

RECYCLING OF VINYL RECORDS FOR THE MAKING OF CLOCKS

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Abstract: The objective of this article is to contribute to caring for the environment, since today it is very deteriorated, due to the fact that human beings do not consciously reflect on our environmental culture, which is how we reflect the habits diaries. Among the most polluting materials for our environment is PVC plastic because it is very toxic and difficult to degrade, causing soil, air and water to be in poor condition, people usually discard these materials when they are no longer useful for them. Therefore, said work consists of dealing with this type of material, recycling it and applying the 5Rs process, and creating a product. The purpose of this product is that people create awareness and that they can give the product another use, through the recycling process, and thus the planet's pollution can be reduced.

Keywords: Vinyl, PVC, SEMARNAT, CEMDA, 5Rs.

INTRODUCTION

Pollution is a topical issue, however, people do not measure the real situation of pollution and it is reflected in the habits derived from a lack of environmental culture, since our actions make our planet deteriorate more and more day by day. less habitable for living things.

Plastic is the main polluting material in the world, 70% of the garbage globally belongs to plastic. Thousands of marine species die every year from the waste that man throws into the sea. The plastic consumption rate increased by 2% from the previous year, it is a worrying fact since said percentage must not rise that much in 1 year. Hence the importance of doing something about it and contributing to caring for the environment, making people aware of reducing the consumption of plastic in their daily lives or using the recycling of this material.

Recycling is one of the habits that we must

promote today, because it is observed that the prevailing behavior in people is to waste their waste at home, in the streets, in green areas and, above all, in the ecosystem. One of the materials that takes the longest to degrade is PVC, it takes from 100 to a thousand years to degrade, therefore, we will focus on this type of material in order to recycle it. PVC is a plastic made of Polyvinyl Chloride, a product derived from petroleum that is highly toxic and also carcinogenic, in the same way, the PVC manufacturing process is highly polluting.

The use of this type of plastic is highly dangerous and extremely harmful to our environment since the composition and manufacturing process of this product is one of the most used in the world, among other issues, it contains chlorine in its composition, which is a polluting material both during its production and during its use and when burning it. There are numerous studies that attribute a large percentage of worrying toxicity to PVC. According to a study by The Center for Health, Environment and Justice (CHEJ), it is responsible for many types of cancer and birth defects. There are many companies that have considered reducing its use, and even its total elimination in production processes, although its use remains high (Anna, 2017) [2].

Currently there are organizations that care about our environment, assuming the commitment to carry out activities aimed at reducing the rate of damage that humanity is causing to its own ecosystem, in our country there are more than 35 thousand civil society organizations, being only just over a thousand environmentalists, according to figures from the SEMARNAT National Institute of Ecology, Pronatura Mexico: environmental organization that promotes care for ecosystems, Mexican Center for Environmental Law (CEMDA): promotes

the right to a healthy environment, as well as as its defense, through the development and effective compliance of legislation and public policies, etc. (Pensemosverdemx, 2016) [3].

The actions of each organization vary, whether small or large, they are equally important, since each one sets an example for people to create environmental awareness. It is recommended that they first start helping from home, to take care of the environment, that is the best way to preserve the health of the planet.

Human societies have always produced waste in an uncontrollable way, today there are tons of waste that are thrown into rivers, seas, forests, etc. which over time have been contaminated, since most of the products that are thrown are very long disintegrating, contain toxic substances and are highly dangerous. As human beings we are not aware of the damage we do to our environment and the consequences that we are causing by wasting this type of products, we are immersed in the culture of using and throwing away, we must be responsible, committed and love our planet by raising awareness. From the damage that is being caused with all the products that we discard and burn, we must learn that a product can be given more utility and that there are appropriate places where it must be disposed of.

There are initiatives to improve people's habits such as the 5 Rs of ecology which is a proposal on consumption habits, popularized by the environmental organization Greenpeace, which aims to develop responsible behavior in individuals, companies and organizations. The 5 R's are: Reduce, Repair, Recover, Reuse and Recycle. These actions reduce the impact of our life on the planet and re-educate us in the value of life. A large number of objects in our home and office are thrown away because we have chosen to acquire something new before repairing the

used. Reuse could generate a favorable impact on the environment and on the economy of individuals. Textiles and footwear that can be donated, supplies and stationery, packaging, containers, electronics, computer equipment. Recover it is possible to recover some of its components from those waste objects so that they can be used again, Recycle create an item that returns to the resource chain, that has an easy and robust system for the recovery of its materials, and that uses recycled or recyclable materials whenever possible. (Expose, 2016) [4].

The project will focus on recycling vinyl records (material made entirely of PVC), reduce their impact on garbage and be able to give them a new use in people's daily lives, such is the case of recycling them and making them in the form of watches. wall mount with an innovative design, so instead of these discs going to the trash and contaminating an ecosystem, they can go to a home or office. The main advantage of this decoration with vinyl records is to allow a radical change to an environment with a low budget and with recycled material.

This project arises in response to the commitment and responsibility that humanity has with the environment since pollution and, above all, plastic, make up the main issues affecting the environment. Many organizations have already agreed to lower the rate of plastic consumption, such is the case of the implementation of not using straws for the glasses that are given to the consumer and the total separation of plastic that can be recycled.

This work has the main purpose of helping the environment, reducing the amount of a material that takes several years to degrade, turning it into an innovative product that can be implemented in homes or workplaces and gives a plus to whoever has it.

