PACKING AND PACKING WASTE MANAGEMENT

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ABSTRACT

Environment protection is a matter of huge interest at national, European and global level. In order to achieve the strategic goals regarding packing waste management, the procedures and actions undertaken in Romania have to meet the European Union requirements in this field.

For the implementation of the acquis communitaire in the waste field, Romania asked for several periods of transition: 3 years (until 2010) for the Directive regarding packing and packing waste, and 10 years (until 2017) for the Directive regarding waste deposits (including packing waste).

According to statistics, over 10 mills. tons (22%) of the total amounts of generated waste were exploited in 2000, and were eliminated by depositing or burning them (about 37 mill. tons- 78%). Depositing eliminated the largest amount of waste; the amount of waste eliminated by burning represents only 1% of the total amount of generated waste.

Waste management should be focused more on the prevention of waste, and less on re-using/recycling and depositing it.

1. INTRODUCTION

We can easily notice that men's attitude towards the environment has not changed too much over the years. The difference between our ancestors and us reflects in our great capacity, both to destroy and to protect the environment.

In time, the irrational exploitation of the natural resources led to the destruction of the environment; soil erosion, the diminishing in the quality of air and water, the diminution in the thickness of the ozone layer, the disappearance of several species. These are some factors that made people think more about the protection of the environment.

In order to achieve the strategic goals regarding packing waste management, the procedures and actions undertaken in Romania have to meet the European Union requirements in this field.

To fulfill these targets, we should prevent and avoid the appearance of waste, minimize the quantity of waste, reduce the quantity of waste by exploitation, selective

gathering, material recycling or energy capitalisation; we should treat and eliminate waste without harming the environment, or cut down the quantity of packing waste by using at least 35% of it as secondary raw material from separate gathering, both at the source point and the gathering point.

Packaged products and goods are part of the world we live in, and in many ways, they make our life easier. Unfortunately, the volume of packing waste has increased a lot lately. Therefore, the European Union has elaborated and adopted the 94/62/CE Directive, meant to contribute to the reduction of packing waste, one of our biggest issues today.

Waste management should be focused more on the prevention of waste, and less on re-using/recycling and depositing it. Unfortunately, the situation today is the other way around, depositing being the main method used to control the waste.

The main principles of the activity of waste management are:

a) Preventing packing waste
b) Re-using the packages
c) Recycling packing waste
d) Other forms of exploiting packing waste, in order to reduce the quantity eliminated by final deposit.

2. THE PACKING

On a fully competitive market, packing is an important element for promoting products through the label or the graphics. Nowadays, image is a universal language, understood by any human being, in any part of this world.

Commercially speaking, packing ensures the best conditions for handling, conservation, deposit and transport of products.

Technically speaking, it is considered that 99% of goods is transacted in packing; packing take different forms and shapes of materials, meant to protect the quality and integrity of products, and to facilitate the operations of goods handling and transportation. Also, the quality of products is influenced by the quality of packing. Unsuitable packing may cause the product to lose its value, and also its quality.

The development and diversity in the production of goods, along with the development of commerce, contributes to the development and diversity in the activity of packing and the production of packing. Packing is used for the protection of various products, no matter what the nature of the product is. Each material has a certain negative impact on the environment. This is why we have not found the “ideal” packing yet.

An important requirement of the 94/62/CE Directive states that an economic operator who works in the field of packing production or the import of packed products is not allowed to introduce them on the market unless the packing are conform to the Directive requirements and do not exceed the limits imposed for hard metals content.

The main requirements of the Directive represent four different approaches regarding packing, meant to reduce to the minimum their impact on the environment during the process of production, use or elimination. These approaches should be seen as a whole and used accordingly, but sometimes they can involve some contrary aspects (for instance, a recyclable glass cylinder weights more than the one-time-use PET recipient). Therefore, the most suitable packing or combination of packing should be chosen for each product.

Find below the four approaches:

1. The volume and mass of packing have to be reduced to the minimum in order to maintain the necessary levels of safety, hygiene and acceptance for the packaged product and for its user;
2. The packing have to be fabricated so that they could be re-used according to the valid norms;
3. The packing have to be fabricated so that they permit material recovery, energy capitalisation or obliteration, according to the valid norms;
4. The quantity of toxic or dangerous substances has to be reduced to the minimum in order to minimize the presence of such substances in the emissions, in the ash or the leaching generated at the cremation stations or at the waste deposits.

To reduce the impact that packing and packing waste have on the environment, consumers should consider some of the following suggestions:

- To buy food they often use in large quantities and deposit them in glass or pottery recipients.
- To avoid buying food with packing made up of two or more materials (such as cardboards with a plastic and aluminum layer in the middle). Laminated products are difficult to recycle;
- To avoid using thin plastic foil for packing food, because it is difficult to wash and use again.
- To buy products such as: honey, yoghurt, and milk in glass jars, instead of plastic packs.
- To recycle empty bottles of beer or mineral water, or egg cardboards.
- Using their imagination, people can turn cereal boxes or cans, juice boxes, plastic bottles or other objects that seam useless, into newspaper or flower supports.

