

**INSG
Lisbon
April 2006**

S Barnett
President Nickel Institute

Vision

supports and promotes the production, use and reuse of nickel in socially and environmentally responsible and sustainable manners on behalf of its members world wide.

Member Value

- Common interface with customers
- Coordinated advocacy
- Anticipatory

Science (Health and Environment)

- Sound science"
- Transparency

Market

- Sustainable production
- Sustainable use and access
- Value chain

Advocacy

- Partnerships
- Proactive communications
- Political interaction

People and Processes

- Budgeting
- Reporting
- Succession
- Development

Regions - Europe

Values

- Integrity
- Integrative
- Enquiring
- Supportive
- Challenge

NI and INSG

- INSG provides invaluable information to the nickel value chain unavailable from any other source.
- With growing uses and markets data is ever more important to users, producers and regulators.
- Increasing interaction between NI and INSG seen as way forward.

Nickel Risk Assessment

- Health complete
- Environment
 - excellent data set (22 species)
 - Key is acceptance of metalogenic reasons and anthropogenic levels
- Risk management 2008
- OECD submission July 2006

EU Classification and Labeling

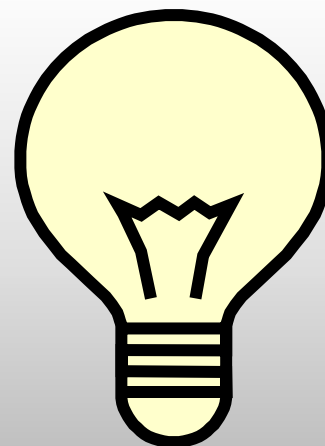
Endpoint	Nickel Sulfate	Nickel Chloride	Nickel Nitrate	Nickel Carbonate	Nickel Hydroxide #	Nickel Sub & Sulphide	Nickel Mon-Di- & Tri-oxide	Metallic Nickel #
Physical Properties	None	None	O;R8	None	None	None	None	None
Acute Oral	Xn;R22	T;R25	Xn;R22	Xn;R22	Xn;R22	None	None	None
Acute Inhalation	Xn;R20	T;R23	Xn;R20	Xn;R20	Xn;R20	None	None	None
Dermal Irritation	Xi;R38	Xi;R38	Xi;R38	Xi;R38	Xi;R38	None	None	None
Eye irritation	None	None	Xi;R41	None	None	None	None	None
Dermal Sensitization	R43*	R43*	R43*	R43	R43	R43	R43	R43**
Respiratory Sensitization	R42	R42	R42	R42	R42	None	None	None
Chronic Toxicity	T; R48/23	T; R48/23	T; R48/23	T; R48/23	T; R48/23	T; R48/23	T; R48/23	T; R48/23
Reproductive Toxicity	Cat2;R61	Cat2;R61	Cat2;R61	Cat2;R61	Cat2;R61	None	None	None
Mutagenicity	Cat 3;R68	Cat 3;R68	Cat 3;R68	Cat 3;R68	Cat 3;R68	Cat 3;R68	None	None
Carcinogenicity	Cat 1; R49	Cat 1; R49	Cat 1; R49	Cat 1;R49	Cat 1;R49	Cat 1; R49	Cat 1; R49	Cat 3; R40
S-Phrases	53, 45, 60, 61	53, 45, 60, 61	53, 45, 60, 61	53, 45, 60, 61	53, 45, 60, 61	53, 45, 60, 61	53, 45, 61	(2), 36, 37, 45

Classification and Labeling Committee

Danish proposal

April 2005

- Proposal to classify 167 Ni compounds according to a 9-step methodology, for a number of endpoints



Hazards based on agreed classification of

Metallic nickel compounds	Nickel metal
Soluble nickel compounds	NiSO ₄ , NiCl ₂ , NiNO ₃
Sparingly soluble compounds	NiCO ₃
Sulphidic nickel compounds (if Ni(II) compounds)	NiS
Sulphidic nickel compounds (with mixed oxidation states)	Ni ₂ S ₃
Oxidic nickel compounds	NiO

Danish claimed intentions

- « *For coherence and competitiveness reasons* »
- DEPA's aim is to broaden this grouping, in the framework of REACH (in RIP 3.3 on testing substances), to all organic and inorganic substances, beyond nickel

Scope : ... to February 2006
(TC C&L March 06)

- Endpoints
CMR
Chronic Toxicity
Environment
Skin Sens.
Respiratory Sens.
- Substances
146 substances
 - removal of Ni metal category
 - removal of 6 amine compds
 - removal of 5 pigments

TC C&L March 2006

☞ Danish proposal agreed

- All Ni compounds considered:
 - Carc. 2 (inh), Chronic Lung Toxicity, Skin sensitizers
- Soluble Ni compounds are also :
 - Repro 2, Muta 3, Respiratory sensitizers

