



## CREATIVE SOLUTIONS FOR THE USE OF TEXTILE WASTE

DOBLE Liliana<sup>1</sup>, BOHM Gabriella<sup>1</sup> ȘUTEU Marius Darius<sup>1</sup>

<sup>1</sup>University of Oradea, Faculty of Energy Engineering and Industrial Management, Department Textiles, Leather and Industrial Management, 410058, Oradea, România, E-Mail: [liadoble@yahoo.com](mailto:liadoble@yahoo.com)

Corresponding author: DOBLE Liliana, E-mail: [liadoble@yahoo.com](mailto:liadoble@yahoo.com)

**Abstract:** *The paper provides practical information on the process of valorization of textile waste. Different types of products are made from industrial and consumer waste, such as redesigned clothing, women's accessories, bags, women's purses, etc. The work presents the way of making several small accessories, respectively necklace models and earrings, made from the waste resulted in the workshop. The authors chose to make denim accessories because as we know denim is a type of fabric, usually made of cotton, and cotton is a vegetable fiber. Cotton fabrics are versatile, with good durability, breathable, hypoallergenic, with very good capacity of retaining dyes, with good resistance to abrasion, all this making it a material preferred by those who make accessories, because it provides wearing comfort. Unlike other textiles, cotton lets the skin breathe, especially during warm periods, thus naturally preventing the appearance of sweat. Both the necklace and the earrings are made from a piece of material extracted from denim waste. It was unfolded and checked from an aesthetic and qualitative point of view, on the grounds of texture and uniformity of color, then strips of material were cut out, which were assembled piece by piece, twisted, glued, and at the end for added value, decorative elements were applied.*

**Key words:** *waste, clothes, upcycling, accessories, denim.*

### 1. INTRODUCTION

According to the analysis conducted by Boston Consulting Group [1] for the Copenhagen Summit "Pulse of the Fashion Industry 2017" out of a total of 2.1 billion tons of waste produced annually worldwide, 4%, representing 92 million tons, is produced by the fashion industry.

Over 35% of the pre-consumption waste is generated in the primary processing phase of the raw material, of which 9% is in the production of fibers and 91% in the technological operations of product manufacturing (spinning, knitting, weaving and textile manufacturing).

This analysis also shows that the processing and recycling of post-consumer textile waste is quantitatively and technologically limited. In this case, 80% of post-consumption waste ends up in landfills and incinerators, and only 20% is recycled or reused [1].

Textiles are a fundamental part of our daily lives and an important sector of the global economy [2]. However, the current system of production, distribution and actual use of textiles generates a lot of waste and pollution, putting the planet at risk and contributing, along with other factors, to global warming [2].

Moreover, it puts pressure on current resources, pollutes and degrades the environment and creates a negative impact at local, regional and global level.

## 2. GENERAL INFORMATION

Less than 1% of the materials used to produce clothes are recycled and converted into new clothes, and only 13% of all these materials go through a downcycling process and end up being reused as different creative objects [3]. Downcycling is the term used to describe a recycled product that is not as structurally strong as the original product made from virgin materials. Downcycled materials can therefore only be used to make a different type of product than the original [4].



Fig. 1: Recycled materials and products

In recent years, industry and small workshops have become much more aware of the negative impact that the overconsumption of textiles has on the environment and have begun to take steps towards adopting a sustainable policy, encouraging the collection and recycling of waste through its reuse [5].



The economic necessity but also the pandemic period, determined us to start working with textile waste, giving it another destiny, approaching different creative techniques, then this habit even became a priority in our own workshop. Each piece of material has its value and can be used no matter how small and insignificant it may be to create something special and unique [6].

The result of clothing manufacturing is a fairly significant quantity of textile waste of different sizes, textures and shapes, which can be reused in the manufacturing of other products, equally useful, such as: bags, key chains, brooches, necklaces, earrings, mats, accessories. Quality execution of all the above, will ensure both the aesthetic appearance and the resistance in exploitation.

The waste resulting from the manufactures is to be sorted and classified from a dimensional, chromatic and textural point of view [7].

In the textile industry there are currently studies that offer useful solutions for understanding the product development processes for the fashion industry in order to rethink, reuse or recycle waste at the production stage [8].

These studies propose a new connection between the different components of the value chain: design, production, marketing to create fashion items so that, where possible, this waste is used to create new products, and the advantages of implementing this solution are highlighted [8]. This strategy can be successful by integrating the vertical value chain, by strengthening the creative department, fashion design and by engaging in marketing and sales [8].

A number of basic principles are observed in the process of creating objects, namely:

- ✍ choosing the object with the proposed one;
- ✍ rational waste sizing;
- ✍ correlation of the shape of the product with the shapes of the component parts;
- ✍ the appropriate choice of materials from a textural point of view;
- ✍ chromatic choice.

After selecting the pieces of material, the harmonious images are outlined in mind, then a sketch of the model is drawn reaching the desired shape, then it is proceeded to execution using different techniques depending on the need, either gluing, sewing, twisting, rolling, cutting, or combined with each other and at the end the shape will be improved, retouched and finished to give birth to totally original accessories. Extremely important are also elements of décor, which must be in symmetry and in harmony with the proposed model. Another extremely important aspect is the economic one, to be evaluated from a financial point of view. The material, the duration and complexity of the execution together with other components that contribute to the final result are all taken into account.

In this paper we chose to show how to make several small accessories, namely necklace models and earrings, made from the waste resulting from the workshop.

We chose to make denim accessories because as we know denim is a type of fabric, usually made of cotton, and cotton is a vegetable fiber.

Cotton fabrics are versatile, with good durability, breathable, hypoallergenic, with very good capacity of retaining dyes, with good resistance to abrasion, all this making it a material preferred by those who make accessories, because it provides wearing comfort.

Both the necklace Figure 1.a, and the earrings Figure 1.b, are made of a piece of material extracted from denim waste that was unfolded and checked from an aesthetic and qualitative point of view, on the grounds of texture and uniformity of color. Then strips of material were cut out and were assembled piece by piece, twisted, glued, and in the end for added value, decorative elements were applied as evidenced by Figure 1.a. Figure 1.c shows the complete set of accessories.

The necklace made of various synthetic textiles Figure 1.e, is thought out and sketched in such a way that it can be worn at the neck. This necklace is made of a variety of small textile wastes that



have been rolled piece by piece Figure 1.d, keeping a chromatic, after which they were glued together and finally attached to each other with wire for fastening. Two more rolls were attached at the end to be able to support the necklace at the neck as evidenced by Figure 1.f.

The necklace in Figure 1.h, is made of felt Figure 1.g, a textile waste resulting from the manufacture of previous garments. Green and turquoise color was chosen because these colors are extremely vibrant. For example, the color green is the color of hope and balance, it is a balm for the soul and body, it offers the feeling of freedom and those who have problems accepting some situations need this color. Turquoise is a mixture of blue and green color, which gives a feeling of calm, it is associated with meanings of femininity, sophistication and energy. For the execution, the technique of rolling the material was chosen, then the edges were finished for a clean look, and at the end a silk ribbon was attached so that it could be fixed to the neck as evidenced by Figure 1.i.

## 5. CONCLUSIONS

The volume of textile waste is constantly increasing due to multiple factors such as population growth, the adoption of Western consumption patterns by developing countries, etc.

A significant percentage of textile waste is represented by materials made of cotton and polyester, which are the most studied materials in research on waste recovery.

In most cases, the recycling of textile waste consists of a mixture of chemical, mechanical and thermal processes.

The recovery and reuse of textile waste can be done permanently, down to the smallest details and through their recovery we can create objects from decorative to the most useful.

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