2.1. DEFINITIONS

Packing could be defined as:

"A complex physical and chemical system, with multiple functions, that contributes to the maintenance or even the improvement in the quality of the product" it was designed for and also assists in the identification of the product, contributes to tempting potential buyers, teaches them how to use and keep the product and how to protect the environment from the pollution made by used packing or by their components.

"A wrap of different shapes and materials that covers a product for transport or sale"

"Is the object meant to wrap and temporarily contain a product during its handling, transport, deposit or presentation, in order to protect it or to facilitate these operations."

In Romania, according to STAS 5845/1-1986, packing is a **"way" to wrap a product, to offer temporary physical, chemical, mechanic and biologic protection, in order to keep its quality and integrity, during its handling, transport, deposit and sale to the client or until the guarantee period expires.**

2.2. PACKING CLASSIFICATION

In the last few decades, packing have become so diverse, starting with the materials used for their manufacture, and the functions they provide.

Packing can be classified as follows:

a. Based on the material used for their manufacture

- Paper and cardboard packing
- Glass packing
- Metal packing
- Plastic packing
- Wood or wood replacements packing and wickerwork
- Fabric/textile packing
- Complex materials packing

b. Based on the manufacturing system

- Fixed packing
- Dismountable packing
- Folding packing

c. Based on type

- Envelopes
- Bags
- Nets
- Cases
- Boxes
- Phials
- Jars

d. Based on the field of use

- Transport packing
- Sale and presentation packing

e. Based on the product wrapped inside

- Packing for alimentary products
- Packing for non alimentary products
- Packing for dangerous products
- Individual packing
- Collective packing

f. Based on the degree of rigidity

- Rigid packing
- Semi-rigid packing
- Lithe packing

g. Based on the means of packing circuit

- Recyclable packing
- Non-recyclable packing- lost type

h. Based on the system of packing circuit

- System of recycling the packing
- System of buying-selling packing

j. Based on the means of transport

- Packing for terrestrial transport
- Packing for water transport
- Packing for air transport

k. Based on destination

- Packing for global market
- Packing for local market

3. PACKING WASTE MANAGEMENT

The Decision no. 899/2004 for the amendment and improvement of HG (Government Decision) regarding the packing management and packing waste management regulates the packing management and packing waste management to prevent and reduce the impact on the environment.

The stipulations of this Decision are applicable along with the quality stipulations valid for packing, regarding the safety, the health protection, the hygiene of packed products, and the transport requirements. Also the stipulations regarding dangerous waste management should be considered.

All the packing on the market are subject to the stipulations of the present Decision, regardless of the materials they are made of or their use in the economical, commercial activities, for housekeeping or all other kinds of activities, as well as all packing waste, no matter what the generating method is.

According to this Decision, packing waste is defined as ***"any packing or packing material that is no longer in conformity with the requirements and scope it was projected and designed for, and that remain after their use".***

The activity of packing management and packing waste management is based on some general principles stipulated under art. 3 in the Government Emergency Ordinance no. 78/2000, regarding waste conditions, approved with amendments and improvements by Law no. 426/2001.

The specific principles of this activity are:

a) Packing waste prevention

b) Re-use of packing

c) Packing waste recycling

d) Other forms of exploiting packing waste in order to reduce the quantity eliminated by final deposit.

Packing waste management combines procedures and techniques that do not threaten people's health and the environment, while qualified authorities control and authorize the activities of exploiting or elimination of waste, aiming at:

a) Not harming people's health, the water, the air, the soil, the fauna and the vegetation

b) Not producing unpleasant smell

c) Not harming the sceneries or the protected areas

One should consider the following suggestions on elaborating the plans for waste management:

a) Compulsory information, regarding:

- Types, amounts and origin of waste that will be exploited or eliminated
- Specific procedures for special waste categories
- Areas and installation for the exploitation or elimination of waste

b) In certain cases, information regarding:

- Authorized persons to carry out independent activities or lawful persons mandated with waste management.
- Estimated costs of the exploitation and waste elimination activities
- Methods to rationalize the waste gathering, classification and treatment.

4. CONCLUSIONS

During the last 10 years, the amount of plastic material used for the same packing dropped down with 25%. The weight of foils used for pallet covering decreased by over 80%. In the last 20 years, cans lost about 45% of their weight, and glass packing became 10% lighter. Same thing happened with paper and cardboards.

Also, the percentage of recycled paper used as secondary row material for producing packing material increased. Boxes made of goffered cardboards may contain more than 75% of recycled paper and cardboard.