Next steps

RAISING THE RIGHTS OF INDUSTRY

- DG ENV, Competent Authorities of MS
 - pre-emption of REACH !
- European Chemicals Bureau
 - recourse to precautionary principle !
 - Non scientific decision

Next steps

POLITICAL ACTION

- Member of Eur. Parl. question to Commission on
 - « non application of Classification criteria » OR
 - « Pre-empting REACH »
- Contacts with Commissioners
- Contacts with Member States

Next steps

LEGAL ACTION

- Briefing memo to EC Legal Services
 - They can veto classification entries
- Formal legal letter to European Chemicals Bureau, DG ENV, ENT etc.
- Formal legal claim

Carcinogenicity related research

- Inhalation carcinogenicity study of nickel metal powder in male and female rats
 - Exposure levels : 0 mg Ni/m³, Low 0.1 mg Ni/m³, Mid 0.4 mg Ni/m³, High 1.0 mg Ni/m³
 - Duration of exposure : 6h/day x 5 days/week X 2 years
 - Duration of study : 2.5 years

 - Exposure start date : April 28, 2004
 - Exposure end date : April 28, 2006
 - Study completion date : June 2007

Carcinogenicity related research

- Inhalation carcinogenicity study of nickel metal powder in male and female rats

Possible outcome

0.1 mg Ni/m ³	0.4 mg Ni/m ³	Interpretation
Positive	Positive F, M	Carcinogenic in animals
Negative	Positive F Negative M	Not carcinogenic Positive results F likely confounded by toxicity
Negative	Negative F, M	Not carcinogenic in animals
Positive	Negative F Positive M	Carcinogenic in animals Negative results F likely confounded by low body weight

Definition Of Nickel Metal Powder For Classification Of Aquatic
Toxicity (R52-53)

Submitted definition:

For the purpose of classification for aquatic toxicity,
*nickel metal powder is any nickel metal sample
whose measured average specific surface area is
greater than or equal to 0.1 m²/g*

Critical surface area would be the criterion, not particle size



TC C&L 26 April 2006

REACH - Registration Evaluation Authorisation of Chemicals

State of Affairs

- REACH continues to represent a major challenge to metals production and raw materials supply in Europe.
- First reading in the European Parliament and political agreement in Council have yielded rather **positive results** for our Industry:
 - exclusion of ores; concentrates and waste
 - recognition of the specific nature of alloys

but has reinforced our concerns about the **focus on substitution** in the authorisation phase.

Metals Industry key concerns

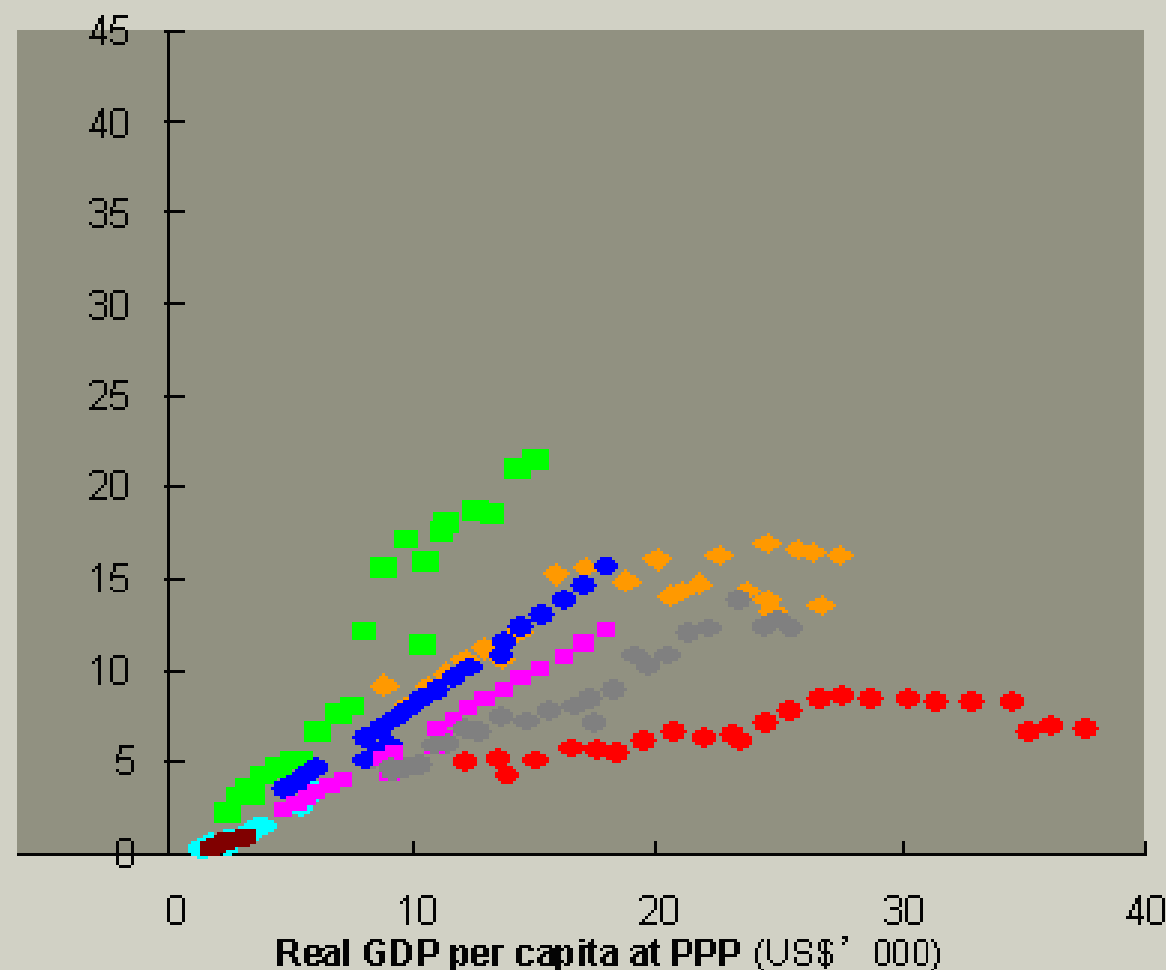
- Priority setting – PBT or high tonnage or wide use
- No threshold Carcinogens no authorisation
- Accumulation in soil proposed as PBT equivalent
- Skin sensitisers proposed as equivalent health concern to CMRs.
- EP proposals for time limited authorisations.

