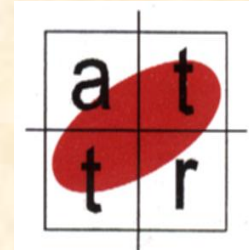


**POLITEHNICA University of Bucharest, ROMANIA**

# **World Metalcasting Production Evolution Facts & Forecast**

**[70<sup>th</sup> World Foundry Congress 2012 +  
116<sup>th</sup> AFS Metalcasting Congress 2012]**

**I. Riposan, S. Stan. V. Uta**





## **70th WORLD FOUNDRY CONGRESS**

### ***[Monterrey, April 25-27.2012, Mexico]***

- **Monterrey:** - **Capital of Nuevo Leon State**
  - 5 Mil. Inhabitants
  - North of Mexico [150 miles - USA]
  - 40% of Mexico Metalcasting Production.
- **Parque Fundidora – Monterrey, Mexico**
  - \* **Compania Fundidora de Fierro y Acero de Monterrey – 1900**
  - \* **Parque Fundidora: >100ha**
    - Museo del Acero: - Horno<sup>3</sup> [[www.horno3.org](http://www.horno3.org)]
      - El Lingote Restaurant
    - Horno3: Blast Furnace [1968-1986]
    - Horno1: re-built [ 1900], Cupola, etc.
    - Pattern Shop: Wood Museum
    - Old Buildings: Art Museum, Music Museum, Library, Bookshop
    - Old Equipments in the Parque: Sculptures
    - Old Wood Patterns: Hotel Furniture



