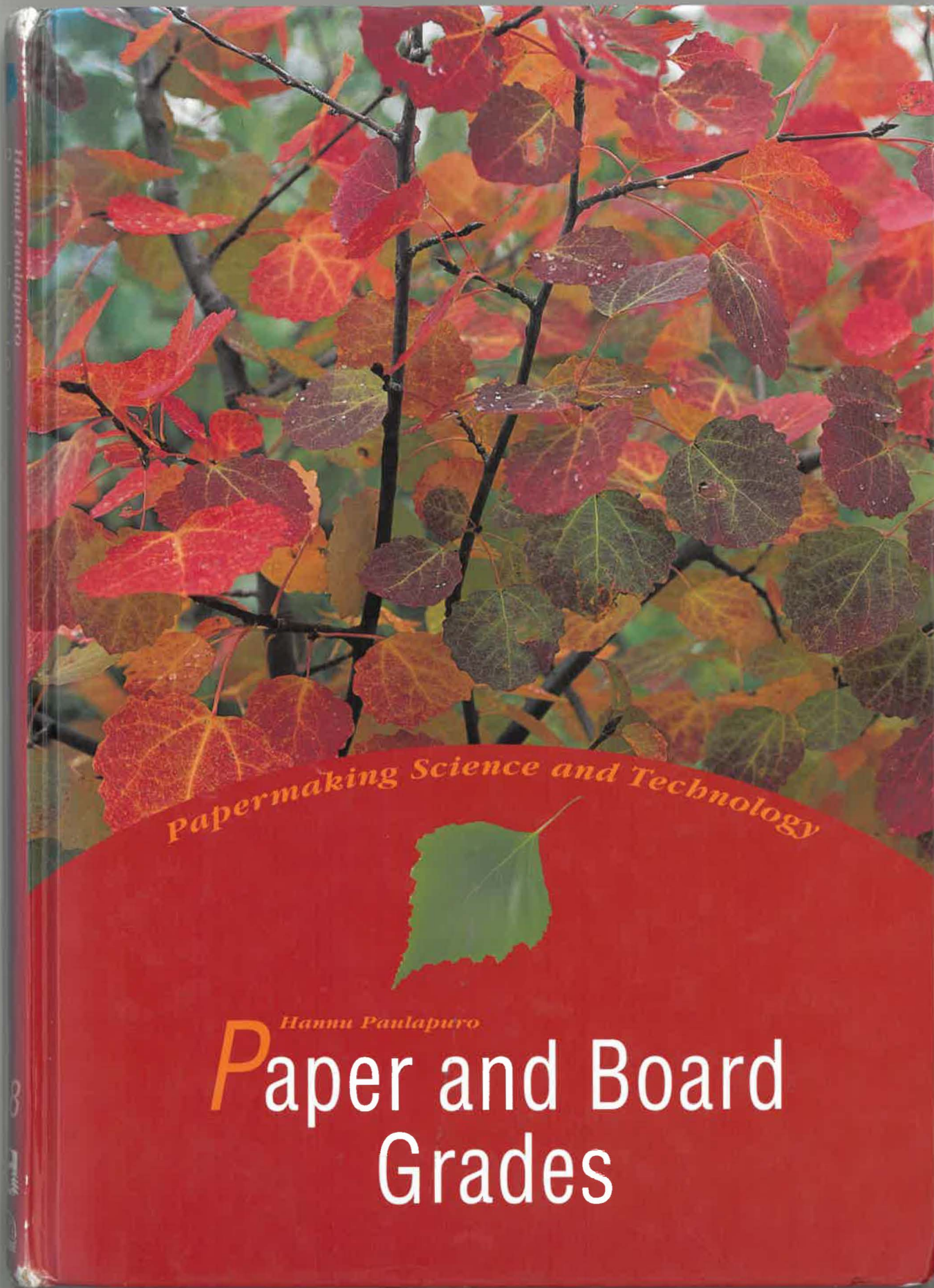




Papermaking Science and Technology

Hannu Paulapuro

*P*aper and Board Grades

Papermaking Science and Technology

a series of 19 books
covering the latest
technology and
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Book 18

Paper and Board Grades

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Paperboard grades

There is a wide variety of paperboards on the market. Paperboards are classified into three categories: cartonboards, containerboards, and specialty boards. The classification used in this chapter is shown in Fig. 1.

There is no clear definition how paperboard differs from paper. However, there are certain things that are common for most paperboard grades.