Nickel in REACH

- All ores and concentrates liable for authorisation.
- All nickel uses other than metal liable for authorisation
- Nickel metal powder – dependent on BKT₀₅ – as carcinogen would make all nickel metal uses, incl. stainless, liable for authorisation.

At real GDP per capita at PPP basis, SS consumption in China is in line with Japan but higher than W. Europe and USA

Stainless steel consumption*
(Kg/capita)

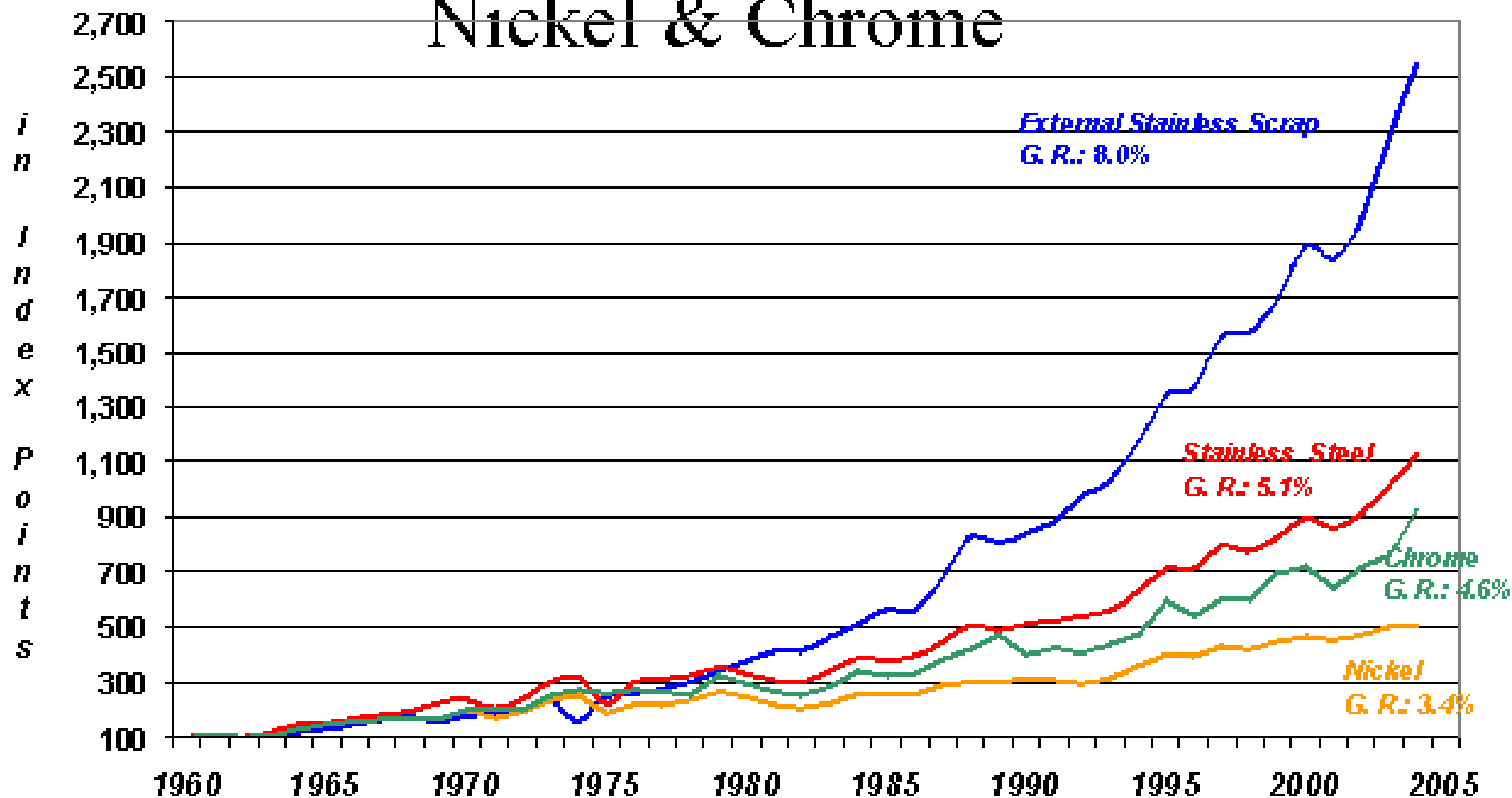


- ◆ Japan (81-03)
- Korea (82-03)
- India (92-03)
- USA (80-03)
- W. Europe (80-03)
- China total (90-03)
- China total (04-25)
- China domestic (04-25)

*SS consumption in Taiwan and Korea are much higher, probably due to their export-driven SS end-use sectors

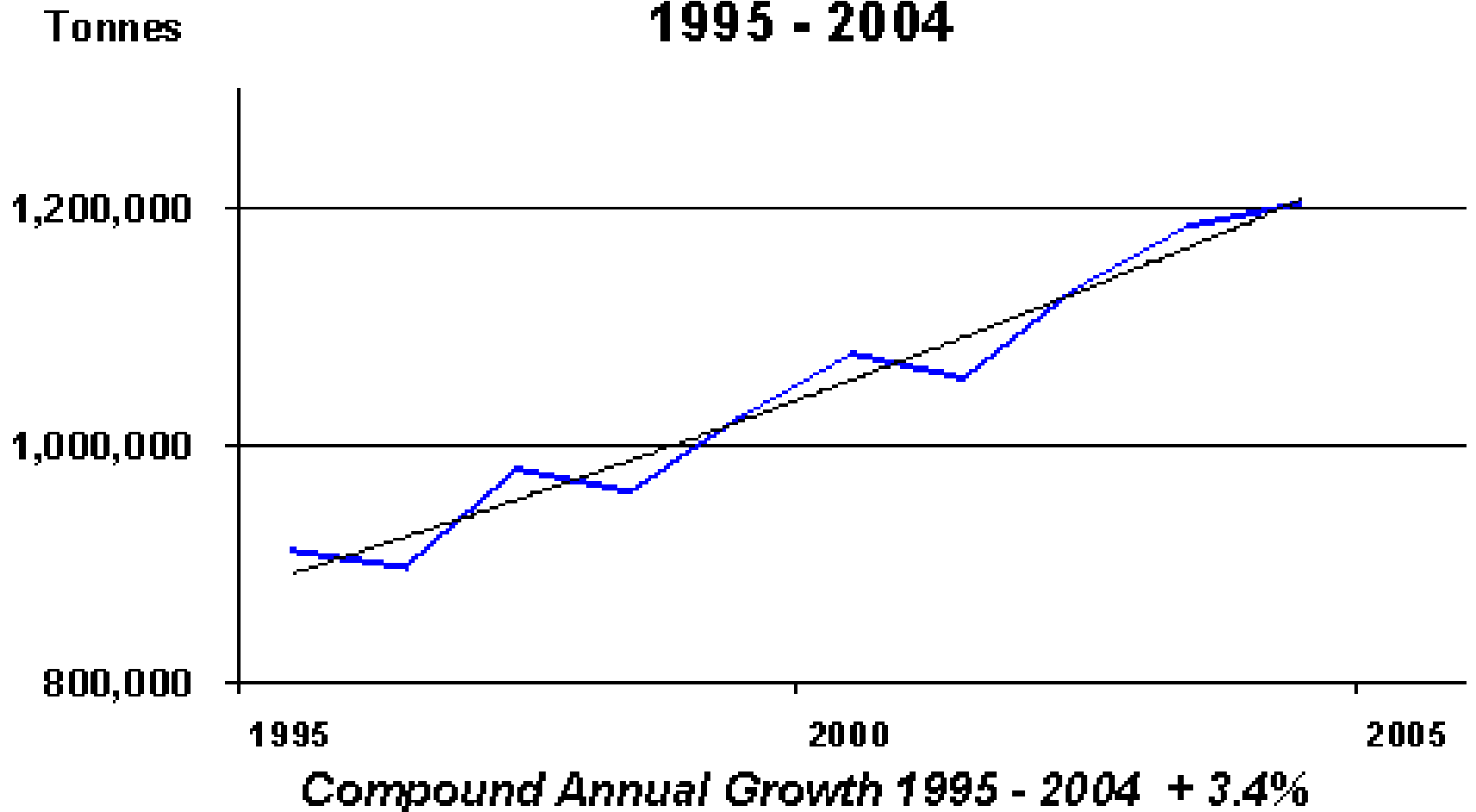
Source: JFK; Global Insight; country custom yearbook and steel associations

