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Reverse logistics practices in the glass sector in Spain and Belgium

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Abstract

The legal and social pressure to recycle materials is constantly on the increase. As a result of the physical characteristics of glass and its large-scale use, the glass-producing sector represents one of the most important in terms of volume when implementing reverse logistics practices. This article studies the relationships with suppliers and customers from the perspective of environmental demands on the part of the packaging and bottling companies that use this material. The study compares the results obtained in two European countries, Spain and Belgium, which present very different characteristics as regards consumer habits and recycling.

Keywords: Reverse logistics; Environmental issues; Supply management; Process industries

1. Introduction

In recent years, concern for the environment has increased for a number of reasons. Firstly, as a result of the important negative environmental impacts that company products and processes are producing (Azzone & Noci, 1998). Secondly, due to the pressure that society is exerting on its institutions to address environmental issues (Murphy & Poist, 2003), which translates as new legal demands (for example, European Union laws require manufacturers to collect and reuse many types of products). Thirdly, managers appreciate the benefits to their company image of adopting environmentally concerned programs (van Hoek, 1999). Lastly, consumers have changed their preferences, which are

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transferred the entire value chain (Lampe & Gazda, 1995), modifying the responsibilities of suppliers and manufacturers with regards to the products they place on the market (Bloemhof-Ruwaard et al., 1995).

As a result of the aforementioned pressure, environmental practices have been adopted by companies that consist of both increased investment in clean technologies as well as the redesigning of processes and organization. This has meant that environmental management has become an element of a longer corporate or functional strategy (Ebrahimi, 2000; Hoque, 2004; Hutchinson, 1996; Sarkis, 1995). On the other hand, the environmental implications of logistics systems are one of the future challenges to companies (Abukhader & Jönson, 2004).

Given that an impact on the environment is produced in all the phases of the life cycle of products (elaboration, transport, use or destruction), the integration of environmental questions consequently influences the choice of process technologies, the management of the supply chain or the development of new products (Angell & Klassen, 1999). Accordingly, total quality environmental management, life cycle analysis, green supply chain management and ISO 14000 standards are becoming more and more widespread practices.

The concept of reverse logistics emerged as an attempt to reduce the extraction of raw materials and to reduce the disposal of waste in landfills. Dowlatshahi (2005) defines reverse logistics as a systematic process that manages the flow of products/parts from the point of consumption back to the point of manufacturing for possible recycling, remanufacturing or disposal.

Although the phenomenon is not new, the management of return flows (products that have been used and disposed of by the customer or end user) originating from the different forms of reutilization of products and materials in processes of industrial production has been the subject of special attention over the last decade (Fleischmann et al., 1997). Among the many industries that have put this type of reverse logistics technique into practice, we find the iron and steel industry, commercial aviation, the computer industry, the household appliances sector, the automotive industry or the medical products sector (Beullens, 2004; Dowlatshahi, 2000; Sarkis, 2001). These practices have already been instigated in these industries as well as in many others and will be implemented even more so in the coming years, since reverse logistics is being recognized as a competitive advantage for most companies (Meade & Sarkis, 2002).

The aim of this environmental strategic viewpoint is to revalue products once they have been thrown away by the end consumer, thus closing/extending their life cycle. Diverse alternatives exist to do so: reutilization, repair, renovation, reprocessing, cannibalization or recycling (Thierry, Salomon, van Nunen, & Van Wassenhove, 1995). All of these mean the returning of products once they have been used, and hence an inverse flow from the customer to the producer; i.e. what is known as a reverse logistics chain (Fleischmann, Krikke, Dekker, & Flapper, 2000). To put any of these alternatives into practice, companies need to define in collaboration with their customers the changes in their relationship with the goal of returning products at the end of their life span (Azzone & Noci, 1998).

In this paper, we shall focus on the study of a material, glass, whose use contributes to the conservation of the environment, due to the fact that it forms part of nature itself without any type of manipulation whatsoever, as well as proceeding from a raw material that is naturally abundant. Moreover, it is simple to extract and is not harmful to the