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HOW TO SELL MORE PIG IRON TO FOUNDRIES ?



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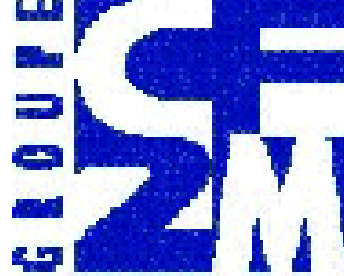


- Introduction
- CF2M overview
- Macro economics on French and European foundries
- Why do we need pig iron ?
- What might be the process evolution in foundries ? How might this affect your market place ?
- What do we like about pig iron ?
- What don't we like about pig iron ?
- What are we looking for in the future ?
- Advantages of pig iron compared to scrap (iron and steel) or substitutes
- Why should you consider the European foundry market as the best market for the future ?



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Introduction

Let me introduce myself

- President of the ferrous foundries group within the french foundry association « Les fondeurs de France », permanent contact : Pascale Lepretre p.lepretre@fondeursdefrance.org who took an active part in this presentation.
- Chairman of the executive board of the CF2M group.
dfrot@cf2m.fr website : www.cf2m.fr



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Introduction

I would like to thank the french foundry technical center « Centre technique des Industries de la fonderie » which helped me to prepare this presentation, in particular :

Michel GUINY GUINY_MI@ctif.com

Paul GODINOT GODINOT@ctif.com

Website : <http://www.ctif.com/>



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CF2M overview

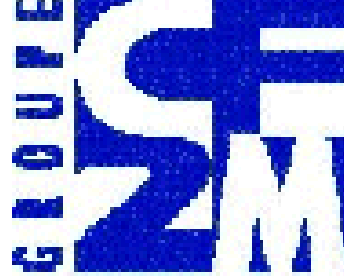
CF2M is a coherent group of 7 companies, based in France and Poland; it includes 2 complementary skills :

1. 6 foundries : permanent mold, grey and ductile sand castings in all grades, Aluminium and copper alloys
2. 1 machine shop



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Economics on CF2M

- Sales 2003 = 101 M€
- Export = 38 M€
- Manpower 2003 = 1 352
- 55,000 Tons/year of grey and ductile iron, SiMo, NiRe, ...
- Cold blast cupolas and induction melting