W. World Usage of Stainless Steel & Scrap, Nickel & Chrome



Nickel demand trend continues at 3.4%

Western World + China Nickel First Use 1995 - 2004

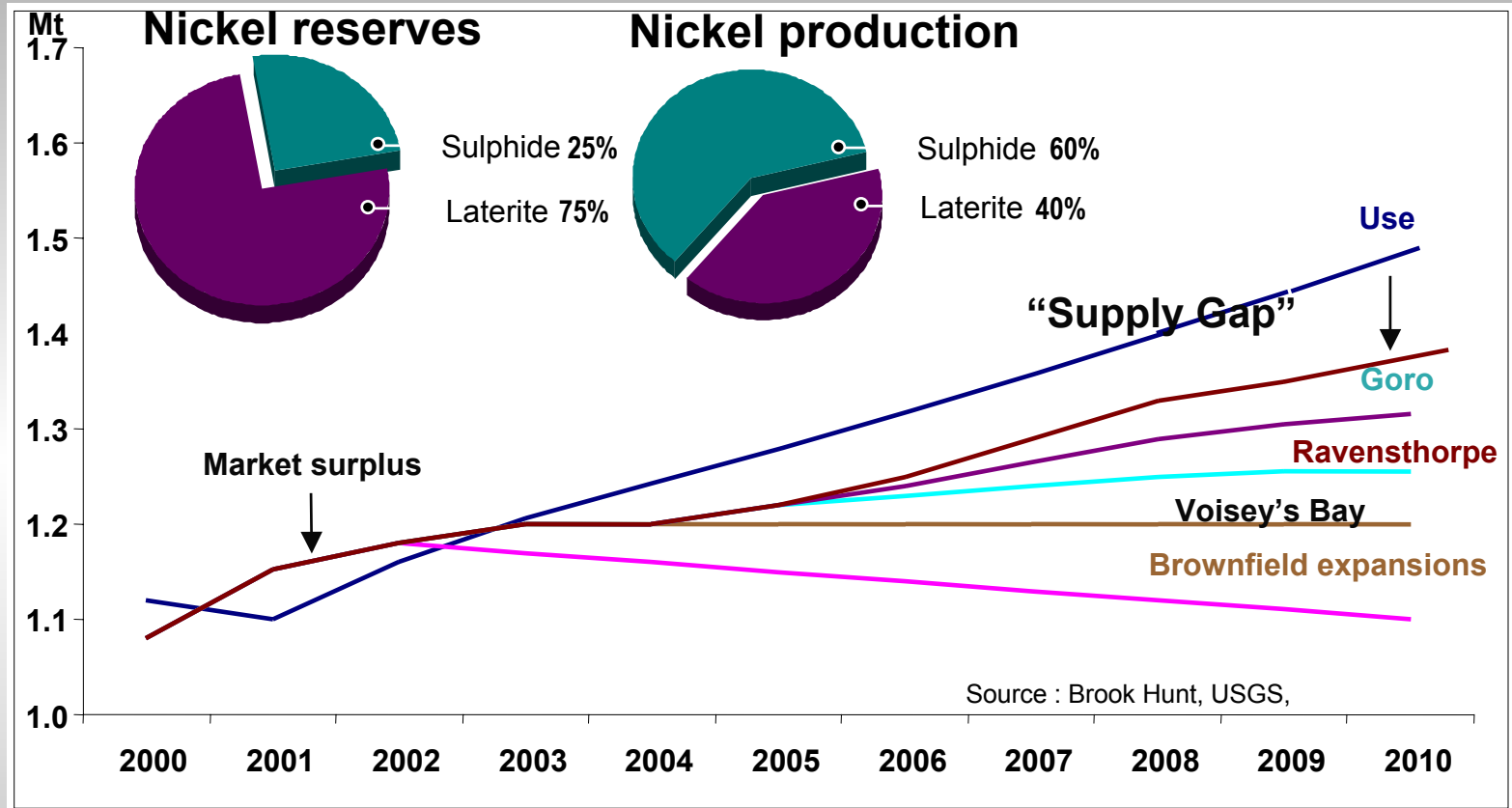


but with great variability in growth rates

	<u>Demand Growth</u> <u>1995-2004</u>	<u>Refined Nickel</u> <u>Market 2004</u>
China	17.0%	150 Kt
South Korea	9.2%	104 Kt
Taiwan	8.8%	86 Kt
Brazil	7.8%	24 Kt
India	6.1%	27 Kt
EU	3.0%	420 Kt
Japan	0.6%	193 Kt
USA	(3.0%)	129 Kt
FSU	?	26 Kt

Source: Pariser 2004

A primary nickel supply gap is emerging over the present decade



Lead times for new projects are 7-10 years.

