

China Nickel 2005
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Good morning, Ladies and Gentlemen.

I am most grateful to the organising committee for this opportunity to address this conference. It is very appropriate that this meeting is taking place in the growth hub of stainless steel. I hope and believe that China will continue to play a key global role in stainless steel and nickel in the longer-term future.

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I would like to start with a few words about my company's involvement in nickel.

Since 1996, our strategic focus has been on supplying the primary raw materials needs of the stainless steel industry. This is for two main reasons:

- Stainless steel is the fastest growing major use of metals, and thus the growth engine for nickel;
- We are a large company, and we can provide, gain and share more synergies when we partner other major companies. The consolidation of the stainless industry means that our customers tend to be very large companies indeed.

In 2001, we formed our Stainless Steel Materials division, now a Customer Sector Group within BHP Billiton, by combining our Ferrochrome and Nickel businesses. Although we are currently selling our ferrochrome production business, we will continue as a marketer of around 1 million tonnes per annum of ferrochrome under our partnership with Kermas.

Today I will present some views on three subjects:

- A Ni producer's view of the 2004 stainless steel market;
- How we see the development of the different stainless steel grades and the intensity of use of stainless in China;
- A brief comment on the market and outlook for nickel, drawing on this analysis.

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World Stainless melting production in 2004 grew at above the historical trend rate of 5 – 6% pa. Estimates vary, but are in the range 7.5-8% growth, led by China. China now accounts for >10% of world stainless steel demand.

Estimates for 2005 also vary. There is a definite slow-down in Europe and some other markets. But on average, growth for 2005 still looks likely to be at or above trend.

Once again, the driver is growth of demand in China, supporting increased melting in Japan, Korea and in China itself.

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Looking at the **distribution** of global **melting growth** in 2004, it is clear that Asia dominated the picture, with 70% of the growth occurring there. But more than Asia, China was really the engine of growth. With 26% of the growth in its own right, China was the market for most of the new capacity in Korea, and also Taiwan. India is also a significant exporter to China.

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Let's look at this market in more detail – and we can see how so much of the performance of Stainless has been dependant on the Chinese market.

90% of China's imports came from Asia.

Nearly 40% of Chinese stainless imports came from South Korea, essentially from Posco. Nearly 30% came from Taiwan.

Also bear in mind that total Chinese Consumption of Stainless in 2004 was 4.6 Mt and Chinese imports were a total of 2.3 Mt. Hence the imports from Taiwan and South Korea total some 1.5Mt.

However, Chinese companies will bring on new domestic melting capacity of over 5 million tonnes from 2005 to 2008, and this is likely to have an impact on the current import balance. So, will the world's markets be able to absorb this additional capacity? Or will intense competition for market share, as we are currently seeing, keep base prices under downward pressure for an extended period?

As an aside to this – as a nickel producer, one also wonders how much of the current issues around **300 series** base prices and sales are due to excess stainless steel melting capacity, and how much is due to the high price of Nickel?

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If one is to draw any conclusions about primary nickel requirements, we must take the scrap supply picture into account.

Stainless steel scrap availability is generally assumed to increase when the price of Ni increases. This graph suggests that the correlation is not that precise. In the 1990s we saw a huge influx of scrap from the FSU, even though Nickel prices were generally very low. In fact the low Ni prices were in part due to the emergence of large amounts of scrap. Perhaps the causality was in fact reversed.

Amongst the other factors are that:

- Scrap collection and preparation have become far more efficient over the past 10 years, and
- Stainless steel mills have become more proficient at using scrap efficiently.

However, we are now seeing a situation, I believe, where there is limited elasticity of supply in relation to nickel price. This is because the reservoir of **excess** scrap accumulated in prior years has been used, and we are approaching the “natural recycling rate” – which gives an external scrap ratio of around 30%.

Of course, the increased production of ferritics, the problems of recycling 200 series stainless, and the nickel price will all have their overlay on this picture. But the fact remains that the external austenitic scrap ratio has remained at much the same level since 2001, despite the nickel price being a great deal higher

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The next factor is substitution of 300 series stainless, especially by 200 series. I'm sure better informed observers will comment on this, but as I see it the situation is as follows:

The market share of 200 series stainless has grown very aggressively over the past three years, from a very low base to around **9% of global melting**.

Consumption is mainly in India and China, and the growth has taken many in the industry by surprise. In fact 50% of all 200 series global production is consumed in China.

We don't believe that we will see further significant growth in the **market share** of 200 series. This is mainly because its applications are really limited to the construction and decorative market segments, and to some extent its traditional application in India – consumer durables. In these sectors, certainly in China and India, 200 series is already being used where it is applicable (and, anecdotally, in some areas where it is not).

The weaknesses of 200 series are:

Low corrosion resistance - It is not suitable for chemical plants, and in general for chemically or thermally aggressive applications;

High temperature performance is poor – Nickel and titanium are the 2 recognised elements that exhibit low expansion when exposed to high temperatures.

Surface finish – For instance in the use in elevators, the stainless cost is about 1% of the total cost of the elevator. However, it's the most visible part of the elevator and therefore, manufacturers are very reluctant to compromise on the superior surface finish that is provided by 304.

According to some work done by the Nickel Institute, demand in India currently shows a higher growth rate of 300 series relative to 200. This suggests the Indian market is becoming saturated and that an increasing proportion of stainless is going into industrial and higher quality durable goods where 300 series has advantages.

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In respect of the last comment, one hears comments from two extremes –

1. That the world is awash with hidden stocks of Nickel and the current price is a result of speculation. This is difficult to believe given the backwardation in the market.

2. That there is a huge shortfall and price risk is still for further upside.

I don't subscribe to either school – that there is a relative shortage of nickel units is clear, but demand has adapted to the current level of supply. It seems we have, at this level of supply, sufficient elasticity of demand to give a balanced market.