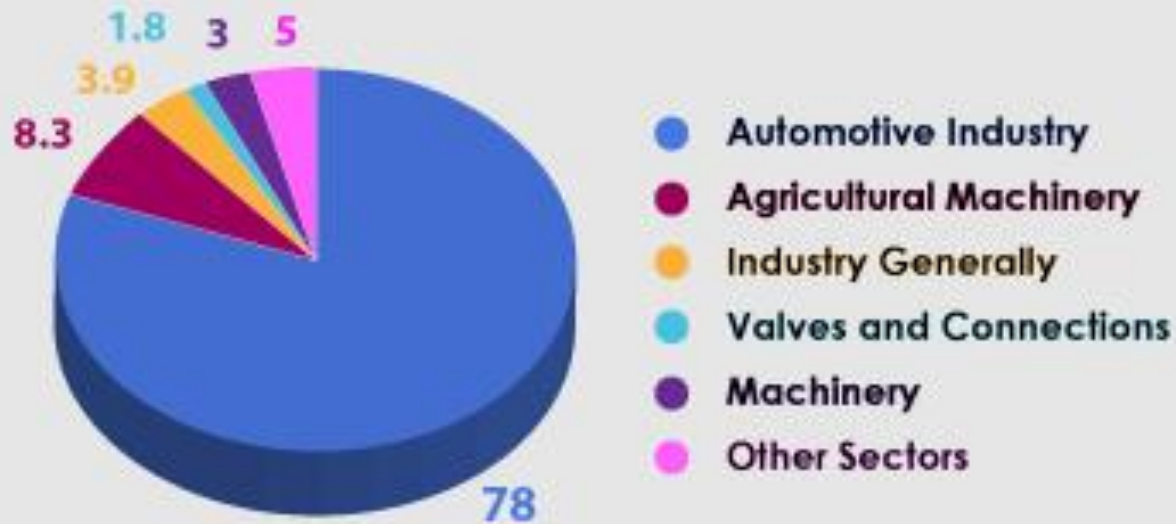




# **MEXICO FOUNDRY INDUSTRY**

## **[2010: Total: 1.65Mil.T/year; No. 11in the World]**

Percentage of the Industry in the Market of Foundry



### **CAST IRON FOUNDRIES**

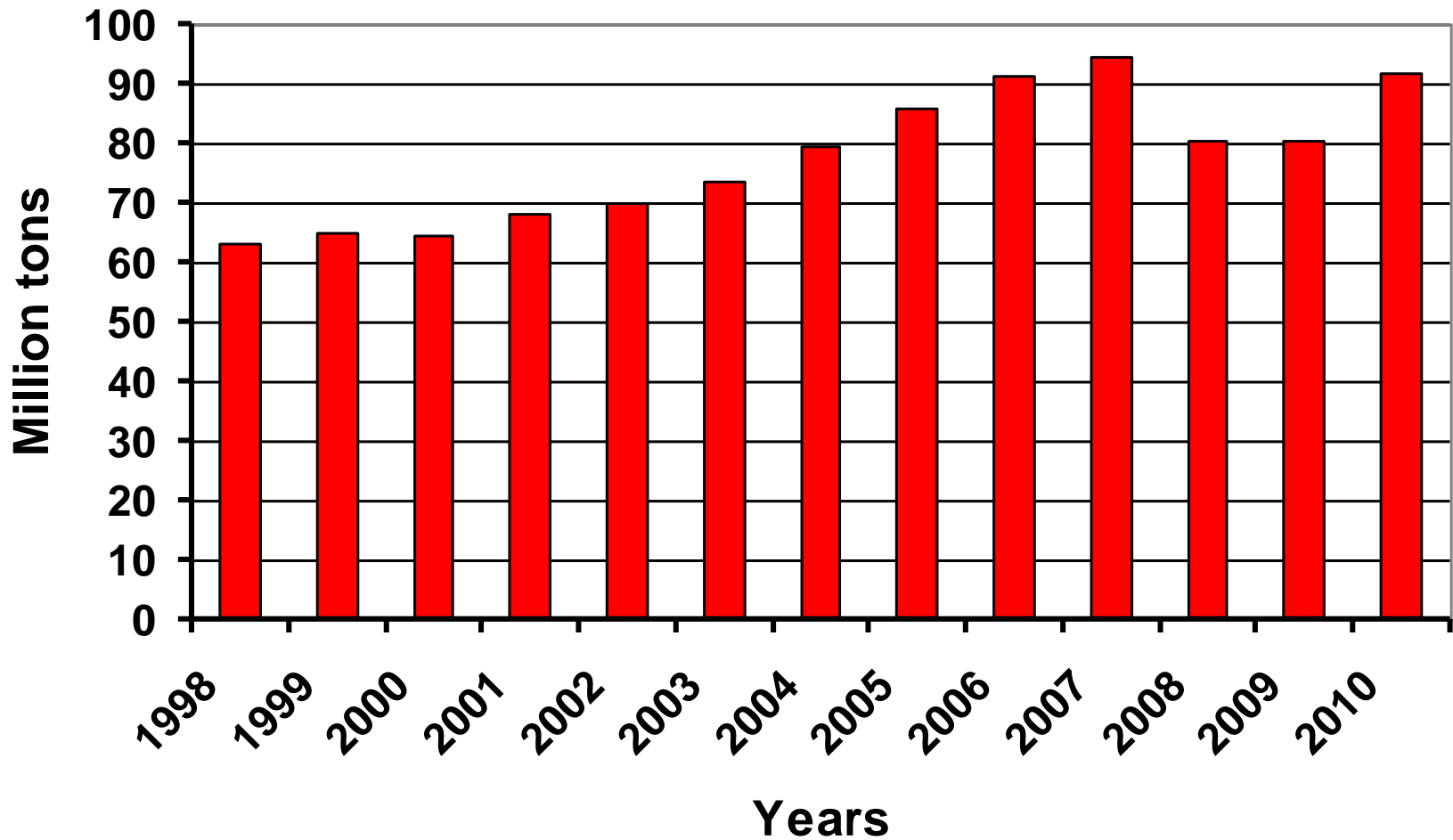


### **ALUMINIUM FOUNDRIES**



# **WORLD CASTING PRODUCTION [Mil. Tons]**

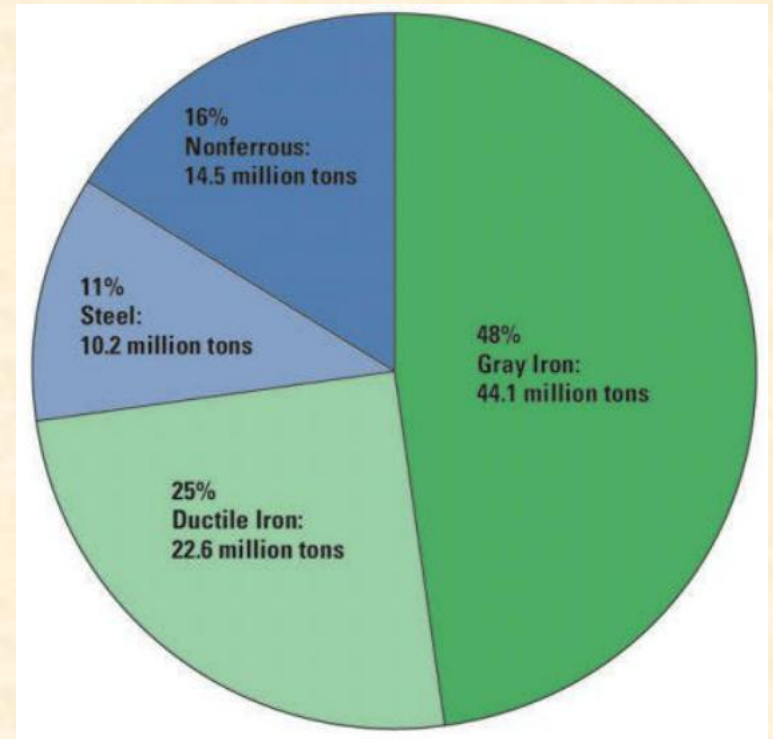
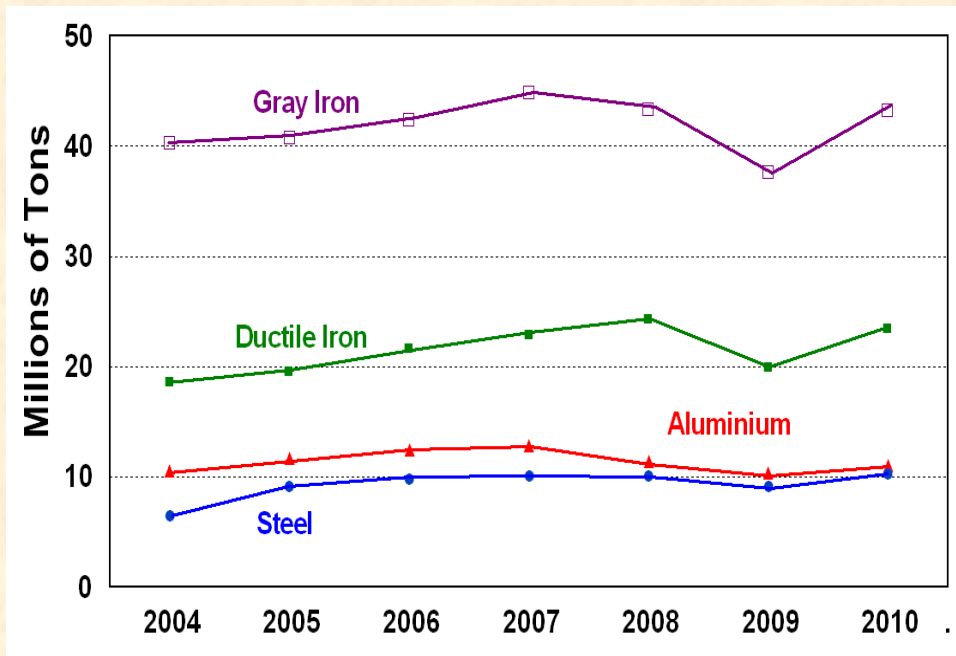
## **[1998-2010]**