The majority of current production is from sulphide mines, but most new nickel projects will be from laterite ores.

Categorisation of nickel metal as a Class 1 carcinogen would impact most uses

	Stainless Steel 59%	Nickel Alloy 13%	Plating 11%	Other 17%	100%
Engineering 30%	+	+	+	+	+ Lowest
Building & Construction 18%	++	n/s	+++	++	++ Moderate
Consumer 25%	+++	+++	+++	+++	+++ Highest
Transportation 19%	++	+++	+++	+++	n/s not significant
Other 8%	++	n/s	+++	++	
100%					

Primary nickel (1258 Kt) at risk for substitution

Primary nickel (1258 Kt) at risk for substitution:

	SS	Ni alloy	Plating	Other
Engineering	223	49	42	64
Building & Construction	133	29	25	38
Consumer	185	41	35	53
Transportation	141	31	26	41
Other	<u>59</u>	<u>13</u>	<u>11</u>	<u>17</u>
Total	742	163	140	213

Primary nickel (1258 Kt) at risk for substitution

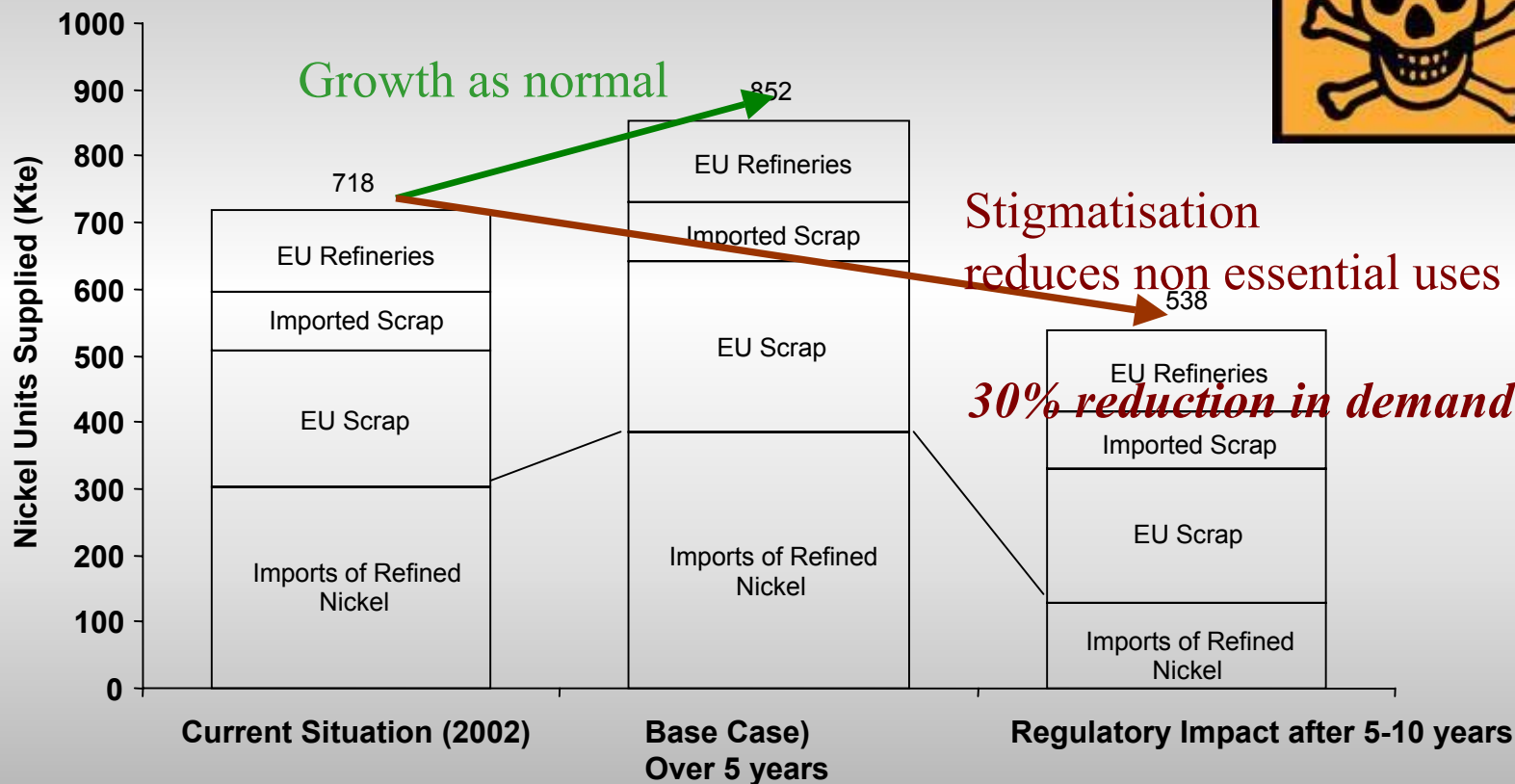
Primary nickel (1258 Kt) at risk for substitution world basis:

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where the bold highlighted figures give kilotonnes of nickel (**836 kt**) particularly likely for substitution.

