

PACKING THE PRODUCTS FROM THE ECOLOGICAL POINT OF VIEW

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Abstract: *The technological development and the environmental pollution are mutually connected. One of the most common ways of handling with the pollution is recycling or reusing the secondary materials which come from technological and communal waste. But, recycling isn't enough to provide a protection for the environment. Materials that are used for packing are one that are the most often recycled. Therefore, the choice of materials should be wisely done and as a suggestion in this paper the metal is emphasized. It is easier for recycling Aluminum, Iron and Tin.*

Key words: RECYCLING, ENVIRONMENT, PACKAGING, MATERIALS

1. Introduction

Polluted environment is the main companion of the human kind's technological development. Lately, the technology makes humans more qualified, helping certain prosperous technologies to change the environment in terms of the biosphere, at the same time creating imbalance in the ecosystem.

As a result of the imbalance in the energy and the environment, some very serious structural violations appear. Because of that, there is a need of organized action in the society, such as integration of the environmental dimensions in all aspects of the social product. These days, more profitable technologies give a place to those technologies which despite the fact that they have made profit, have splendid ecological solutions for environmental and human protection.

In the 70's of the last century, people for the first time became aware of the enormous air, water and earth pollution from so called "profitable technologies", which used natural resources. In order to avoid this, they started to dislocate the polluting technologies into undeveloped countries which had natural resources and where the processing industry, which took the risks of pollution along, was in expansion. At the same time, developed countries bought those primary products and initiated new technologically appropriate technologies, in a higher phase of processing, where the harmful emissions and pollution were reduced to a minimum. Aware of this problem, in 1972 UN organized the first United National Conference on the Human Environment, also known as the Stockholm Conference. The conference issued the famous Stockholm Declaration as the first document in international environmental law to recognize the right to a healthy environment. The day of the conference is known as the Day for Environmental Protection. This declaration made an attempt to stop the expansion of the profitable technologies, and to start dealing with ecological issues. Our country, as a part of the former Yugoslavia, accepted that decision with the Constitution from 1974.

With the constitution from 1991, the Republic of Macedonia put down the protection of the environment as a constitutional category.

Even for the most developed countries, solving the ecological problems is not easy and there is a need of huge investments. So, the solution is to develop new technologies, with which the emissions in the biosphere will be reduced, and at the same time they will be energetically and economically justified.

Recycling which is processing used materials, like the technological and communal wastes, into new products. The results are the basis for ecologically and economically optimal decisions.

Recycling is in the center of interest for the world-famous experts, because the fact is that the presence of renewed and not renewed resources is decreasing. Also, the crises in the energy reminded us that recycling old materials takes considerably lower energy, which justifies the economical side of the recycling. "The closed technology" principle or technology "without waste" is one of the newest solutions for recycling, which offers maximal recycling of the secondary waste products on more technological levels.

Some new products lower the risks of environmental pollution, the costs of production, and the costs for environmental protection. However, in many technologies that principle can not be used (because the technology or the equipment is old) or the usage requires higher costs for new modern technologies.

Using the so called "clear technologies" means completely changed access to the designing of new technologies that should achieve maximal profitability, but also maximal environmental protection. In another words, natural resources should be used to such an extent that they won't be destroyed, and the natural balance will be well-preserved. As a matter of fact, the possibility of bad quality and "trash" in the production is lowered with the introduction of new technologies and the usage of the micro process. Also, certain technological phases are rationalized and the result is conservation of energy and money.

2. Packing and the Environment

Historical Packing and the development of human kind are mutually connected. The vessels and containers made of different materials, and old thousands of years, serve as a criteria for the development of the civilization from the prehistory till nowadays.

For quite some time, packing had a primary function to accept the product, to protect it and transport it from the place of production to the place of consumption.

Packing nowadays has a primary function to protect the product from the outward factors and to satisfy the rigorous demands for modern packing.

In the future, packing will have a function to give the shopper the satisfaction of packing the product, and to give the customer the satisfaction of using it.

The development of packing is connected with the technological progress and the advancement in the usage of the packing materials and the packing itself. The problems caused in the process of packing are important for the sake of the huge

importance of packing while using the products and after it. At the same time, the analysis of the ecological aspect should cover the ecological balance with the live long analysis of the packed materials, from the production of the raw-material through to the removal of the packing.

