENT</i>	229
Ljiljana Avramović, Radojka Jonović, Radmila Marković, Atsushi Shibayama, Kazutoshi Haga, Han Baisui, Daniela Urošević <i>SEPARATION OF COPPER AND IRON USING LIX-984N BY THE SOLVENT EXTRACTION</i>	237
Milan M. Petrov, Ljubisa D. Andrić, Dragan Radulović <i>FLOTEXTRACTION OF BLUE WATER</i>	243
Milan Gorgievski, D. Božić, V. Stanković, D. Manasijević, V. Grekulović, M. Marković <i>PHYSICO-CHEMICAL CHARACTERIZATION OF THE OAT STRAW BY DTA-TGA AND SEM-EDX ANALYSIS</i>	253
Dragana Marković-Nikolić, Ljubiša Balanović, Aleksandar Bojić, Milorad Cakić, Dragan Cvetković, Goran S. Nikolić <i>STRUCTURAL AND BIOSORPTION CHARACTERISTICS OF THE CATIONIC SURFACTANT-MODIFIED LAGENARIA VULGARIS SHELL</i>	258
Dragana Z. Marković-Nikolić, Milorad D. Cakić, Aleksandar Lj. Bojić, Goran S. Nikolić <i>KINETIC AND THERMODYNAMIC STUDIES ON ORTHOPHOSPHATE BIOSORPTION USING THE QUATERNARY AMMONIUM MODIFIED LAGENARIA VULGARIS SHELL</i>	260

Ljiljana Trumbulović, Marko Pavlović, Dragan Radulović, Milan Petrov, Ljubisa Andrić <i>DANGEROUS PRODUCTS IN HOUSEHOLDS</i>	262
Ljiljana Trumbulović, Marko Pavlović, Dragan Radulović, Milan Petrov, Ljubisa Andrić <i>PHARMACEUTICAL WASTE MANAGEMENT</i>	270
AUTHOR INDEX	279



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DANGEROUS PRODUCTS IN HOUSEHOLDS

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ABSTRACT – Hazardous products, although used in accordance with instructions, can become dangerous when people forget the warning that this is a dangerous product or when they unconsciously and irresponsibly handling. The aim of this paper is to highlight the problems and lack of knowledge and awareness of the harmful effects of these products on human health and environment.

Keywords: hazardous products, human health and environment, dangerous home products.

INTRODUCTION

There are many answers and definitions, but what is certain is that dangerous product is any product which contains substances which have any of the harmful effects on people and it's environment. These harmful effects can be summed up through next characteristics: explosiveness, combustibility, irritability, toxicity, infectiousness, carcinogenicity, mutagenicity, releasing poisoned gas with chemical reaction or biological retrogression.

Almost every house contains dangerous products. They are used during maintenance of the hygiene in rooms and yards of the houses, painting, maintenance of the cars, lawns and gardens, maintenance of personal hygiene and for many other activities. If we would like to low these negative effects of all products which have dangerous substances to minimum, or protect our health and

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environment, then we would need to know how to use them right, save and hold off all these products.

DANGER THAT COMES FROM DANGEROUS HOME PRODUCTS

Dangerous products, although used according to instruction, can become dangerous when people forget about a warning that this has to do something with the dangerous products or when they are used unconsciously and irresponsible. These warnings, what appears, are not understandable enough, but the biggest problem is lacking of knowledge and consciousness of dangers which these products make on people and their environment. Because of negligence, irresponsibility and lacking of information, every year thousands of people get hurt with dangerous products. Poisoning by accident can happen if dangerous products become at the children's fingertips. Many products are volatile, and their fumes can irritate eyes, mucous membrane, respiratory tract of lungs, so, different dangerous products cause different incurable diseases, blindness, and even death.

When it is hold off immediately, actually with all other communal products, then dangerous product becomes direct threat on the health of the worker who collects it, as well as the environment. Dangerous product mixed with communal product can cause explosion or fire in vehicles for moving the waste, as well as the injuries of the employees who do the loading of dangerous products due to spraying and evaporation of the chemicals. Negative influence on the environment is also big, because of the squeezing of the dangerous chemicals from communal products in underground waterways and reservoirs which are used as a drinking water source.

Improper effusion of the dangerous products from sink, toilet bowl, drain and watercourse (streams and rivers) can pollute drinking water. One example is the effusion of used oil in drains. That kind of oil, when coming into watercourse can pollute that amount of water which is enough for one year of use by 100 people. Because of the dangers they cause, dangerous products are used in households which require special attention, or actually the right using of it and holding off. Our health and health of our members of the household as an environment are concerned, and so everyone of us has to take on responsibility for products they use.