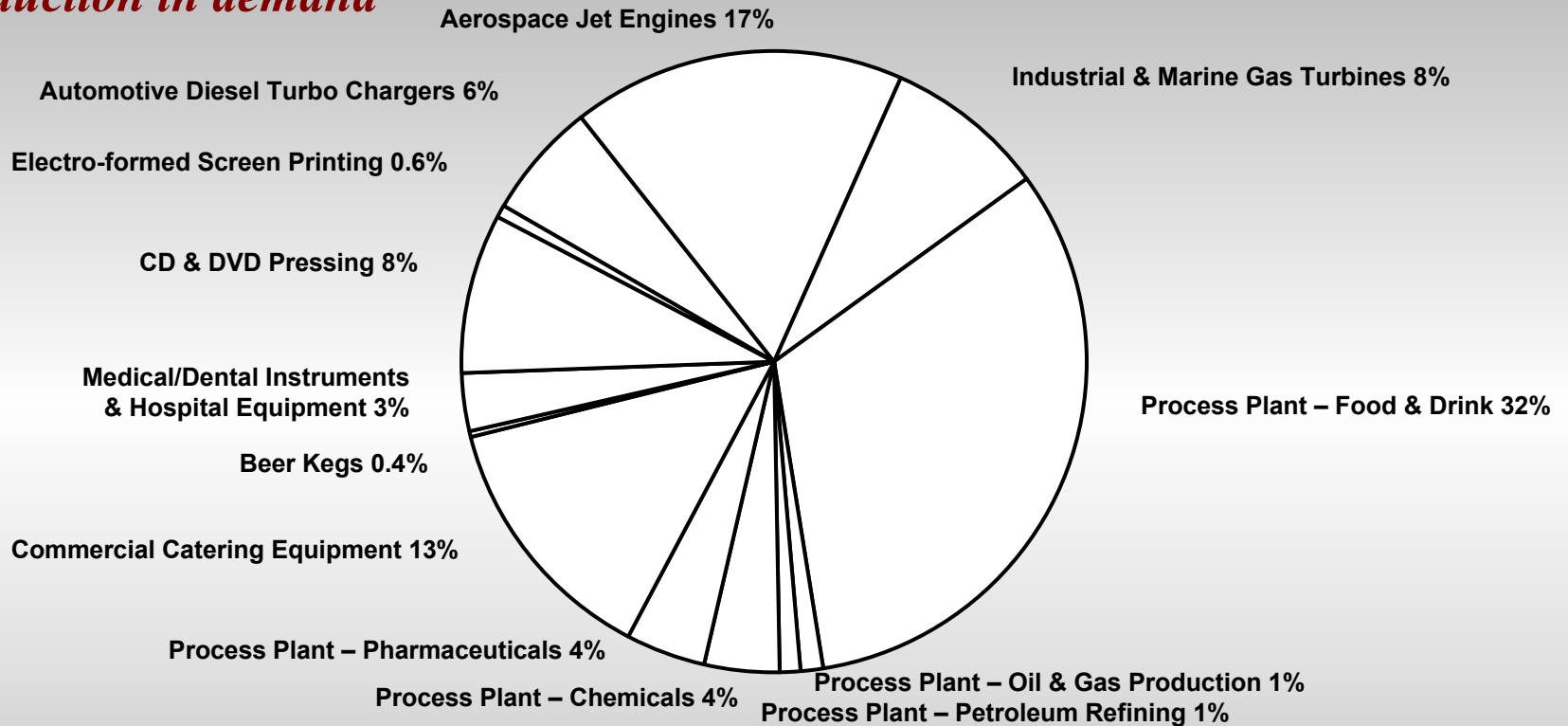
Impact on Suppliers of Stainless Steel Materials of Reduction in EU Stainless Steel Production – Regulatory Impact