Usually basis weight of paperboards is higher than 150 g/m^2 . There are exceptions like many linerboard and corrugating medium grades that can have a basis weight lower than 100 g/m^2 . Also, most of the paperboard grades are multi-ply products like folding boxboard and liquid packaging board. Corrugating medium is an exception also here since it is very often a single-ply product.

Paperboards are very often used for packaging, but again there are exceptions like plasterboard. Because of their function in the packages, strength properties are most often very important for paperboards.

Cartonboards are mainly used for consumer product packaging for products such as food, cigarettes, milk, and pharmaceuticals. World production of cartonboards totalled 32 million tons in 1998.

Containerboards are a very big market in paperboard industry. Corrugated boxes are used in many packaging applications starting from simple transportation containers and ending with multicolor printed display containers for stores. In 1996 the world total for corrugating materials, including all paperboard types for corrugated boxes, was almost 80 million t. Figure 2 shows the distribution of corrugating materials production throughout the world.

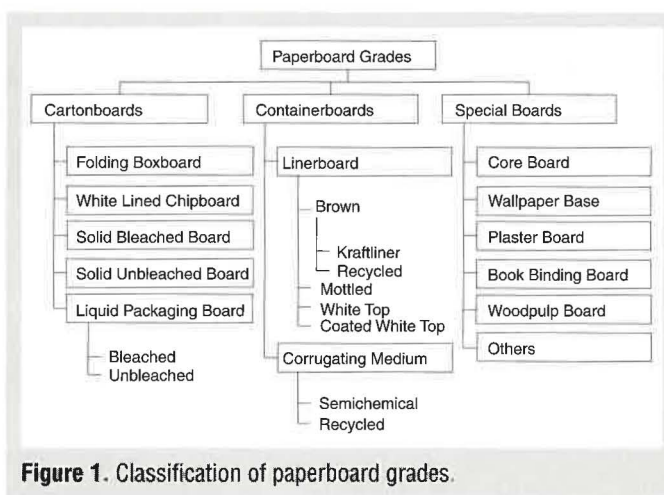


Figure 1. Classification of paperboard grades.

CHAPTER 2

Paperboard has to compete with other packaging materials such as plastics. Various types of paperboard make very good and durable packages that are also recyclable. Old corrugated containers, for instance, are very efficiently used as raw materials for linerboard and corrugating medium. The fact that paperboard products are environmentally friendly and recyclable makes them very competitive against many other packaging materials.

1 Cartonboards

Cartonboards are divided into various subgrades. Table 1 shows typical classifications. The abbreviations shown in the table are used later in the text to indicate various cartonboard grades. This classification is made based mainly on the raw material used.

For good printing properties, most of the cartonboard grades are pigment coated. The printed side is often double coated; in some cases discussed later, the top side can be triple coated. There are also certain applications in which rough appearance is needed and uncoated cartonboard is used.

1.1 Boxmaking process

Each end use sets its own demands on the properties of cartonboard. There are, however, some basic requirements common to most of the end uses. The requirements can be divided into mechanical and functional characteristics, purity and cleanliness, and visual characteristics. This is discussed in detail in volume 12, *Paper and Paperboard Converting*, of this series.

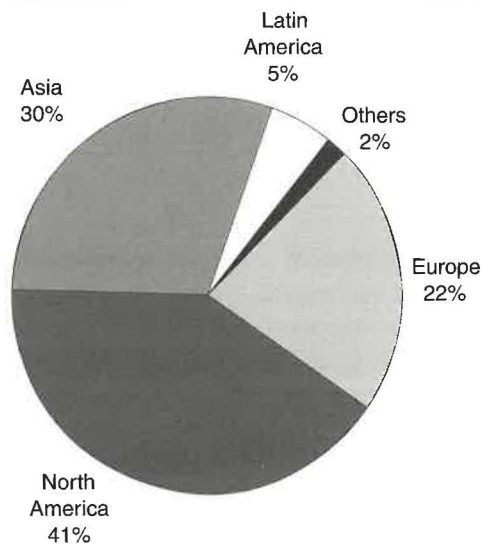


Figure 2. Distribution of corrugating materials production in the world¹. Total production was 79.5 million t in 1996.

Table 1. Cartonboard grades.

Grade	Abbreviation
Folding boxboard (Scandinavian type)	FBB
White lined chipboard	WLC
Solid bleached (sulfate) board	SBS
Solid unbleached (sulfate) board	SUS
Liquid packaging board	LPB