# FOUNDRY METALLIC MATERIALS EVOLUTION WORLDWIDE

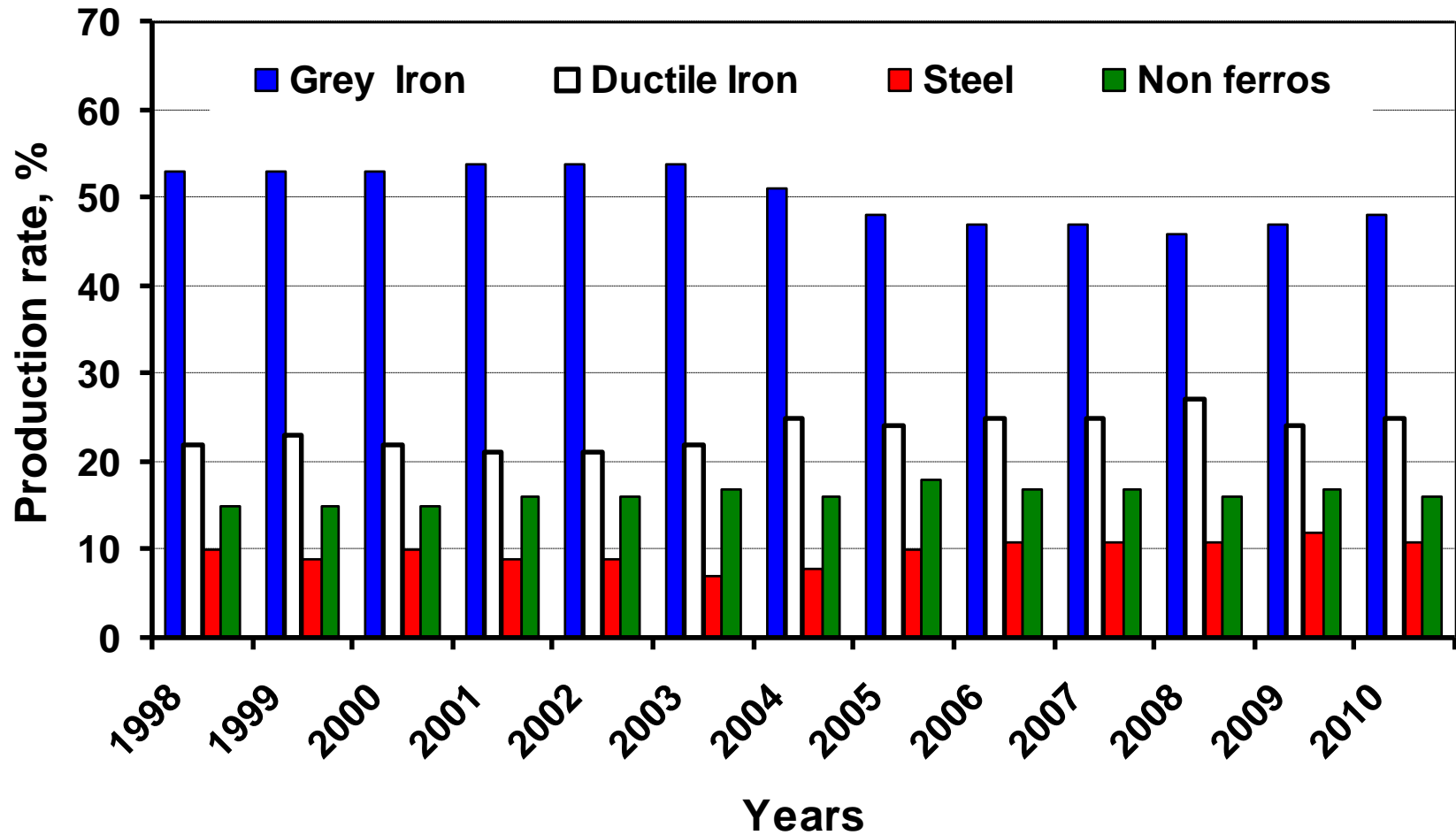
**Grey Iron** – The largest contributing material to global production