IF Nickel Metal becomes a Carcinogen by Inhalation



Employment: 'End Use' Sectors* 40% at risk

30% reduction in demand



Total Employment : 475,000 jobs

Source: The Weinberg Group LLC

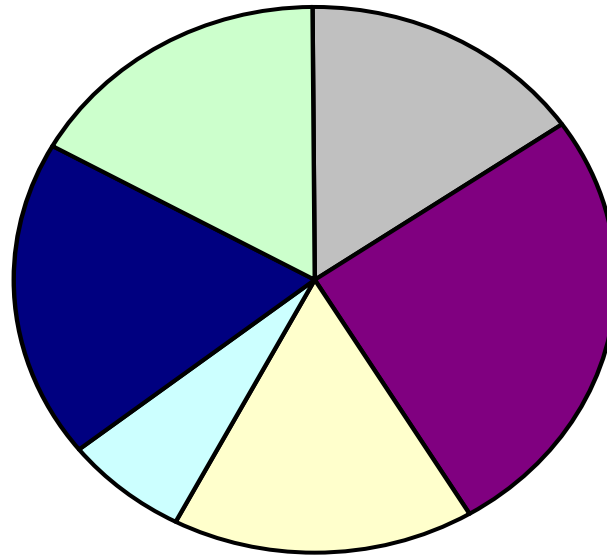
*Critically Dependent only

Country Analysis

Value Added*

48% at risk

Broader Value: Total value added Euro 80-100 billion per annum

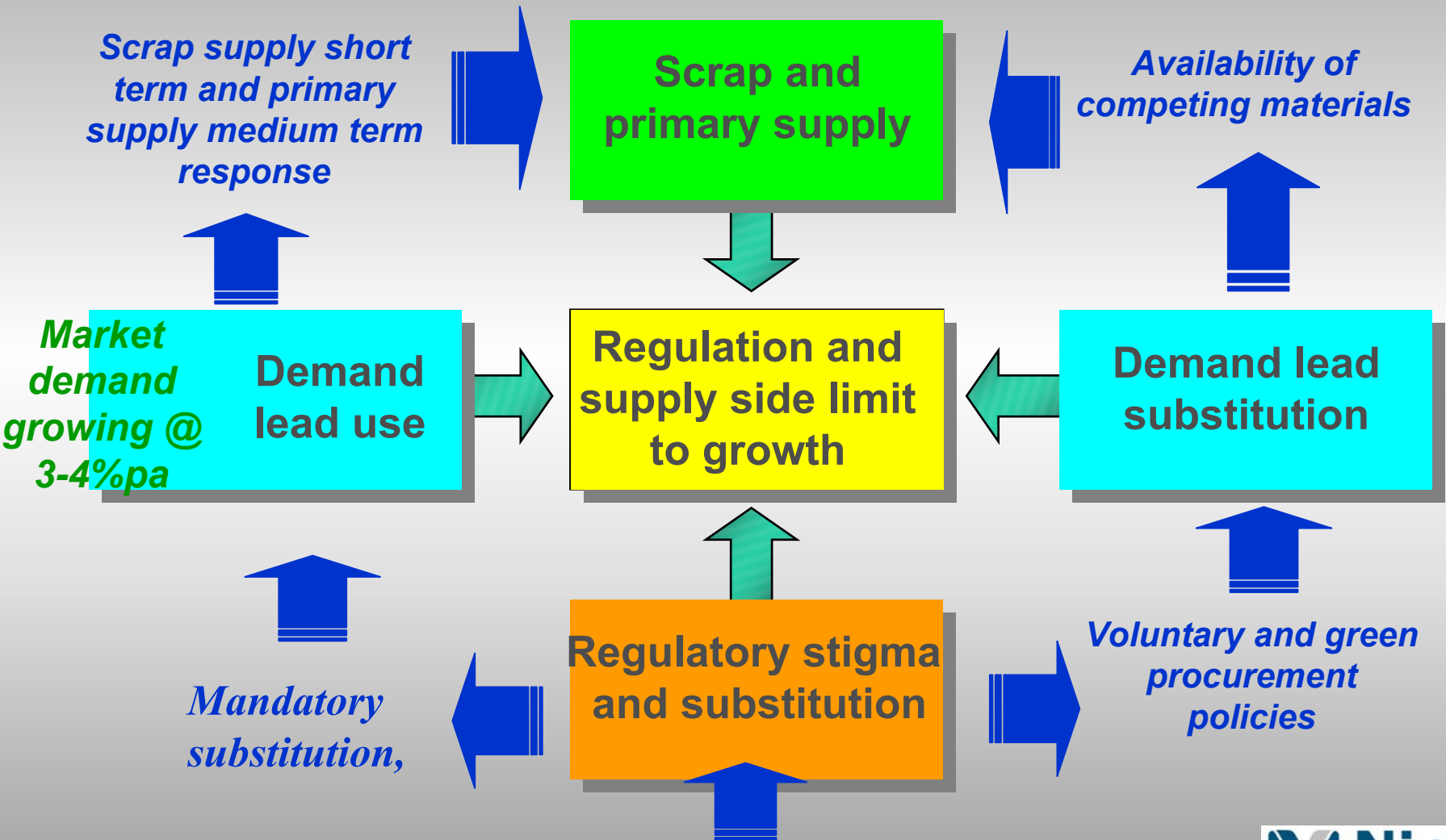


□ France ■ Germany □ Italy □ Spain ■ UK □ Other

Source: The Weinberg Group LLC

*Critically Dependent only

The nickel supply business characterised by competing forces



Nickel as a Hazardous Substance