During shopping of the products people should pay attention if there are any signs (showed on the left side) or words (showed on the right side) on the sticker which warns on any potential danger.

Marks on dangerous products:

Dangerous Poisoned - Says that the products are highly toxic, corrosion nor extremely flammable

Warning caution - Says that the product is moderately or little toxic

CATEGORIZATION OF DANGEROUS HOME PRODUCTS

There are many products which are dangerous for people and their environment. They are divided in a few categories:

- ❖ Purgatives (furniture polish, oven cleaner, sanitary cleaners, bleach, ammonia, pipeline cleaners, etc.),
- ❖ Products for improving the habitation (paints, varnish, paint thinners, glue...),
- ❖ Chemical protective agents (pesticides, insecticides, fungicides, remedies for mice and rats, means to protect pets, naphthalene, disinfectants, wood preservatives...),
- ❖ Car products (petrol, engine oil, antifreeze, windshield washer fluid, car wax and polish, brake fluid...),
- ❖ Others (batteries, cosmetics, shoe cleaners, medications, pool cleaners, thermometers...).

In order to prevent some of the dangers, we need to:

- ✓ Read carefully the labels before buying a product,
- ✓ Not completely rely on the word "non-toxic" on the sticker of the product,
- ✓ Use safe (alternative) product whenever possible,
- ✓ Avoid dangerous products during pregnancy,
- ✓ Recycle everything that could be recycled,
- ✓ Hold remnants of the dangerous product off on a safe place in their original packing,
- ✓ Avoid products that are in the form of aerosols.

Dangerous products shouldn't be left close to children and animals, shouldn't throw them or spill in drainage or yards. Also, they mustn't be burnt nor buried, and the packaging should not be used for other purposes. Different kinds of dangerous products shouldn't be mixed, except if it is not written in instruction and label that they can.

Safe storage and keeping of the products includes:

1. Keeping the products in their original packaging,
2. Typing the date of buying on products before they are put off,
3. Storage of the dangerous products on shelves, as well as checking if these shelves have firm structure and are well-nailed to the wall,
4. Putting off dangerous products on the level of the eye or beyond that level,
5. Avoiding putting off dangerous products on the floor, which helps stopping dangerous falling of the packaging,
6. Keeping the corrosive, flammable, reactive and toxic products on special shelves, if possible,
7. Periodical checking of packaging of dangerous products,
8. List of stored products,
9. Holding packaging on dry places, which helps prevent the corrosion,

In case of long term storage of the products it is necessary to: cover the sticker of the product with waterproof foil in order to prevent unsticking.

DIFFERENT KINDS AND TOXICITY OF THE MOST USED PRODUCTS

Very toxic (from 50 to 500 mg/kg)

- Aspirin and other analgesics,
- Varnish thinners,
- Toluene, xylene (aromatic hydrocarbons),
- Substance for killing moths (camphor, naphthalene), caffeine,
- Diazinon insecticides.

Moderate toxic (500 to 5000 mg/kg)

- Antifreeze,
- Liquid for dry cleaning (1,1,1 - trichloroethane),
- Motor fuel (petrol, corrosive, diesel),
- Substance for cleaning shoes,
- Home oil-based paint.

Slightly toxic (5000 to 15 000 mg/kg)

- Liquid hand dishwashing detergents,
- Glass cleaner, latex based paint,
- Soap,
- Deodorant (glass bottle),
- White glue for paper.

Practically non-toxic (more than 15 000 mg/kg)

- Modeling clay,
- Paraffin wax,
- Children's lotions,
- Lipstick,
- Bone meal.



Figure 1. Analgesics



Figure 2. Funds for cleaning

ALTERNATIVE PRODUCTS

To low the risk of operating with dangerous products in household, we should manage to use harmless materials. Here we particularly think of purgatives. These preparations, which can be found in our environment, were traditionally used by our grandmothers not knowing that they were using ecologically clean products. Overwhelmed by commercial products, the recipes for their use have been lost, as well as the habit for its using.

There are five main elements which can help as an alternative in cleaning, and which can be found in our household or be bought in a shop. These elements are soda, pure soap, white vinegar, borax and washing soda. Soda is an excellent water softener. I clean the soap breaks down in nature. It can be found in liquid, solid form or as a powder. White vinegar is good for cleaning oil stains. Borax disinfects, cleans and softens water, and washing soda removes stubborn oil stains and disinfects it. Using these elements, with a combination of some more supplements, will probably get excellent results.