If we compare packed materials, from the ecological aspect we can conclude that:

- Glass packing is considered harmless. The inertness of glass makes glass a harmless packaging material, compared with other packaging materials, despite its' weight and fragility. Also, the glass can be easily cleaned without detergent streaks and spots. The glass is resistant to the atmosphere influences and is can't be easily broken.

- Plastic packing and blister pack are more used than glass packing. But they are more complicated too, because they are not made of just one component which can be easily identified. The most used raw-material in the production of plastic packing nowadays is rilsan. Rilsan is thermoplastic powder coating made from vegetable ricinus oil. It is proved with different tests that this material is harmless, while some other plastic materials are still little harmful. In the lack of experiments, people should be very careful when they use some plastic bags made of bezophenon. It absorbs ultraviolet rays and can be very harmful. Plastic packing for food should have protection signs that it is for food. This kind of packing resists corrosion, dampness and is resistant on the weather and the agents of the environment. The biological cycle of the carbon is very long, and that is why it is very harmful pollutant of the environment. In the future people should work more hardly on new technologies for production of special eco-plastic packing.

3. Metal packing

3.1 Processing of Aluminium

It needs huge energy consumption for aluminium production from bauxite as the most important ore. For instant, it needs 4-6 tones oil for production of one tone aluminium. Due to the fact that the usage of aluminium as a packing material is more frequent, and that the aluminium received from secondary materials consumes 10-15 times less energy than the primary aluminium. So, the recycling of this material is completely economically and ecologically approved. Nowadays in the USA are used aluminium cans from 100 % recycled material, and that should be practice in Macedonia too.

3.2 Processing of Iron and White Sheet Metal

In the developed countries, the old metal iron is used in the primary production of the recycled materials with 27%. It is used for protection of the environment, natural resources ant for conservation of energy. For example, for the production of one tone raw-iron is used one tone oil.

The precious pewter can bi sort out from the white sheet metal, while the steel sheet metal is returned to the iron-foundry as a raw-material. Due to the fact that there is 2-7 kilograms pewter in one tone white sheet metal, the recycling is completely justifiable.

3.3 Tooling for Metal Packing- the Whole Cycle

If we monitor the technological process of recycling the metals from cans, we can conclude that the human and environmental pollution is mostly in the beginning of the process, that is, in the primary recycling of the raw-materials.

As can be seen, all the emissions from the working sections to the air, water or the landfill are marked. Also, there are processes of cleaning, neutralization and detoxification. Altogether, in all the

phases of recycling the metal packing, from recycling the primary raw-materials, through their mechanical reprocessing, and their completing in working sections, such as the electrolysis of the white sheet metal and polishing the aluminium white sheet metal, to their final formation into a can, people take care of the maximal human and environmental protection from the polluted emissions into the air, water and earth.

3.4 The Communal Waste and Recycling

Solid waste that is not recycled must be sort and deposited of into the landfill. If it is possible, sorting should start right after generating the waste by people in their homes, offices, school, restaurants, and other places. The purpose is to prevent solid waste from polluting the soil or ground water by being disposed of improperly. If the waste is going to be recycled, people should find out the best possible solution for using raw-materials out of it.

Modern solutions of treating the communal waste are generally based on the recycling the raw-materials, while the energy production using the communal waste is of minor importance.

It can be seen that recycling is the most economical solution, compared to other ways of dealing with the communal waste.

It is estimated that in our country the usage of secondary raw-materials in the production of new materials is three times lower than in the other more developed countries. So, people in Macedonia should use maximal possible recycled iron and aluminium in the production of materials, in order to use less energy in the process of production, and at the same time to protect the environment from polluted communal waste. The metal packing used for consumables, cans and tins must be varnished with very clean pewter and the percentage of lead and arsenic should be reduced to a minimum. The lead mustn't appear in the inside of the can or tin.

4. Conclusion

The ecological conception to evolve a method for metal and other types of packing should be in the direction of optimization the basic processes. People will contribute in the protection of the environment with the increasing coefficient of using raw-materials and energy, with closing the technology for recycling waste materials and amortizing final products, with neutralization of the wastes that can not be involved in the process of recycling on this level of social conscience.

5. References

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