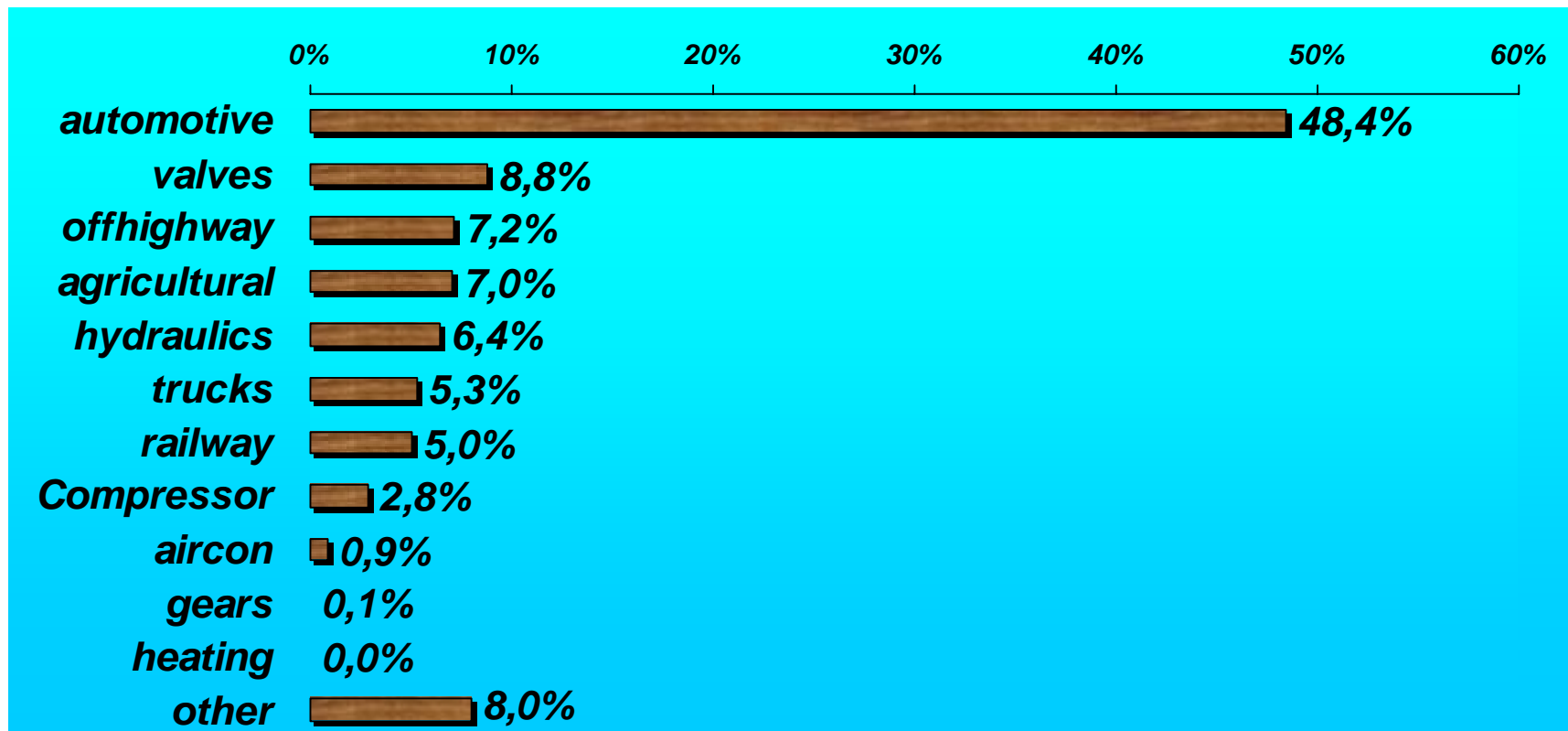


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CF2M markets



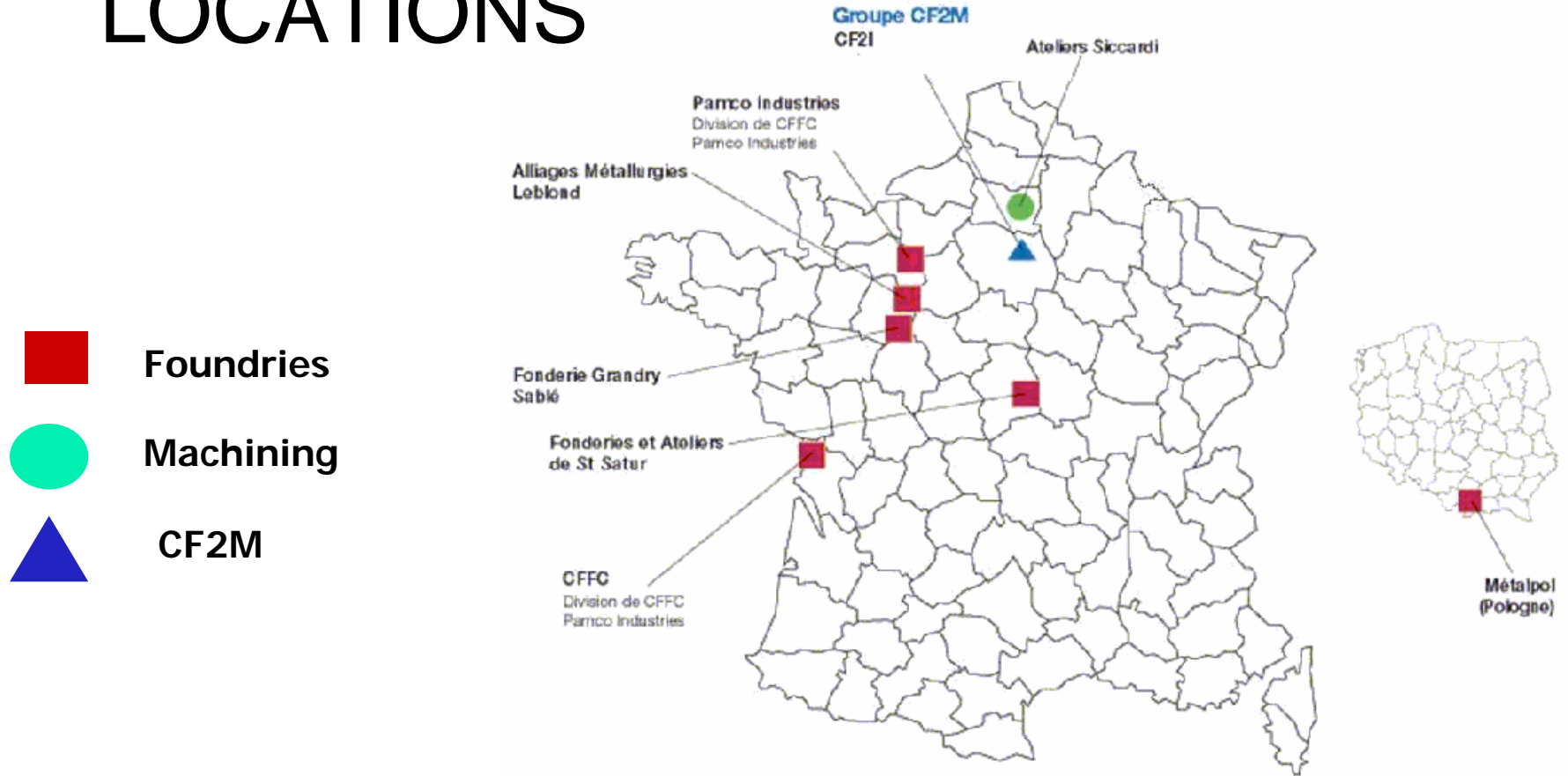


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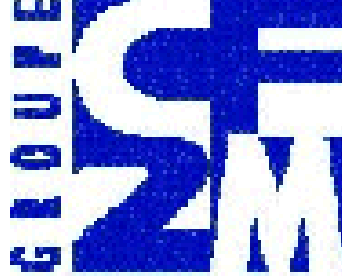
LOCATIONS





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CF2M contacts

CF2M

Centre d'Affaires Paris-Nord

Bâtiment Ampère V

BP 302

F-93 153 Le Blanc-Mesnil Cedex

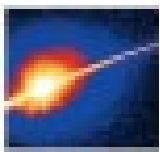
FRANCE

Phone: +33 1 48 14 32 05

Fax: +33 1 48 65 29 25

E-mail : cf2m@cf2m.fr

Internet : www.cf2m.fr



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Macro economics on French and European foundries

2002 Thousand tons	Ferrous metal	Non ferrous metal	Total
France	2 123	390	2 513
European Union	9 859	2 747	12 606
World	58 700	10 899	69 599