## 2010 World Casting Production



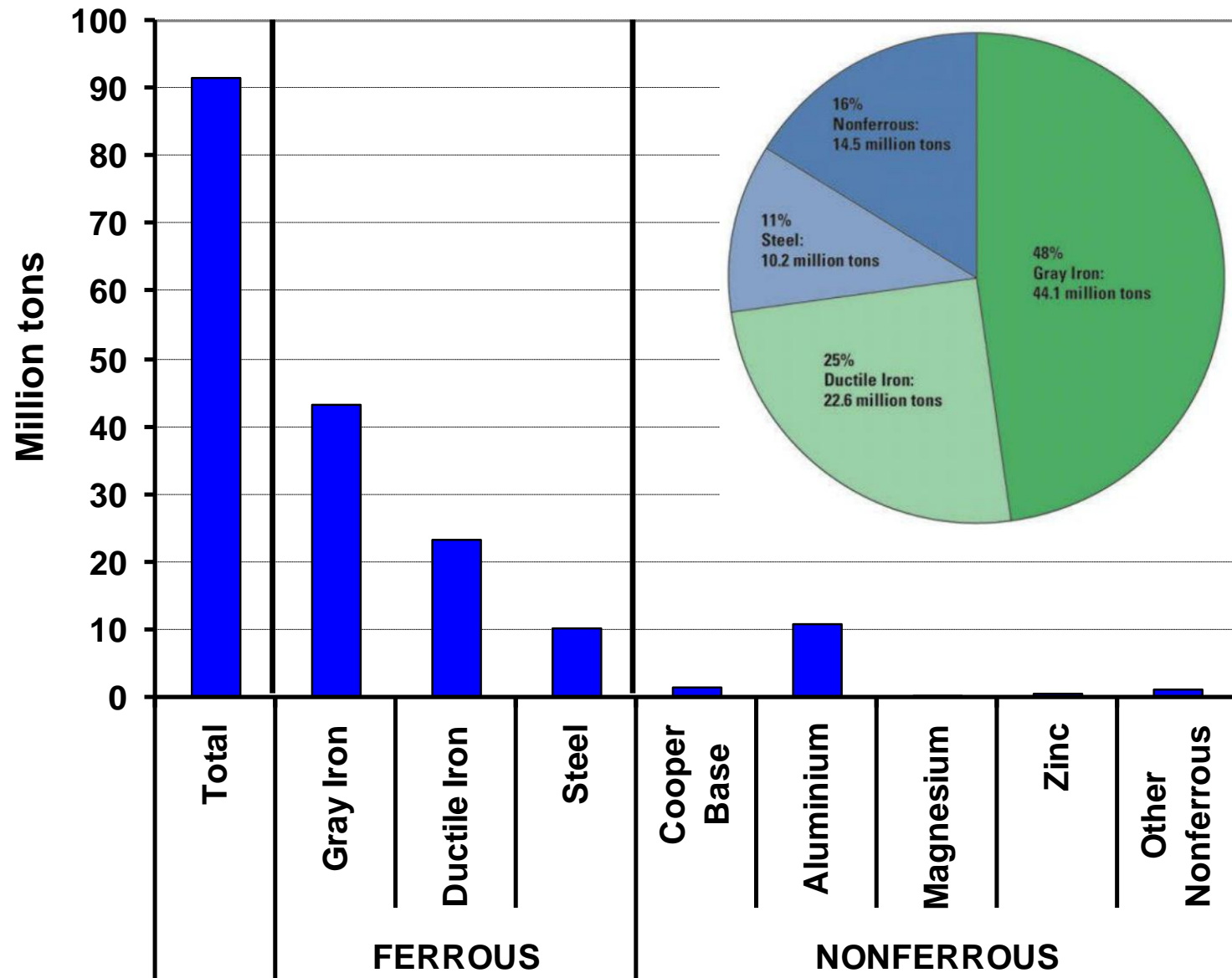


# Metallic Materials Production Rate [1998 – 2010]

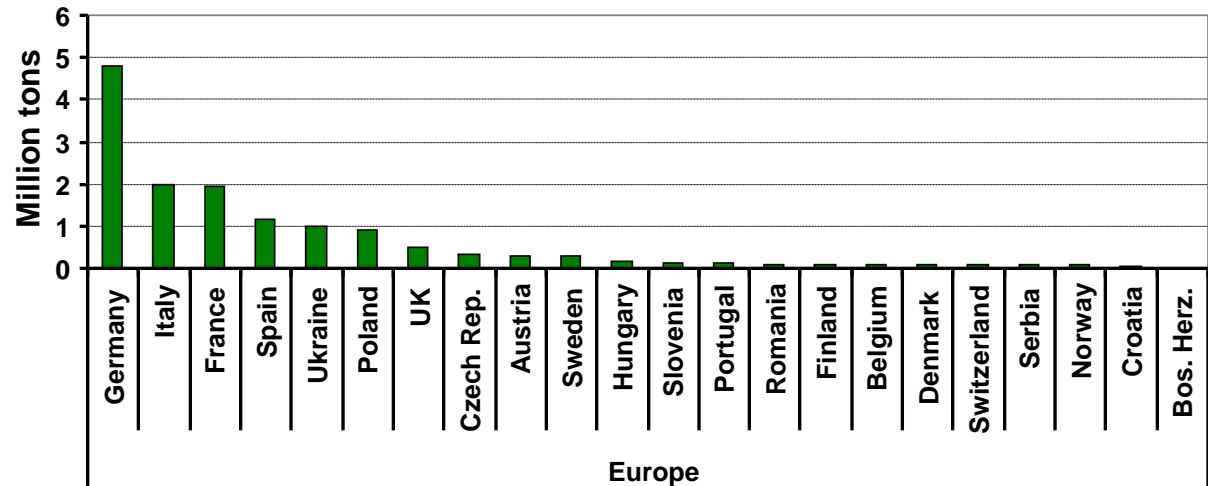
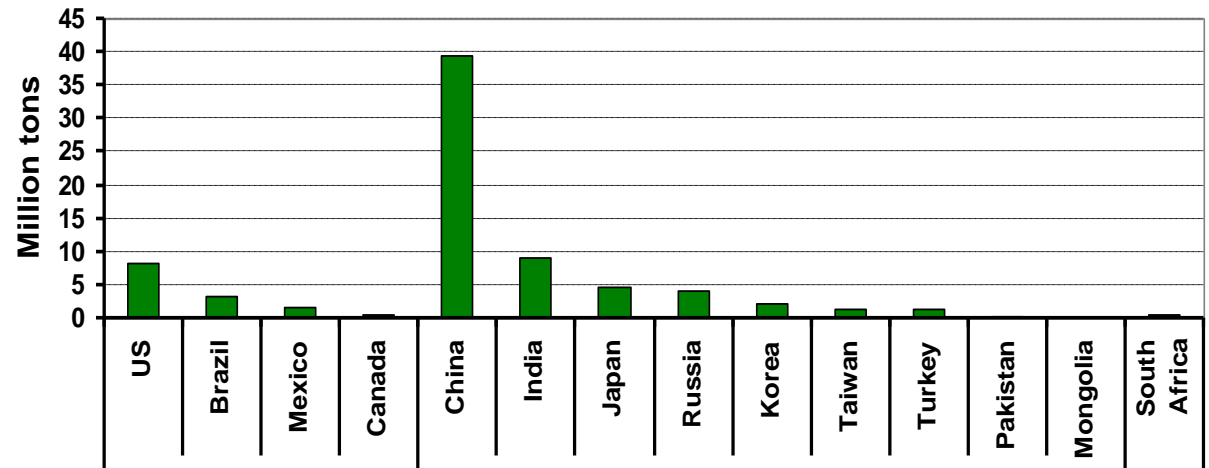
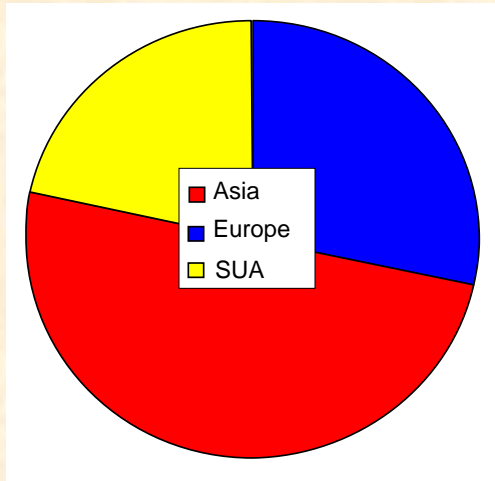