A study reveals that:

- Plastic packing waste resulting from housekeeping waste represent 9.5%, more than 50% are PET bottles, over 35% are PP and PE packing and 9% are PS packing.
- Paper/cardboard packing waste resulting from housekeeping waste represent about 10%.
- Glass and aluminum packing waste resulting from housekeeping waste represent about 6.5%.
- Metal packing waste resulting from housekeeping waste represent 2%.

Considering the fact that in the last few years the amount of packing waste increased a lot, companies have come up with several solutions to reduce the waste, such as:

- **Packing elimination**

In the Netherlands, for instance, it took seven years until producers gave up the cardboard used to pack toothpaste. The new packing made the old one useless, and so they saved hundreds of lb of material.

- **Less packing material**

Numerous European companies from different fields of activity reduced the volume of material used for packing. They searched for lighter and thinner materials, thus eliminating free space inside the packaged product loaded on pallets, and improving the product performance.

Plastic foil replaced by a band wrapped around the boxes on the upper part of the pile on the

- **Packing re-use**

Among the packing materials that can be re-used, we can find plastic cases and materials used for liquids (glass or plastic) or cardboard boxes. Companies that re-use packing don't need to purchase new packing, making some funds savings. Plastic cases are available in all shapes and types, rigid or folding.

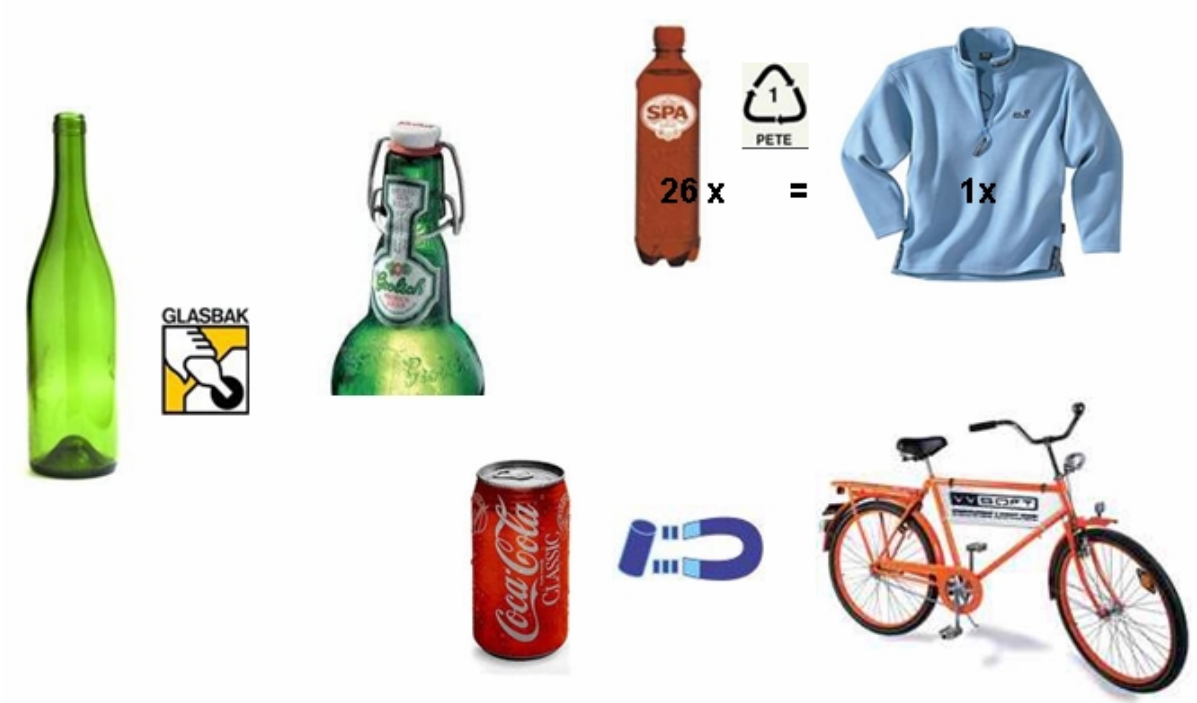
- **Recycling packing material after use**

There are many techniques meant to improve the recycling possibilities. Packing designers should create packing whose component parts could be easily separated after use.

The European Directive 94/62/CE states that producers/importers should use identification signs on their packing. For instance, the Moebius loop, proposed by the International Standard Organization (ISO, Geneva), indicates that a product can be recycled. Even so, the use of a symbol is still not compulsory. The stipulations regarding the symbols are not standardized yet.

Examples of symbols:

Below, you can find some examples of products created from packing waste selectively gathered.



- **The packing material obliteration after use**

There are many packing made of corn or starch and are biodegradable. Such an example of packing made of corn is the bag in the picture.

- **Recycled raw material used in the packing manufacturing**

It is important that companies consider the European Directive 94/62/CE that forces producers /importers to reduce the volume of packing waste. Practically, it offers them the opportunity to optimise their own technological processes, to reduce their expenses for the packing materials and to save the funds necessary for the elimination of packing waste.

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