


Global Stainless Steel Scenario



The modern refining processes used to produce stainless steel allow a wide range of raw materials to be used economically, of which scrap from stainless steel products is only one. Sophisticated "blending" processes are used by specialist suppliers in order to provide quality-assured feed to stainless steel mills. These blending processes can utilise nickel-containing products from a very wide range of fabricating or end-of-life sources - including low-nickel steels; high nickel alloys; mixed turnings; end-of-life engineering assemblies; reject products from primary nickel producers; and re-melted ingot from processing nickel-containing slags, dusts, batteries, and spent plating fluids. This "omnivorous" character of the stainless steel industry means the stainless steel industry puts a higher value on many of these products than does the industry which originally generates the products. Hence, many products become feed for the "stainless steel loop" rather than feed for the industry sector that originally produced the products. Any attempt to model the recycling of nickel has to include all aspects of the stainless steel loop. The high price of nickel also encourages commercial users to use nickel very efficiently in the first use. This can result in the nickel content of a fabricated product being too small at end-of-life to commercially motivate the collection and sorting of the product primarily for its nickel content.

About 60% of nickel is used to manufacture stainless steel. Around 20% is used in other steel and non-ferrous alloys, often for specialized industrial, aerospace and military applications. About 10% is used in plating, while 6% is used in other applications, including coins and a variety of nickel chemicals. Stainless steel has been witnessing an average growth rate exceeding 5% per year worldwide during the last three decades. Production of stainless steel in different regions, specially in Asia is showing impressive growth in recent years. As the emerging middle class in countries such as China and other Asian nations demand more stainless steel products from sinks to door handles, nickel consumption is on the rise. Stainless steel currently accounts for about two-thirds of nickel consumption up from one-third in the past three decades. While nickel demand in Europe and the Americas decreased in the period from 1997-2002, this demand increased in Asia and the former East Bloc countries. During the past decade, consumption of stainless steel in China and India has grown at an average rate exceeding 20% and 10% respectively. However per capita consumption in these countries is 4.1Kg and 1.1 Kg which is relatively very low indicating huge scope for growth. Chinese nickel consumption increased by

15.4% in 2005, slightly less than the 19.1% growth reported in 2004. Chinese consumption during this decade has actually been the single largest factor impacting the nickel market, with supply struggling to keep pace with this rising demand due to a physical shortage of the metal. In fact, China recently announced a cut-back in stainless steel production because they are unable to source enough nickel. This rising demand and limited supply is pushing up prices. As of July 2006, nickel was trading at over \$12.00US per pound in contrast to historical prices of less than \$5.00US over the previous 15 years. Experts predict that this continued high demand – based not only on China's continuing economic boom but also on the West's demand for hygiene, will continue for the foreseeable future

Only about 1.3 million tons of new or primary nickel are produced and consumed annually, compared with over 15 million tons of copper and nearly 800 million tons of steel. The growing world economy through the mid-nineties triggered an expansionary drive in nickel capacity by existing manufacturers resulting in a production increase of 30%, in the five year period from 1993-1998. European expansion in both Finland and the United Kingdom accounted for most of the 48% (60,000 ton) increase in production, while expanded production in Australia and New Caledonia accounted for all of the 39% (35,000 ton) increase in Oceania. Japan accounted for most of the 22% increase in production in Asia during that same period. The rising demand for nickel production, with its associated high commodity prices, has spawned new approaches to nickel production. Historically, most sulfide nickel ore bodies are mined underground at relatively low production rates and with mining costs that can approach \$20 per ton, or even more. The current lack of high grade nickel sulfide exploration targets has more recently shifted attention to laterite nickel deposits, which can be mined at low cost using modern mining and process methods that recover ore at grades well below those that had traditionally been exploited. These new methods are changing the way large mining companies and knowledgeable investors are looking at mineral properties.

Global Stainless Steel Production

Region	2005	2006	2007
Asia	12,498	15,074	16,850
America	2,688	2,951	2,850
W.Europe & Africa	8,795	9,971	9,700
Central & Eastern Europe	310	363	400
World Total	24,292	28,358	29,800