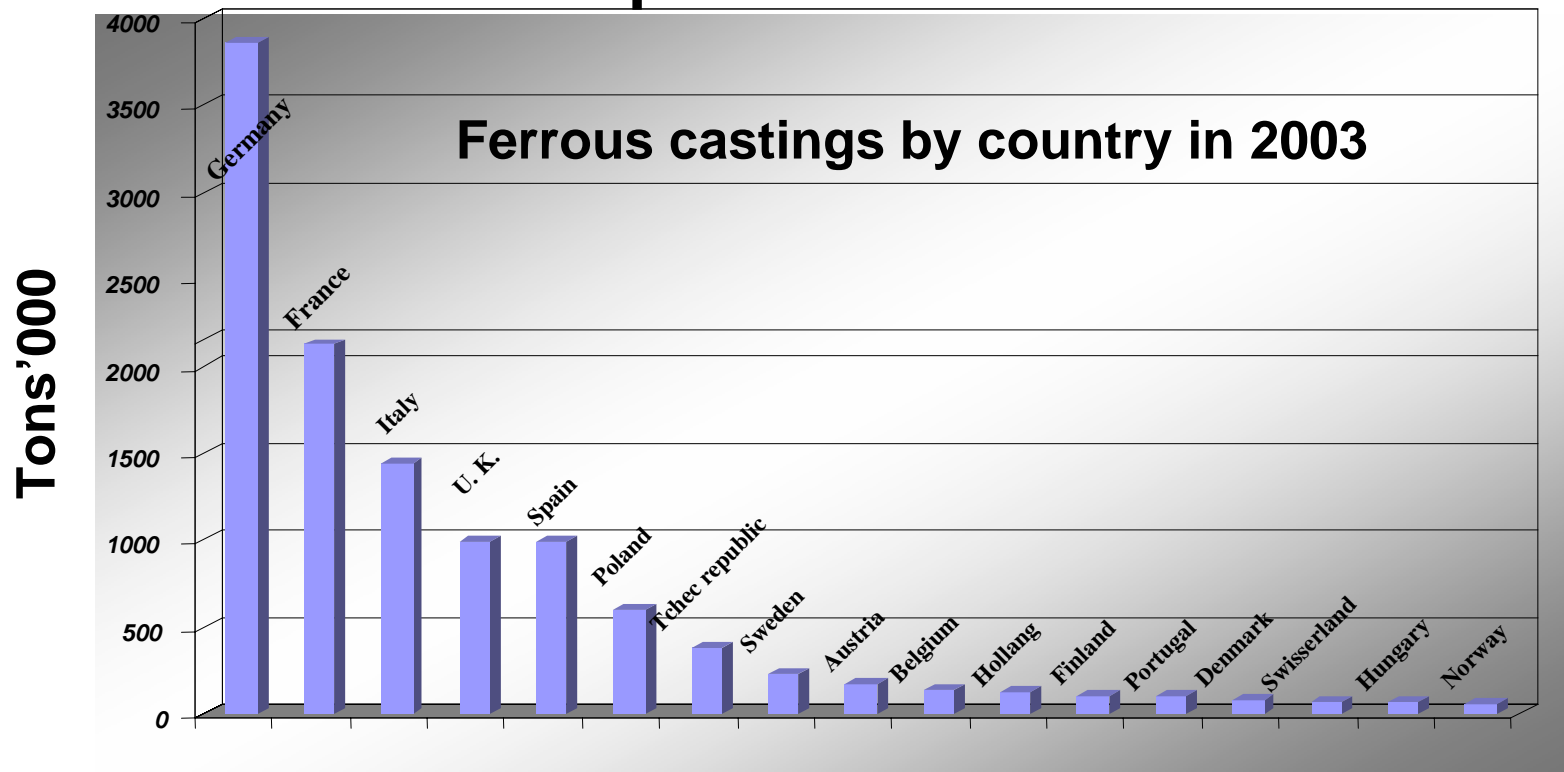


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Macro economics on French and European foundries





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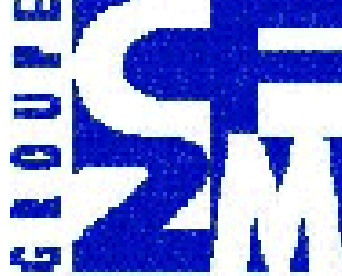
Why do we need pig iron ?

- The main users are iron foundries using cupolas or electric melting.
- Both types of melting require pig iron in different proportions depending on the processes and the end products (grey or ductile iron)



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Why do we need pig iron ?

The need for pig iron is driven by technical and economical reasons :

- Pig iron provides a number of basic elements like Carbon, Silicon,...
- Steady and reliable chemical composition which is more and more important as quality and improved metalurgies are concerned



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Why do we need pig iron ?

- **Metal addition is necessary :**
- Control of the build up of the residual elements
- Because of the scrap shortages



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How could be the process
evolutions in foundries ?
What could this affect your market
place ?



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Process evolutions in foundries

Melting plants in iron foundries could be divided in 3 categories regarding their metal charges :

- Cold blast cupolas and rotary furnaces
- Hot blast cupolas
- Electric furnaces (induction and arc)



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Process evolutions in foundries

What could affect the foundry business in the coming years :

- Environnemental regulations
- Energy costs and transportations costs
- Social costs and professional diseases
- Raw material availability
- Light metals competition and market evolution



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Process evolutions in foundries

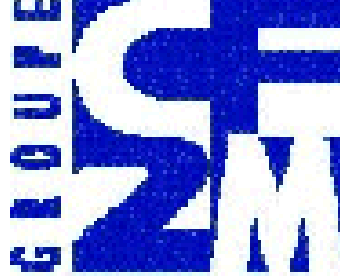
Environnemental regulations

- **Obviously the main issue**
- **Solutions could be multiple and specific (not a single one)**
- **Decisions and actions have been taken (see the following figures)**