# WORLD CASTING PRODUCTION [2010]

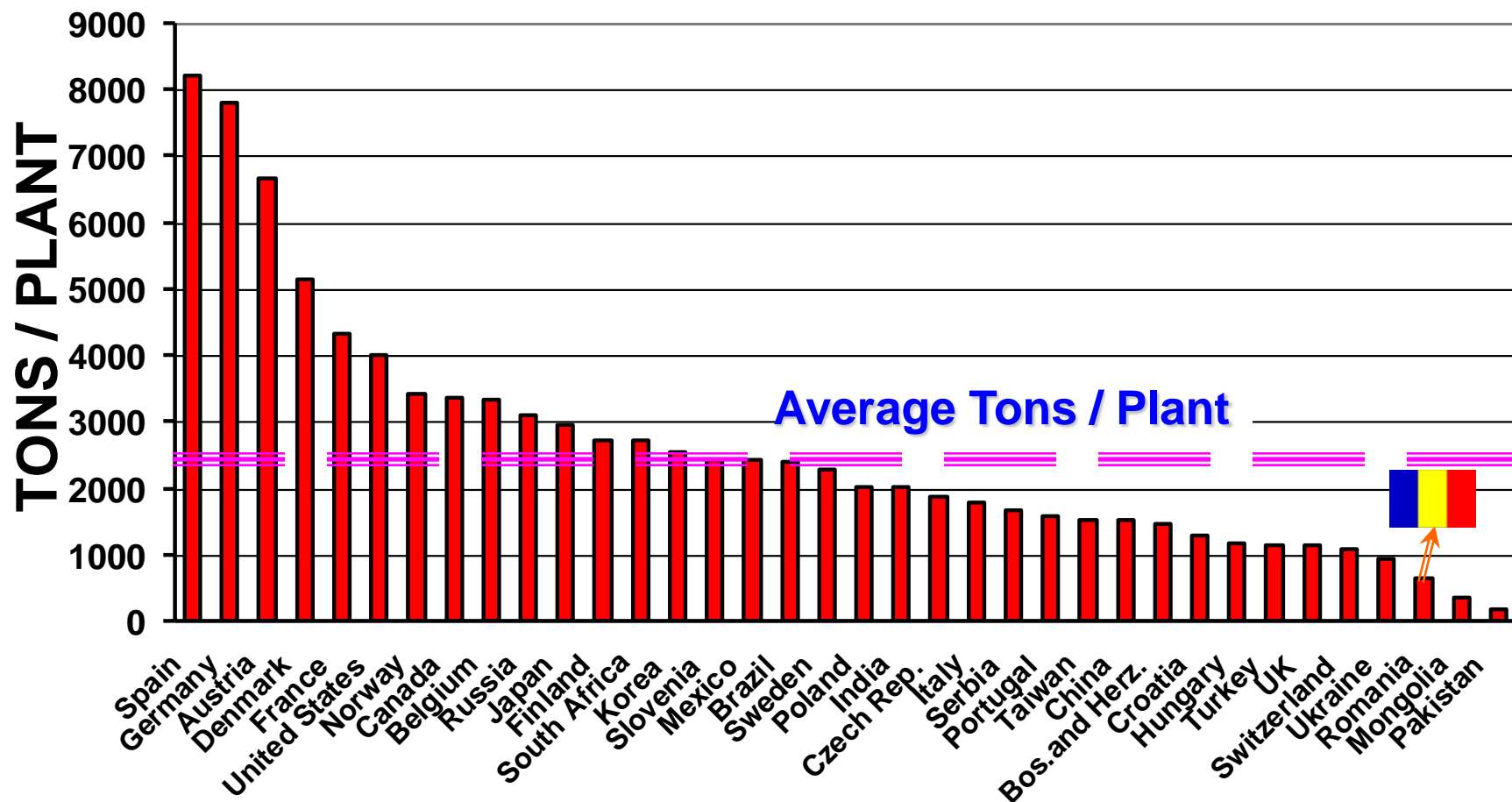


# 2010 WORLD CASTING PRODUCTION

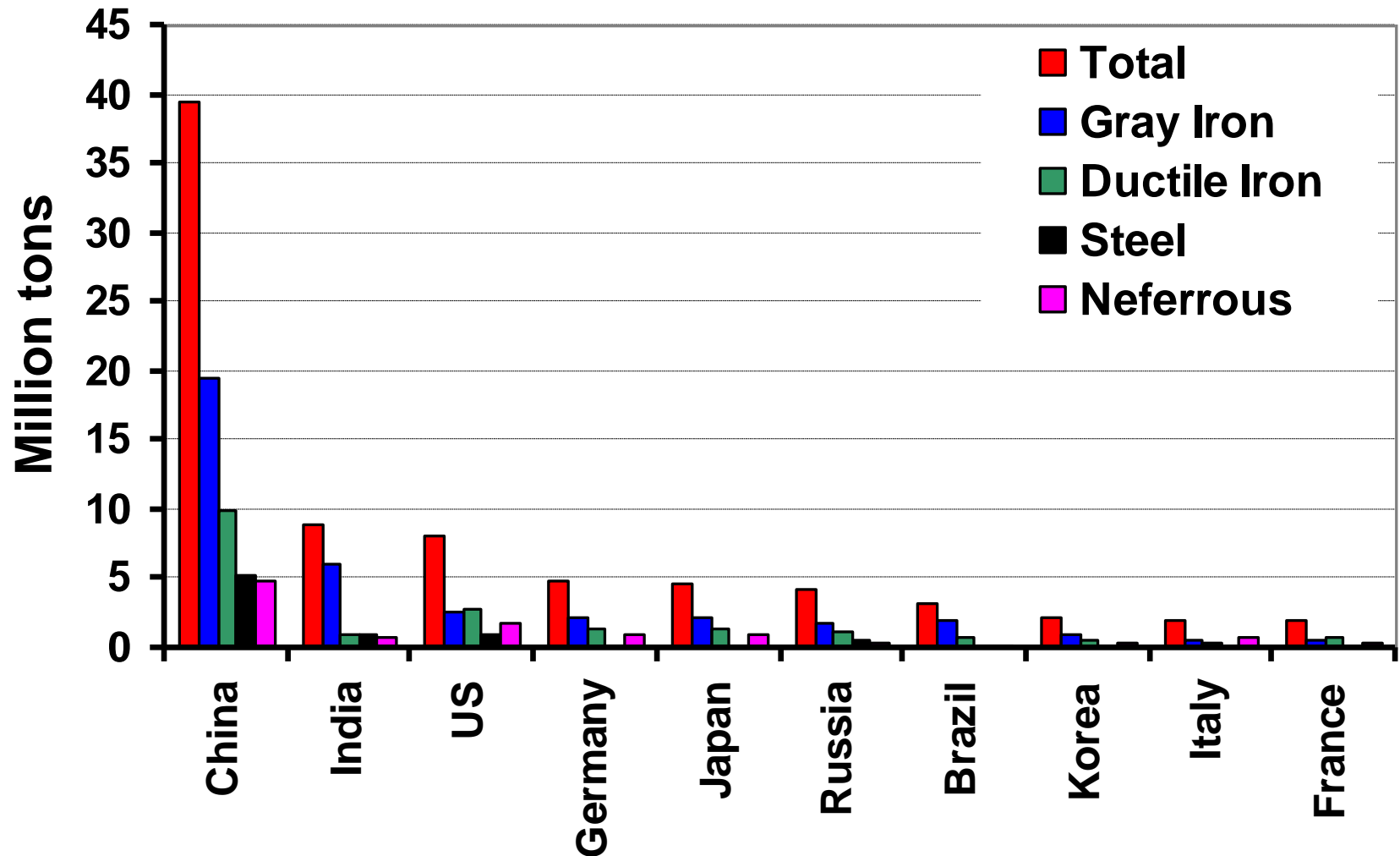


# PRODUCTIVITY PER PLANT

## [TONS / PLANT, 2010]



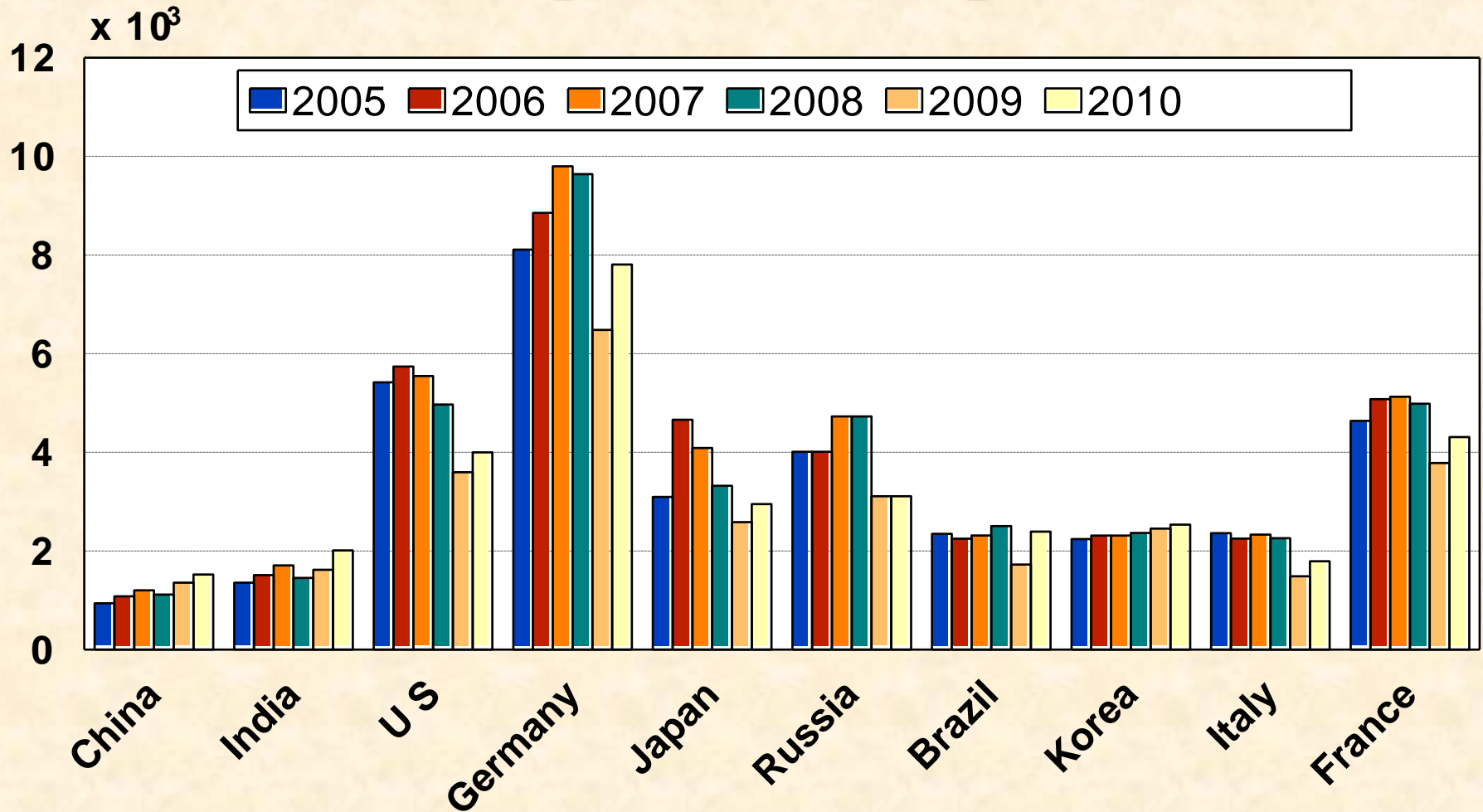
# TOP-10 CASTING PRODUCTION [2010 - 88%]





# TOP 10 CASTING COUNTRY [Tons / Plant]

## [2005 - 2010]



# **116<sup>th</sup> AFS-American Foundry Society – Metalcasting Congress**

**[April 17-20, 2012, Columbus, Ohio, USA]**

- **2225 participants / > 100 papers**  
Exhibition [177 suppliers + 29 foundries]
- **1991....2008: Al [> 80%] and Mg [> 300%]**
- **2010:** >700 Ferrous Foundries *and* > 1300 Non-ferrous Foundries  
> 200, 000 workers  
> 80% Foundries / < 100 workers



## ❖ **2011 – Production Capacity Utilization**

### ✓ **Cast Iron Foundries**

- \* Increased production: 5.69 Mil.t [2010], 6.24 Mil.t [2011], 6.76 Mil.t [2012]
- \* 91.7% Production capacity utilization [from 40% up to > 100%]
- \* Limited production capacity increasing forecast [up to 10-20%]
- \* 50% of Foundries – interested in labour time increasing

