STAINLESS STEEL: ITS FUTURE AS A SUSTAINABLE MATERIAL

Ladies & Gentlemen,

First of all, Ossi Virolainen, who was supposed to give the addressing speech unfortunately could not participate, but is sending his best regards to all of you here.

My name is Kari Saarinen and I work in AvestaPolarit as EVP Group Marketing & Technology. I joined the company only 6 months ago so I still have lots to learn about the stainless steel industry and the issues related to it.

I am delighted to have this opportunity to participate in today's conference and am grateful to the British Stainless Steel Association for the invitation to speak. The title of the conference is "Stainless Solutions for a Sustainable Future" and we will hear speakers representing a cross-section of the stainless supply chain from raw materials through to end-use applications.

I believe an important outcome from today will be a shared understanding of what sustainability is, its relevance to our industry and how we should be responding.

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A good place to start is with a definition of sustainability. The UK government has defined sustainable development as "…integrating economic, environmental and social policies to ensure a better quality of life for everyone, now and for future generations." Specifically four objectives have been identified:

- Maintenance of high and stable levels of economic growth and employment;
- Social progress which recognises the needs of everyone;
- Effective protection of the environment;
- Prudent use of resources.

I would like to touch on all these aspects, briefly:

Maintenance of high and stable levels of economic growth and employment:

The stainless industry has shown remarkable and sustained growth over a prolonged period. Since 1950 world production has risen from 1million to almost 20 million tonnes, a compound annual growth rate of almost 6%.

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It has out performed competing materials such as aluminium, copper and carbon steel.

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Why has growth been so strong?

First, the material itself offers a unique combination of properties that we are all familiar with.

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These properties allow stainless steel to be used in all types of application:

- In corrosive environments - such as the chemical and petrochemical industries, offshore oil and gas production and energy production.
- When strength is important - engineers and designers are discovering the great potential of stainless steel's mechanical properties.
- For appearance sake – in applications such as architecture, both inside and outside the building.
- When hygiene and cleanness matters – stainless steels are renowned as one of the most hygienic materials available and are used extensively in the pharmaceutical industry, food processing, catering, hospital equipment and for surgical implants.

Another very important factor has been the result of aggressive cost reductions. We can show that the long-term trend is down by following the conversion margin (the gap between selling price and raw material costs) which has been falling by 2 % pa for more than 20 years.

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Technological advancements have also played an important part and this will continue. Our own RAP (Rolling, Annealing and Pickling) line development is just such an example, where previously separate

production steps of rolling and annealing are combined into one line which will give significant savings in yield and working capital

Social Progress which recognises the needs of everyone:

To develop and retain a competent and motivated staff is central to the success of any organisation and AvestaPolarit is no different. Our employees come from a wide variety of linguistic and cultural backgrounds and provide the Group with essential knowledge and expertise in a wide range of disciplines. AvestaPolarit's vision is to be "Best in Stainless" and we have a strong commitment to basic rights such as safety in the workplace and to principles of fairness and equality for all employees. In particular AvestaPolarit seeks to create a culture of constant improvement, which emphasises continuous competence development.

In the UK, I am pleased to say that we are making increasing use of the BSSA sponsored training programme, the "Stainless Steel Specialist Course".
Better and more appropriate training for all of us in the stainless industry will ensure we are equipped to help maintain the future growth in demand we all want to see.

Effective protection of the environment:

At least AvestaPolarit has adopted an environmental policy that guides the group in all aspects of its operations. We will strive to reduce

pollution by being aware of the importance of environmental protection and the principles of sustainable development.
The goal is to achieve continuous improvement in performance and to reduce the environmental impact of the business.

Much has been done to minimise the effect on the environment of stainless production particularly reducing harmful emissions. The effort continues and indeed in connection with the "Project Double" investment in Tornio more than €100 million will be spent to reduce the environmental impact of the operations there. Among the more significant major environmental investments are the dust extraction and flue gas cleaning plant at the melting shop and the acid recovery systems and water purification plant at the cold rolling mill.
These investments will help make the Tornio plant not only the world largest single production facility but one of the cleanest.

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Other environmental improvements have been implemented at our other plants. For example the refurbishment of the annealing and pickling line at KBR in Avesta has reduced the levels of nitrogen oxides (NOx) emitted to such an extent that the emissions are lower despite a significant increase in the capacity of the line. The installation of a selective catalytic reduction system on the pickling lines at the Sheffield cold rolling mill has reduced NOx emissions by 95%. Our R&D is currently working on further development of methods to minimise the environmental impact of pickling processes with the goal of recovering metal oxides and acids from the residual product.

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Prudent use of resources:

One of the most important features of stainless steel is its long life. Just as important is that stainless steel is 100% recyclable with each new melt often containing more than 70% scrap. However steel production is an energy intensive process and whilst there is great focus at the moment on renewable energy sources even more important is the intelligent use of energy. The steel industry has worked hard to reduce energy consumption for many years but this has not been as well advertised as it should have been and so now when energy saving is the new vogue, we have the task of convincing governments that we have done much already!

The Tornio plant in Finland is unique in the world in having a ferro-chrome production on site, a process that generates carbon monoxide, a by-product fuel that is used on one of the strip lines.
In Sweden, as in the UK, process lines have been significantly upgraded over time and furnace heat inputs correspondingly increased.

In the UK a regenerative burner system is used where the heat from the combustion products is used to heat incoming air. In this way very little heat is lost from the process, again resulting in very high efficiency.

In all these cases the results are remarkably similar in terms of energy use per tonne of production and typify the determination of the industry to find the best solution to fit the individual circumstances. If further evidence is needed we should look at the reduction in energy used per

tonne of product form the Shepcote Lane site in the UK. Here there has been an energy saving programme for over 20 years resulting in a 60%+ reduction in specific energy consumption.

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Conclusions:

When defining which materials are more sustainable comparisons should be made carefully and in depth, using tools such as “Life Cycle Assessment”. (This is a subject that will be discussed in more detail later by Ed Price form the International Stainless Steel Forum.)

The growth of stainless steel has been faster than its main competitor materials. This strong growth has been underpinned both by improvements in technology and by producers achieving larger economies of scale. The conversion margin and the long-term trend on price are declining. Stainless steel is used in a very wide variety of applications, both industrial and consumer, exploiting its unique combination of material properties.

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The life-cycle cost benefits will continue to encourage its increasing use in industrial applications and should ensure growth above underlying production indices.

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The future growth will also depend on close cooperation by all the players in the industry working together. Here the international development bodies such as the International Stainless Steel Forum and Euro Inox together with the national bodies such as the BSSA have a vital part to play.

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Finally, we can with justification agree that stainless steel is a material with a future, a sustainable future.