However, we should expect that this elasticity of demand will act to keep prices at current levels, given the structural shortage.

Of course, this still begs the question as to what is a “reasonable” nickel price – and here there are also opposing views. On this question I don't have a view. Our aim is to serve our core customers to the best of our ability, and we, as a producer, must leave the setting of prices to the markets.

I would like to turn now to a foreigner's view of the Chinese stainless market, and on the impact of intensity of use in this market.

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Chinese stainless steel demand derives mainly from three sectors – **Industrial, Consumer Durables, and Construction**. These constitute >90% of total consumption.

Possibly the key factor in the Chinese stainless steel story is that China is more than anything a major, and growing, **domestic market** for stainless steel. At least 70% of the stainless steel consumed in China actually stays in China, and is not exported. Listening to some of the debates about international trade, one could be excused for gaining a different impression!

Three pillars of demand

Consumer durables are the main exports.

- 75% of the volumes in this sector are exported
- China produces 60% of the world's flatware, and last year 90% of the flatware produced in China was exported. That is about 1 Mt.
- The main grades here are 400 series (50%). In the balance 200 and 300 series are substitutable – as long as you don't use a dishwasher, I believe!

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The main **Industrial** applications are in chemicals, petrochemicals, oil refining, and power generation.

Growth in this sector is driven by industrialisation. In the past 15 years IP as a % of GDP in China has increased from 39% to 56%, and continued growth is expected.

This is a major driver of raw materials consumption.

The central government has identified the chemical sector as a key industry. It is expected that this sector will grow at a CAGR of about 10% for, at least, for the next 5 years. Stainless demand for industrial usage is dominated by 300 series, and the higher Ni bearing alloys are also in demand here.

Use of 200 series is restricted. Corrosion and thermal resistance are the main failures. Some very expensive mistakes have been reported from inappropriate use of these inferior grades. Users are reported to be much more strict on specifications as a result.

In a major industrial project the stainless steel cost is only around 5% of the total. The delta in cost between stainless grades is not large enough to drive substitution to lower grades of material. Thus in this key growth sector, substitution will not be significant.

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Construction

The key driver in this sector is urbanisation. In China, 10 years ago about 28% of the population were city dwellers. Currently this figure is around 38%. By 2025 this will increase to 65%. We are seeing around 15 million people a year moving from the countryside to cities.

This sector is the major consumer of 200 series. 200 series has already permeated to all applications where it can be used. It constitutes over 60% of all stainless for this sector. This “substitution” **(it was more occupation of vacant space than substitution)** has largely taken place in the last 2 years. It is quite possible that 200 series usage may decline in relative terms in the future as greater awareness about different grades of stainless is established and the non-suitability of 200 series for certain applications becomes “visible”.

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The main point here is that 200 series not only has technical limitations for users but also economic limitations for large stainless producers.

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In this graph, we have plotted per capita stainless consumption with per capita GDP at PPP. We see that South Korea (Green) had a spectacular rise in stainless consumption as its per capita income rose. Without doubt, a lot of that stainless consumption was for export purposes. So this can be considered something of a special case.

Japan (Orange) and to a lesser extent W. Europe (Grey) had a strong positive correlation between growth in incomes and stainless consumption. This begs the question – where is China (currently light blue on that graph) headed?

Our assessment is that China, in its stainless consumption pattern, will at least be similar to Japan.

China's total stainless consumption is represented by dark blue in the graph, while consumption only for its domestic use is coloured in pink. China's stainless story is largely a domestic story and therefore, the pink and dark blue lines are quite close together. But given the scale of China's domestic market, and that it is urbanising in the 21st, rather than the 20th century, the projection here could well be conservative.

When societies urbanise and industrialise, they change in the framework of their time. They do not start from where their predecessors started. Thus the intensity of use of materials will not follow the same path

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The fact is that stainless is far better established now than when US and W. Europe per capita income was growing strongly. As this picture illustrates, when W. Europe was developing, stainless was not even available. And people needed large publicly displayed clocks – because most didn't have watches. As China develops, most town dwellers already have digital watches, mobile phones, and air-conditioners, which were unknown when the industrial economies of Europe and N America developed. The materials to make them did not exist. China's architects and designers have modern materials – stainless steel, plate glass, plastics, to create their spaces and realise their visions.

Stainless steel is versatile, attractive, strong, recyclable. An ideal material for a fast growing 21st century economy.

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And also – don't believe the complainers – 300 series stainless is still good value for money.

This is a very interesting **analysis carried out by Heinz Pariser**. He has taken various commodities from 1967 to 2004 and presented their relative prices in real terms.

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To conclude – what can we say about the outlook for Nickel and for 300 series stainless.

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The Ni market is in structural tightness and demand remains robust.

• In China the 300 series currently constitutes 35% of total stainless consumption and is expected to retain that share for the next two decades.

If we look again at a chemical plant, a potential substitute to stainless would be titanium. In 2001, titanium price was about \$4,500 a tonne. It is currently at over \$45,000 a tonne (a multiple of about 10!). In comparison, Nickel is currently trading at three times its 2001 price (\$16,000/t vs \$6,000/t). 300 series stainless steel is trading at twice its 2001 price (\$1500/t vs \$3000/t)

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- High Ni alloys for aerospace and power generation look robust
- Hybrid Electric Vehicles are a new developing market

And there are real constraints to supply.

Ni demand is sufficiently elastic to avoid a prolonged period of high prices. However, demand is robust, nickel bearing stainless steel remains cost-

competitive against alternatives in its core uses, and thus a return to the low prices of the 1990s is unlikely.

Thank you Ladies and Gentlemen for your attention.