### ✓ **Steel Foundries**

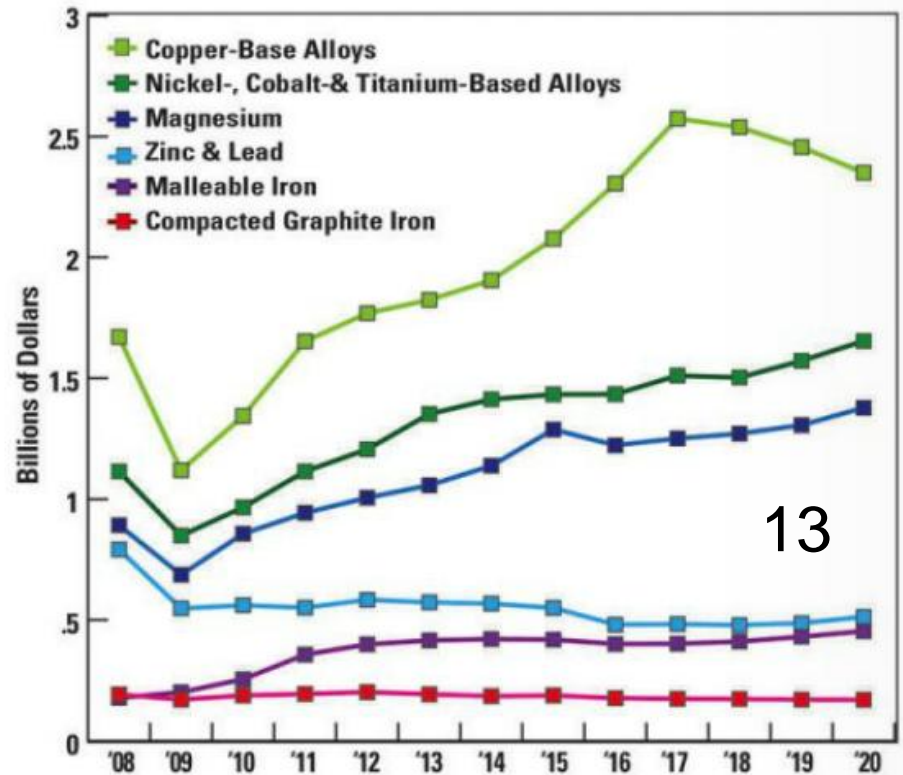
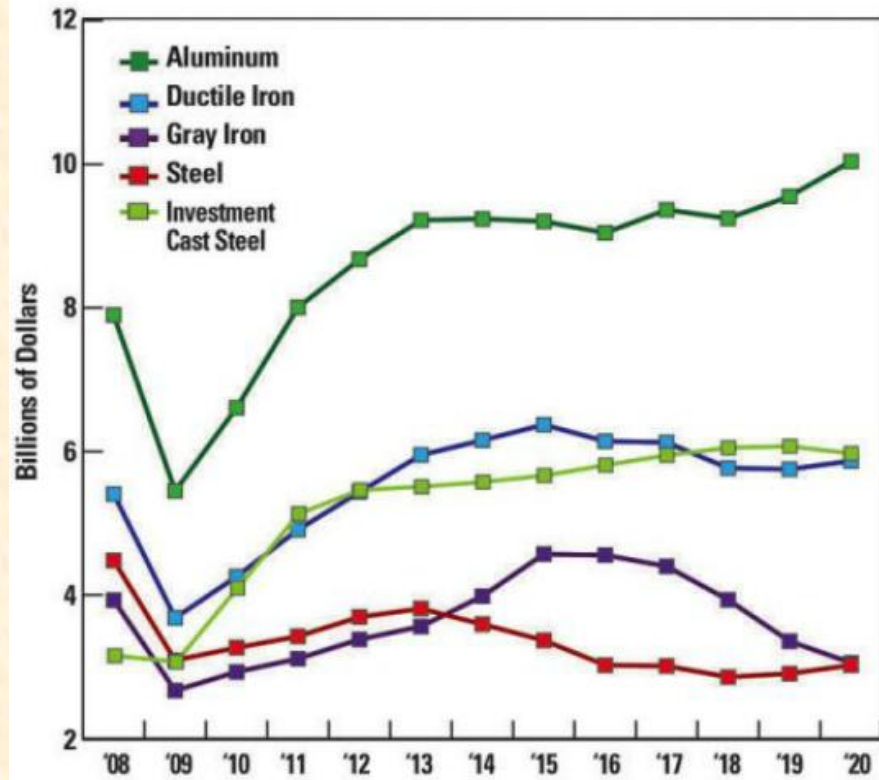
- \* > 100% Production capacity utilization
- \* 75% of Foundries – an increasing of production capacity in the next 2 years
- \* 75% of Foundries – interested in labour time increasing

### ✓ **Al Foundries**

- \* Increased production: 1.36Mil.t [2010], 1.62 Mil.t [2011], 1.72% Mil.t [2012]
- \* 74.1% Production capacity utilization [from 55% up to > 100%].
- \* 76% of Foundries – an increasing of production capacity in the next 2 years
- \* 33% of Foundries – interested in labour time increasing