METHOD DESCRIPTION

MATERIALS

Recycled vinyl record	White sheet of paper	Clock hands
Computer	Printer	clock system
Software	Vectors for Clocks	Glue
Laser cutter	Ink for the printer	Soap
Water	Sponge	

Table 1. List of materials that are used for the elaboration.

1. The first step is to collect vinyl records to be able to recycle them and work with them, either in homes or institutions.

2. Since we have the vinyl records, we proceed to wash the records with water, soap and a sponge, this must be done smoothly and without sudden movements so that the records are not scratched. Then the discs are allowed to dry in a course of 15 minutes so that they do not have humidity See figure 2.



Figure 2. The vinyl record is washed and allowed to dry.

3. The discs are taken to the machining area to begin the process. Then, the computer is turned on and the software that we will use to choose the designs and send the commands to the machine to make the part opens.

4. Then, the computer is turned on and the software that we will use to choose the designs and send the commands to the machine to make the part opens. See figure 4.

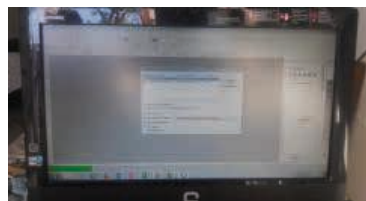


Figure 4. The software to create the part starts.

5. The designs with which our clock will have are chosen. It is optional and to the taste and personality of each person. See figure 5.



Figure 5. The designs are chosen to start making the clocks.

6. After choosing the designs, the machine is turned on, for this the regulator is first turned on, then two buttons on the back of the machine are pressed, then it is turned on with a key that is placed on the front and turned to the left. right. The machine is calibrated to start the process. See figure 6.



Figure 6. The machine is turned on and configured.

7. We proceed to open the cover of the cutter to be able to insert the vinyl record. First we will do it with one disk and then with another. See figure 7.



Figure 7. The slicer cover is opened.

8. The disc is placed in the machine so that it is fixed and we check that it is to the measure. See figure 8.



Figure 8. The disc is placed inside the machine.

9. After the disc is at the correct height and measurement, we close the lid of the machine to start the laser cutting process. The process will be done first with one disk and when finished it will be done with the other and so on. See figure 9.



Figure 9. The slicer lid is closed.

10. Press the START option and the process to cut the vinyl record with a defined design begins. See figure 10.



Figure 10. The process for cutting the vinyl record begins.

11. Finish the process and our base to form the clock is ready, this process lasts between 25 and 30 minutes. So we lifted the lid of the machine to see how it turned out. The photographs are of two discs that underwent the process, first one and then another. See figure 11.

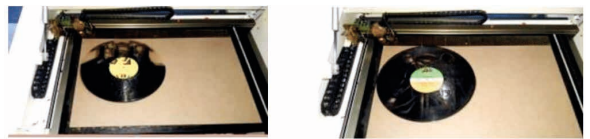


Figure 11. The process of the laser cutter ends and the discs are as follows.

12. The discs are removed from the machine and allowed to cool outdoors for 25 minutes. See figure 12.



Figure 12. The discs are removed from the machine and placed at room temperature.

13. Since they are left to dry for 25 minutes, the discs are washed with water, soap and a sponge, it must be done gently and without scratching the discs. See figure 13.



Figure 13. Vinyl records are washed with water, soap and a sponge.

14. The discs are left to dry in the open air for 20 minutes to begin assembling it.

15. The numbers that the clock will carry are printed and cut out in the shape of a circle. After this step, the numbers are glued on the disk and a small hole is made in the center. See figure 15.



Figure 15. The numbers of the clock are printed, and later they are cut out and pasted on the disk.

16. The clock system and its hands are placed. This must be done carefully and without bending the hands. See figure 16.



Figure 16. The clock system is installed together with the hands.

17. This is how we got the vinyl record-based clock. See figure 17.



Figure 17. This is how it is concluded and we obtain an innovative clock made from recycled vinyl record.

18. The clock looks like this already placed on a wall. See figure 18.



Figure 18. The final product already placed in a building looks like this.

FINAL COMMENTS

SUMMARY OF RESULTS

At the end of the entire procedure, the expected results were obtained, since the clock was made with recycled vinyl records, this way we contribute to caring for the environment and do something for the planet since today it is very polluted and because of this There are physical and climatic changes in a worrying way and that is seriously affecting the earth, due to the bad habits of human beings such as the excessive and uncontrolled use of plastic.

The desired objective was achieved by being a recycled, innovative product and within everyone's reach. It is accessible to anyone, so any user who adopts a recycled watch is also helping to minimize pollution. It must be noted that the planned objectives were satisfactory, the watches were well received by the people who were shown the final product, since there are different designs focused on the personality of each user.

CONCLUSIONS

At present, the aspect that takes up the environment and its impact is of the utmost importance. Each and every person has an obligation to do something for this planet. If you have already hurt him with our own hands, then we must do something about it

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APPENDIX

Questionnaire used in the research

1. What are the causes of global warming?
2. What are the consequences of global warming?
3. What are the measures to mitigate the impacts caused by global warming?
4. What happens when natural ecosystems are altered by anthropic activities?
5. What solution would you give to avoid the extinction of species or the destruction of habitats?
6. What are the norms or laws or legislation that our country has to avoid environmental contamination?
7. What environmental sculpture?
8. What is recycling?
9. How can you help save our earth?
10. Why is recycling important?