DANGERS AND STRUCTURE OF SOME DANGEROUS PRODUCTS

Electronic and electrical appliances and devices

Electronic and electrical appliances and devices are a wide range of products of varied composition. They are a potential danger due to using and storage. They contain gases, usually plastic, metal and glass parts, chemical elements such as lead, cadmium, beryllium, mercury and many other precious and heavy metals. During shopping, it is important to choose appliances and devices which can be recycled.

There are enterprises engaged in buying and recycling electronic and electrical products.



Figure 3. Electronic and electrical products

Mobile phones

Mobile phones consists of batteries, plastic, metal and glass parts. Batteries from mobile phones are potential danger because of the presence of heavy metals and plastics.

Old mobile phones should be kept in an apartment at some special place from the beginning of the organized collecting and recycling.



Figure 4. Mobile phones

Batteries from household

Batteries from household are potential danger due to incorrect putting off after using it. They consist of alkali, heavy metals (especially lead), as well as plastic parts.

In Serbia, there are companies engaged in recycling electronic waste, but the organized system of collecting and recycling of the batteries is not yet established.



Figure 5. Bateriaes from household

Computers, TVs and monitors

In computers, TVs and monitors structure, the main parts are metals and plastics, right after glass, rubber, cardboard and ceramics. When we talk about metal, the biggest part of it are iron, steel, copper and aluminum.

Up to 70% of electronic and electric waste can be recycled. Before organized collecting, personal computers, TVs and monitors are necessary to be kept on a safe place saved from potential breakage and heat.



Figure 6. Computers, TVs and monitors

Fluorescent lamps and mercury lamps

Fluorescent lamps and mercury lamps represent danger on people's health and their environment due to irregular using and putting off, especially in case of crashing. They contain wolfram, mercury, halogen elements. The wasted fluorescent lamps should be packed in plastic packaging or carton and put off with other waste.



Figure 7. Fluorescent lamp

Pesticides, herbicides and other protective chemical means

These means represent poisons. They are dangerous when using them uncontrolled or putting them off irregularly. After the deadline, they become uncontrolled poisons. They contain active substances which can seriously harm environment and people's health.



Figure 8. Protective chemical means

Plastic and glass packaging, after using all it's amount, is necessary to wash multiple times and put off with other waste. Spray bottle should be put off with other waste. It is recommended that the bigger amount of unused preparations get back to it's producer.

Paints

Paints due to irregular handling and putting off can cause health problems and pollute the environment. Paints are toxic and flammable. Almost all of them contain resins, dissolvent, pigments, additives and some heavy metals such as petroleum products.

They are put off with the rest of the products if they are in solid or are kept on a safe place until organized collecting.



Figure 9. Paints

Thermometer with mercury

Breaking the thermometer with mercury is dangerous. These thermometers contain mercury which is bioaccumulative toxin - they deposit in people's organism and cause serious health disorders. The irregular putting off and outpouring of the mercury in the land and watercourses can harm the environment.

They are kept in the original, safe packaging. If it comes to breaking of the thermometer, the best thing is to pick the mercury with wad, put it off in a plastic bag and gather it with other waste.



Figure 10. Thermometer with mercury

CONCLUSION

The system of managing dangerous products represents an organized work of steering and controlling from the moment of their formation, collection, storage, treatment, until the final putting off. It is normal that products of the urban environment and commercial waste are all called with one name Communal (municipal) solid waste. Continuous growth of urban settlement and the changing of structure, increases the problem of communal solid waste. The amount of the garbage grows, because the need for the food, drinks and goods is growing too. The

amount of packed goods is increasing and the packaging increases the amount of the garbage.

The influence of solid communal products on the environment is multiply negative, and the reasons for that in Serbia are: insufficient coverage of the municipalities with services of Public Communal Enterprise, which conditions the forming of wild landfills which uncontrollably spread, neglect of the main landfills, as well as the low consciousness of the citizens about keeping the environment clean, and all of these are the main sources of potential contagious diseases of the population and pollution of every sector of the environment: air, land and water.

Today, the idea of not destroying the garbage and using it instead, completely overcomes. Today, the managing of the communal solid garbage is contained of collecting, transporting, recycling, reusing, treating and putting it off permanently to sanitary landfills of communal solid garbage which cannot be used or treated.

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