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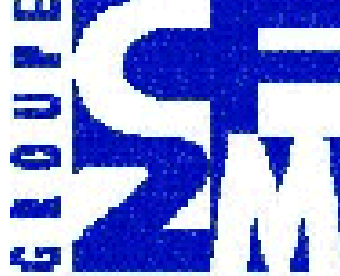
Process evolutions in foundries

in units	Grey iron		Ductile iron (SG)		Maleable		Total	
	1999	2002	1999	2002	1999	2002	1999	2002
	Cold blast cupolas	56	36	0	0	0	1	56
Hot blast cupolas	8	6	4	3	0	0	12	9
Arc furnaces	0	0	2	2	0	0	2	2
Induction furnaces		38		31		10	82	79
Rotary furnaces	9	9	7	4	0	0	16	13
Total	73	89	13	40	0	11	168	140



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Process evolutions in foundries

in tons	Grey iron		Ductile iron (SG)		Maleable		Total		2002/1999
	1999	2002	1999	2002	1999	2002	1999	2002	
Cold blast cupolas	426 400	298 661	6 610	8 675	7 600		440 610	307 336	-30%
Hot blast cupolas	315 800	263 445	205 000	197 914			520 800	461 359	-11%
Arc furnaces		193		72 737			86 940	72 930	-16%
Induction furnaces		294 435		235 211		18 801	471 120	548 447	16%
Rotary furnaces	7 110	5 106	2 100	3 432		92	9 210	8 630	-6%
Total	749 310	861 840	213 710	517 969	7 600	18 893	1 528 680	1 398 702	-9%



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Process evolutions in foundries

Environmental regulations

- **Strongly hit cupolas without any dust collection (mainly cold blast)**
- **Affect also electric furnaces in the future (zinc coated steel scrap)**



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Process evolutions in foundries

These figures show :

- **Change has occurred : some cold blast cupolas have been replaced by induction furnaces**
- **The remaining cold blast cupolas are now more or less dust free.**
- **Cold blast cupola is the best suitable for grey iron (structural effect)**



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Process evolutions in foundries

- induction melting best for SG and new alloys
- Only hot blast cupolas can melt with a low pig iron content

All this is in favor of pig iron



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Process evolutions in foundries

Energy and transportation costs

- **Will increase in the coming years**
- **This is going to hurt both of us for long distance deliveries**
- **It could protect us as well if raw material is still available in Europe**



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Process evolutions in foundries

Social costs and professional diseases

- **Will increase in the coming years**
- **Mecanisation will spread in our facilities**
- **Manpower protection and skill will improve**
- **This could help to offer better service and castings**



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Process evolutions in foundries

Raw material availability

We are facing the same shortages as you are :

- **Coke and coal**
- **Iron ore**
- **Steel and iron scrap**

The situation is not clear enough to define new processes in the foundry industry.



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Process evolutions in foundries

Light metals competition and market evolutions

- **These evolutions are driven by the automotive sector**
- **Iron castings are substituted by aluminium**
- **But downsizing of the powertrain require higher mechanical properties Al cannot meet**
- **Al remains rather cheap, is this to last for long ?**
- **New markets in eastern Europe and Asia will demand more and more castings : opportunity or threat ?**



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What do we like about pig iron ?

- **Reliable chemical composition**
- **Quite pure material**
- **Could substitute for scraps (steel or iron)**
- **Easy to handle and to stock**
- **Prices based on contracts !**



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What don't we like about pig iron ?

- **Sulfur**
- **Mn**
- **Cu**
- **P**
- **Ti**
- **Cr**
- **Tungsten, Vanadium**



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What don't we like about pig iron ?

- **We fear radioactivity risks on pig iron from remelt scrap**
- **Tramp elements**
- **Price changes !**



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What we are looking for the future :

- We need pig iron, both pure and remelt
- Our quality requirements will be more and more stringent regarding chemical analysis and purity
- More stable markets in terms of prices and availability
- Be able to fulfil new requirements for new alloys



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Pig iron advantages :

All the previous items help to promote pig iron
as it is pure, reliable, available and

reasonably priced !



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Why you should consider the European foundry market

- Represents a 20% share of the world market
- Much better condition than the american market
- Much more competitive
- Well advanced in new technologies and new applications
- Good activity forecast



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Thank you !