12 Recycling surface treated paper products

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12.1 Introduction

Recycling once-used paper is a well-established process within the international paper and board industry, accounting for approximately 35% of the raw material used. Its importance as a raw material is growing with predictions [1] that it will exceed 45% of the raw materials used by the global paper and board industry by 2010. Figure 12.1 illustrates this.

No systematic study has been made of the influence of surface treatment and treatment chemicals on recycling. Some effects have been documented, particularly those that are detrimental. The key issue to many is the extent to which surface treatment chemicals may restrict the ability to increase recycling rates, particularly with the trend to surface treat more grades for functional and process reasons. This must not be taken out of context, as other trends, particularly to lighter weight papers, also have an impact that may be greater.

Historically, the reason for the success of waste paper as a major papermaking raw material is economic. The total cost of purchasing waste-paper raw materials and processing them into marketable products is less than the competitive alternatives provided by virgin pulps. Because the recycling of paper is a mature industry a broad balance exists between the availability of waste-paper grades with the properties required for the manufacturing process to convert them efficiently into products. Factors that contribute to this balance include the collection cost and waste-paper price relative to pulp. Legislation and subsidies that tend to favour waste paper are also important.

As with any other product, there are periodic disturbances in supply and demand that increase or decrease the competitiveness of waste paper. Along with many papermaking raw materials, prices vary widely with the point in the economic cycle. Although there is a relationship between waste-paper and pulp prices there are some fundamental differences. It is possible for pulp mills to take downtime and either stockpile chips or delay harvesting. This option is not readily available for waste-paper users as there are logistic problems of storage. Unlike wood or chips the papermaking potential of waste paper falls significantly when stored.

The recovery rate of waste paper expressed as the proportion of paper
collected for use as an industrial raw material to the total amount consumed varies considerably from one country to another. Figure 12.2 illustrates the recovery rates achieved in 1993 or 1994 for European countries, in order of their apparent consumption [2]. Clearly there are large differences within the developed economies, with the Austrians, Dutch, Germans and Swedes in the lead. The United Kingdom and southern European countries with lower environmental pressures lag. Recovery rates also reflect the balance between the production of various grades and the investment made by the country in recycling capacity and