

PART I

■ INTRODUCTION ■

The report which follows is the fourth prepared by Omega Research during the last quarter century on the topic of aluminum foil in packaging. The previous three came at critical junctures for the aluminum industry in general and foil producers in particular. The first study, entitled *Aluminum Foil in Packaging*, was published in 1986 and coincided with the widespread acceptance of competitive packaging such as barrier resins, dual-ovenable trays, and metallized substrates which seriously threatened foil's well-established packaging markets. The second study, entitled *Recent Developments in Aluminum Foil Packaging*, was published in 1991 at a time when the Soviet Empire had recently collapsed and state control of major industries was giving way to privatization in many parts of the world. In Europe, the former Soviet satellite nations were just beginning the long journey to free markets and integration with the rest of the continent's economies. At the same time, the European Union (EU) was moving towards the dismantling of the economic walls separating its members.

The publication of the third report in 2001, entitled *The Outlook for Aluminum Foil Packaging*, occurred during the peak of industry consolidation, globalization, and downstream integration. Well-established producers such as Alumax, Reynolds Metals, Alusuisse, and Pechiney were absorbed by the

two major global producers, Alcoa and Alcan. Along with primary aluminum capacity, a large number of downstream businesses came with the acquisitions. Alcoa and Alcan became the largest foil producers in the world as well as major packaging converters. Alcoa also became a major supplier of foil and plastic consumer products. *The Outlook for Aluminum Foil Packaging* also discussed the rise of the middle class in emerging countries and their potential as significant markets for high quality consumer packaging.

The current report coincides with the centenary of aluminum foil. As it is prepared in mid-2010, the world continues to dig its way out of the worst economic downturn since the Second World War. After peaking in mid-2008 at \$3,200 per tonne, aluminum prices collapsed during the second half of the year. During mid-December of 2008, prices bottomed out at \$1,450/tonne before beginning a slow but steady ascent in 2009. By the end of 2009, pricing was up to \$2,200/tonne, a 14-month high. Similarly, primary aluminum consumption took a sharp downturn during the fourth quarter of 2008 and totaled 38.5 million tonnes for the year, barely 1% above the 2007 level although still an all-time record. Some improvement in the fortunes of the industry occurred during the second half of 2009 and is continuing into 2010 but a full recovery is not expected until 2011 at the earliest.

REPORT HIGHLIGHTS

During the preparation of this report, several salient points relating to future demand for aluminum packaging foil emerged. They will be dealt with in subsequent chapters, but a quick overview may be helpful.

- (1) From the perspective of semi-finished aluminum products, the downstream acquisitions made by the major aluminum producers during the previous decade are being reversed. Alcoa has sold its converting and consumer packaging operations and is in the process of selling its global foil business to focus on primary production. In 2009 and 2010, Alcan (now RioTinto Alcan) divested much of its far-flung converting business. Previously, in 2005, it spun off its flat-rolled business (including the world's largest foil rolling operations) into a new company called Novelis (see Part III). Among the ten largest producers of primary aluminum, only Alcoa, UC Rusal, Chalco, and Hydro Aluminium currently produce aluminum foil.

- (2) As the large integrated aluminum companies sell off their foil rolling businesses, new companies are emerging. In some instances, they are divisions of regional primary aluminum companies (i.e. CBA in Brazil and Hindalco in India). Some packaging companies have integrated vertically and acquired foil rolling capabilities. For instance, Constantia, a pan-European company, and Oracle Packaging in the U.S. both produce foil in-house. Typically, the new aluminum foil producers are smaller than their predecessors and, in many instances, are privately owned.

- (3) The strongest growth in demand for aluminum foil packaging (indeed for all types of packaging) is occurring in the emerging countries of the world. Once known as the "Third World", these countries grew rapidly as economic powers during the last thirty years as low wages (relative to North America and Western Europe) combined with entrepreneurial skill and abundant natural resources. As a result of their economic growth, a substantial middle class developed in the emerging countries. This new

middle class has the resources to pay for packaged goods (i.e. food, pharmaceuticals, cigarettes) once considered luxuries.

China, which is now the largest producer of primary aluminum and aluminum foil, gets most of the publicity. Although its per capita has risen and the urban Chinese middle class numbers 100-200 million, the 700 million people living in rural areas have not fared as well. Absolute levels of poverty and illiteracy in the countryside have actually risen since 2000 and the urban-rural income ratio has increased from 1.8 to 3.5.

Less publicized but nonetheless significant growth is occurring in Southeast Asia, India, Latin America (particularly Brazil), and the Middle East. The ten countries that comprise the Association of Southeast Asian Nations (ASEAN) have a total population of 560 million and \$1.3 trillion aggregate GDP. India's middle class is estimated to be about 300 million and the country has a well-developed consumer marketplace that includes both luxury and low-cost products. Brazil, after decades of failing to live up to its vast potential, is emerging as a global power. More than half of the country's 192 million people are classified as middle class and income inequality, a major problem in Latin America, is declining.

- (4) Aluminum foil is used extensively in a variety of industrial and packaging applications, but among all applications, flexible packaging made the greatest strides during the last decade. The increased use of sophisticated multilayer and multimaterial structures provides opportunities to reduce material weight and cost while protecting the

packaged goods and minimizing postconsumer waste after use.

According to PIRA, a British consultancy, consumer packaging used 14.8 million tonnes of flexible packaging material in 2009. By 2014, total volume is projected to increase to 17.5 million tonnes.

The current report will examine the developments mentioned above within the context of aluminum foil packaging. It will also profile the major producers and converters of aluminum foil and foil-based materials worldwide. The major packaging systems that employ foil such as aseptics, semi-rigid containers, blister packs, and lidstock will be examined, as will competitive materials such as barrier polymers and metallized paper and film.

DEMOGRAPHIC CHANGES

While the recovery from recession and the changing emphasis of the large aluminum producers are important, the most significant and long-lasting change in the first decade of this century is the rise of emerging countries. The economic successes of the BRIC countries (the acronym was coined by Goldman Sachs and stands for Brazil, Russia, India, and China) have been well documented for nearly a decade. Collectively, they have 42% of the world's population as well as significant industrial capabilities. China, with more than 1.3 billion people, is now the largest producer of primary aluminum and aluminum foil. Russia's USC Rusal is the world's largest producer of aluminum as well as a major foil supplier. India's Hindalco now owns Novelis, whose foil rolling operations are located throughout the world. Other emerging countries in the Middle East (Turkey, Dubai), Southeast Asia (Singapore, Malaysia, Indonesia), and Latin America (Chile, Mexico) are also gaining economic clout. In 2005, for the first time, emerging countries