

## ACTIVITY

### THE FOLLOWING TEXT IS ABOUT GLASS RECYCLING

#### GLASS RECYCLING

Today in day the protection of the environment is a fundamental task that implies "recovery" and/or "recycled". The industrialized countries are big producing of waste that cannot be destroyed in a simple and quick way. The high costs of elimination of residuals force to the industries to take measures guided to minimize those residuals and to reduce their dependence of the matters cousins. The glass is a material that is easily recoverable for its characteristics. Especially the glass container that is 100 recyclable %, that is to say that starting from an used container, one can be manufactured new that can have the same characteristics of the first one. Reutilization of glass opens many possibilities so that the society and the affected administrations can negotiate in an easy way their environment.

The glass for containers is the glass used for the for the production of flasks and bottles. It is the glass of the bottles of gassy, beer, of the flasks of mayonnaise and preserves, of the flasks of foods for babies, of the bottles of wine, liquors, besides, other foods and packed drinks.

The glass for containers is the only glass that at the present time is recycled in big quantities. The glass of windows, bulbs, mirrors, ceramic plates, glasses, recipients for the oven and glass fiber is not recyclable together with the glass of containers, and it is considered pollutant in the recycling of the same ones.

The flaks or the glass bottle are only in the industry of the recyclable ones. A glass bottle that is founded and be formed again it will give place to a same bottle, without any loss of quality. It is not generated any residual or secondary product in the prefabrication process, and the same glass can be made and to be redoed in a repeated way to from the bottle. This characteristic makes of the glass one of the few manufactured goods that it is at the 100 for 100 recyclable.

The glass of containers is common in the daily use; however, it has some unique properties that transform it into a recyclable one special. For example, the glass is manufacture starting from some matters inert and abundant cousins in the nature that you/they include: sand

white, flat silica and limestone. The vitrified ashes, the sulfate of sodium, the moonstone, the argonita and the broken glasses are other ingredients frequently used to manufacture glass containers. These primary matters and secondary are not scarce, they are abundant and easy of obtaining.

The most specific consideration when marketing the glass for containers is the necessity to carry out a separation for color. The most frequent colors are: green, brown and colorless. In the industry of the glass, the green is denominated emerald, the brown one it is the amber and the colorless one is the target. With the purpose of that the bottles and the flasks complete the maker's strict specifications, it can only be used the glass emerald or the amber to manufacture green or brown bottles, respectively.

The glass in it self doesn't constitute a threat for the environment because it is inert; it is not biodegradable. If it is exposed to the forces of the erosion, the glass breaks in small silica pieces, beach sand, one of the most common elements in the earth.

Although for the production of glass containers the glass is only used for containers, the broken glasses can be used in other processes of production and in other industrial applications. The examples that exist for the reutilization of the glass vary from isolations of glass wool until posts for phone lines and you fence manufacture with mixtures of broken glasses and plastic polymers. These uses represent only a small sample of the new markets that are developing in the last years for the broken glasses.

To use the glass of the containers to manufacture new products favors the conservation of the energy and it reduces the costs of production. The recycling of the glass containers has an impact bigger envelope the improvement of the recycling programs for solid residuals that it has more than enough the reduction of the gathering requirements and evacuation of residuals.

In general, to separate the existent glass of containers in the flow of residuals they are effective the recovery processes based based on the manual selection or the one sieved. Once recovered, the glass containers are stored, they transport and they process as future

feeding for the glass prefabrication and for other processes industrials.

The most important thing is that the continuous recovery of the glass containers puts in evidence the stability of an industry that is able to manufacture a product of desirable consumption the glass container in a such way that the allows its total reciclabilidad like another container of the glass prefabrication. This way, the glass container can separate the flow of residuals posconsumidor and to be returned as useful feeding to the prefabrication process.

The glass is an amorphous substance manufacture mainly starting form silica ( $\text{SiO}_2$ ) fused to high temperatures with borates or phosphates. It is also in the nature, for example in the obsidian, a volcanic material, or in the enigmatic well known objects as tectitas.

The glass is a silicato that is founded to 1.200 grades. It is constituted essentially by silica (reasonable mainly of the quartz), accompanied by limestone and other materials that give him the different colorations.

According to color the most employed are:

The green (60%). Used massively in bottles of wine, it digs, liquors and beer, although in smaller quantity in this last one.

The target (25%). Used in gassy drinks, juices and feeding in general.

The extraclaro (10%). Employee essentially in waters minerals, jars and decoration bottles.

The opaque one (5%). Applied in beers and some laboratory bottles.

Other more complex forms of classification of the glass exist, but we won't enter to analyze them for the space limitation and because you would leave the thematic of the article.

More than 42%, of the recycled glass it comes form the domestic one, being the main sector of production of recoverable glass.

Recovery and recycling

The recovery of the glass is attributed to Germany and Switzerland initially, although they were Danishes the pioneers in this field beginning in 1962. In our country the one recycled began with the domestic glass in February of 1986. During years, the glass container was a product reutilizable that was returned to the bottling company or envasadora for its laundry and full up.

Traditionally, the calcin was the glass recovered in the breaks and rejections that took place in the processes of production, laundry or bottled. The era of the glass containers "without deposit no returnable" and in other ways of containers to new and improved" for the foods (for example, pack of aluminum and plastic), they sent most form the glass containers to the flow of the residuals evacuables.

