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Eco design in the furniture sector


Permasa Spain

In partnership with:

With financial support
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Introduction:

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Company's Description:

A leading company in the office furniture industry (desks, partitions, closets, etc.) on a national and international level. It is situated in Almazora, in the province of Castellón, in Spain. It is certificated with the ISO 9001 Standard, obtained for all of its products. In addition, the company has the ISO 14001 Standard certification, a firm commitment to continuous improvement of all the environmental aspects in its processes and products.

Sub-sectors affected:

X Furniture (2nd Transformation)

Implementation Process:

The company has developed its own ecodesign methodology, focused on the knowledge, investigation and the environmental identification of the materials and processes of Permasa. The company undertook this process by redesigning an already existing and owned product which had a high sales rate through its long presence in the market for many years. The incorporation of Eco design in companies' products of the furniture sector is going to be a key factor of innovation, with direct impacts in the environment involving every company department. The objectives that were set at the beginning of the process of redesigning the product were to achieve a more ecoefficient product version, reduce its manufacturing costs, optimise a more attractive design for the product and reduce its environmental impact throughout its entire life cycle

Initiated practices:

An evaluation of the environmental impact of this product was conducted, by analysing its life cycle, in order to evaluate the environmental burdens connected to the product, during the process of production and in reality as well. This was carried out by identifying and quantifying the use of raw material and energy and what is more, all kinds of the waste and landfills produced throughout its life cycle. In this way it was obtained to determinate which were the impacts of the use of materials and energy as well as of the emissions released in the environment, and, at the same time, evaluating what were the opportunities to implement to achieve instant improvements.

In the stage of production, the most relevant stage and main objective in the process of eco design, the categories of the collection of the material, the processing, the coating and the transportation from the provider were included. For example, through the methodology of the environmental evaluation of the product it was detected that only the coating of the product represented the 95% of the environmental impact of this piece of furniture, which led to its redesigning according to the strategies of reduction of the thickness of the board but still by meeting the regulatory requirements of the amplitude at its use and the use of certified board from sustainable forest management (PEFC Certificate) and with low emissions of formaldehyde (E1)

Furthermore, it resulted to the redesign of other parts of the product following new strategies such as the simplification of the structure of the piece of furniture with less cost but maximum efficiency and the use of powdered paint coating for the body and base of the product instead of metallic coating due to causing high toxicity rates in processed water. Moreover eco-designed strategies were applied in the packaging, making all the components easily separable, using recycle and recyclable carton and on the end of life stage of the product that would be easily detachable and recyclable of its most important components (coating, structure and legs)

Results:

The main result was to reduce the produced impact by almost a quarter for every single one of the stages of the life cycle of the redesigned product. Thanks to this, the company counted on a methodology adapted for its typology of product, from the phase of design and development, allowing it to pursue its environmental commitment all along the product life cycle. From that moment on, the company has accomplished firstly, the development of the products with greater respect of the environment (lower environmental impact throughout its cycle of life) and greater functionality, and quality with an innovative design. Secondly it has accomplished the improvement of the company's image and competitiveness through the continuous communication with its clients and finally the increase of

the knowledge of the environmental impact of its activities and the better selection of materials and suppliers.

Recommendations:

The furniture manufacturing companies should incorporate eco-design in their products having in mind all stages of their life cycles. Raw materials and the components of the packaging have a very high rate of recyclable materials. Remove the potentially dangerous materials containing heavy metals or toxic substances and choose environmentally friendly material. During production, reduction of emissions of VOC and CO₂ should be achieved in order to minimize waste and the water and energy consumption.

More over the process of designing of the packaging should comply with the objective of reducing the weight of the trucks in order to directly optimize the CO₂ emissions. In addition the objective at the stage of designing should be the creation of long lasting products whose pieces could easily be replaced when damaged or deteriorated. For that reason the product and its materials should be tested for their resistance and durability. Finally at the product's end of life stage, in order to simplify recycling, optimization of the mixture of components of the furniture and the creation of practical and functional products that will facilitate their reuse as furniture should be addressed.

Conclusions:

The eco-design is a methodology applied to the process of manufacturing the products in order to accomplish reducing or preventing their environmental impact. Finally, the eco-design minds the environmental impacts on every stage of the design and development of the products, in order to achieve that these produced goods have the least environmental impact throughout their life cycle.

Keywords:

- X Processes
- X Marketing