In the recovery process and fulfilling the above mentioned is possible to settle down in this cycle a series of characteristics that make of the recycling an essential activity in the preservation of the environment. So that recovered material is appropriate for the reutilization it should fulfill the following requirements:

That the obtained material can be used again entirely.

That the new material maintains to 100% its qualities.

That the resulting material is used to manufacture the same product of which comes.

The basic requirements to use glass containers used in the production of new glass containers have not changed since the own calcin was introduced for the first time as a secondary ingredient. The glass should be clean, free of tapas and metallic rings, and what is even more important, should be selected by colors. As consequence of these approaches of production, the prosecution of the glass has evolved until including the necessary steps that guarantee an useful secondary matter.

The basic steps for the prosecution of the glass of containers are:

1. Laundry initial, separation of tops.
2. Separation for colors

3. Reduction of the volume by means of trituration or it plows.
4. Preparation for their transport to the market.
5. Benefit own.

These steps are carried out in diverse stages after the recovery posconsumidor and of the planned commercialization of the processed glass.

#### 1. Initial cleaning and separation for colors:

The recovery programs for the recyclable ones blended they can be designed so that they include to the glass containers. The recovery of the bottles and glass flasks are usually carried out by means of tape transportadoras and manual selection. The glass containers can be selected systematically at the same time that they are gathered of the prosecution tape. Some bands transportadoras are designed so that only with that manual selection the deviation of the containers I gotten of glass until individual transpotadoras that direct the containers elected by colors toward the break processes, sieved and storage to bulk.

#### 2. Plow and triturate the glass:

The break of the glass is not desirable if he/she takes place before the separation for colors. It is not the break easy to separate the broken glass of the flow of the blended residuals, passing to become material of blended glass that doesn't have real value for the clacin users. If the glass containers will recover to be sold the makers of containers or other users of clean calcin and free of pollutants, then it is necessary to carry out a selection for colors before breaks take place; the metallic rings, the paper labels and the residuals of food should be eliminated, sieved and separate from the glass after the initial break and/or trituration, and the storage of the processed cancan should assure that the material to bulk stays clean until it is sent to the market.

#### 3. Preparation and transport

The container glass is a material of low density until it breaks or it crushes. Then he/she becomes a material of high density. It is usually necessary to store the glass, until accumulating the enough quantity of color that facilitates a transport profitable.

The broken glasses are frequently transported as material to bulk in big containers. Occasionally smaller containers are used to transport quantities smaller than clean glass and of uniform color until the users of crushed glass of high quality.

#### 4. Final prosecution:

The containers selected by colors are sent, whole, broken or crushed, until the final users. The final laundry is carried out in the factory by means of a specialize team that separates the residual materials, the plastic and the paper labels.

Then, the broken glasses mix with the matters cousins used for the elaboration of the glass. Next, the lot melts in an oven to temperatures between 1.425 and 1.525°C, according to the percentage of glasses broken present in the lot. The mixture can melt to a smaller temperature if more broken glasses are used. The fused glass falls on a machine moldeadora where it is blown or it is modeled until getting the final form. The new containers already formed they cool down slowly in a tunnel of having recooked. They are inspected to detect possible defects, they are baled and they are transported until the bottling company.

### Conclusions

- ✓ Great part of the industry of the recycling mentions the contamination like the more common problem associated to the recycling of the glass (you color blended and/or strange materials). Other problems that think about are: the lack of communication, and the lack of storage space.
- ✓ The contamination for he colors is specific of the glass, and the storage space can be a bigger problem for the glass for the necessity of separating the colors.
- ✓ In the recycling of the glass, the understanding is fundamental to maintain the quality (that is to say, to eliminate the contamination), that which contributes to the preservation of the environment.

- ✓ Finally with this article it is important to make a brief synthesis of the process of recycling of the glass with the purpose of informing their many applications and benefits, which make part of a plan of environmental recovery.

YOU KNOW HOW TO MAKE A MENTAL MAP, SO USE THE DIRECTIONS AND DO THE FOLLOWING GRAMMAR AND COMPREHENSION EXERCISE TO CHECK YOUR FOREIGN LANGUAGE PROCESS; THEN IDENTIFY OR FIND ONE EXAMPLE PER EACH GRAMMAR CONCEPT. IF YOU WANT, PLEASE STICK OUT, UNDERLINE OR COLOR IT:

- A. Present Simple Tense (two sentences) - use a regular and irregular verb.
- B. Past Simple Tense (two sentences) - use a regular and irregular verb.
- C. Present Perfect Tense (two sentences) - use a regular and irregular verb.
- D. Past Perfect Tense (two sentences) - use a regular and irregular verbs.
- E. Present Progressive Tense (two sentences) - use regular and irregular verbs.
- F. MODALS: Try to find examples with modals(conditionals) - must, should, could, would, can, may, have to, will, can (\*).
- G. Identify some examples in which are used connectors, adverbs of time, place, manner, and frequency, relative clauses. (\*)
- H. Underline five qualificative adjectives and try to do a physical description about glass if you want.
- I. Finally, by means of mental map try to write the principal idea of the text. Don't forget to enter at the principal node with the title "Recycling", then right clic in a side of this one for opening another node and give the name to this node; do the same with the secondary idea and create a node to classify the principal topics that mark the reading.

NOTE: If this symbol (\*) appears, it means that you must stick out, underline or color the example that you are looking for. If you want you will make changes or improve the activity. Remember: it is a checking.