# US Metalcasting Shipments [Billions of Dollars]

## [2008 – 2020]

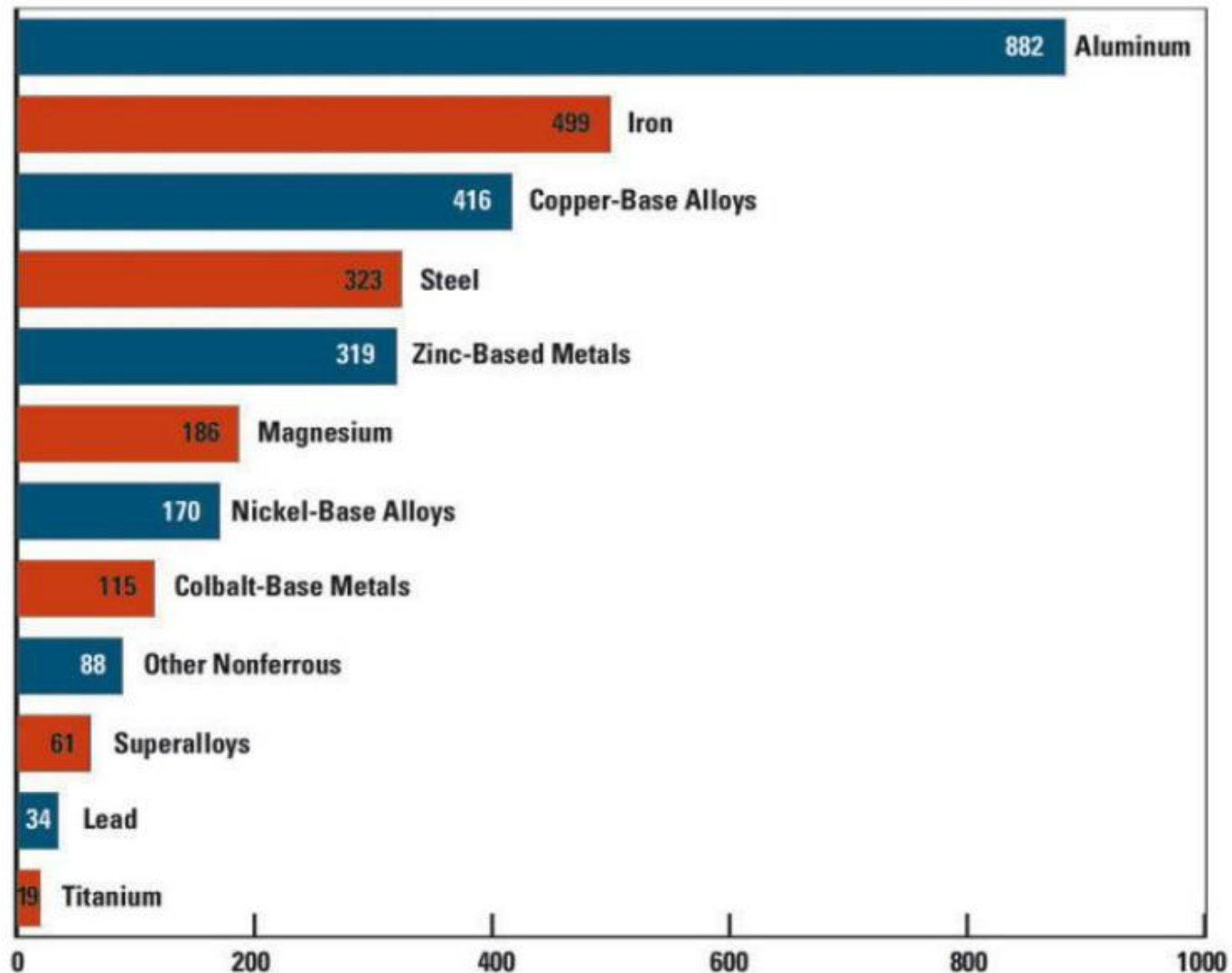


13



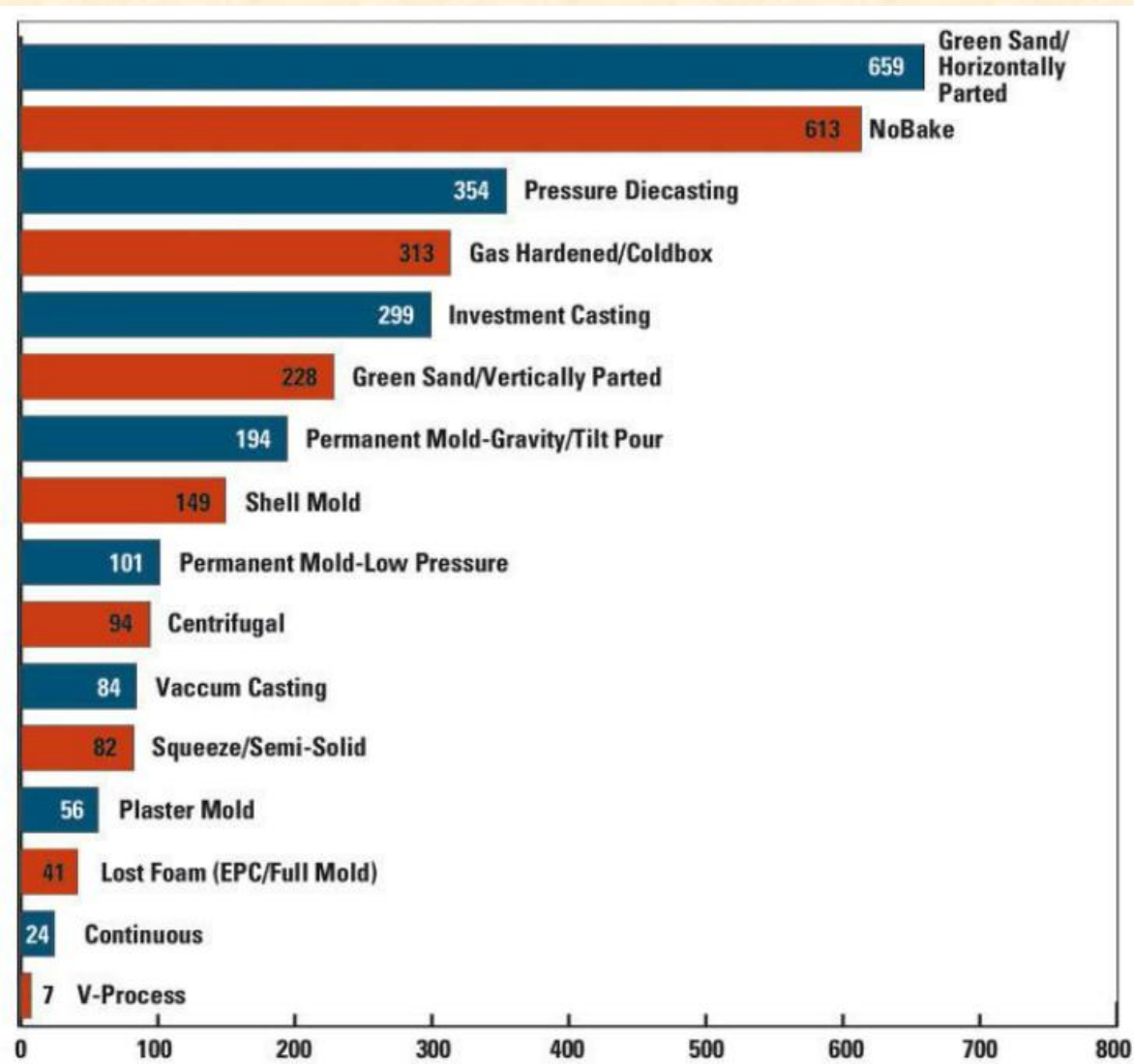
# US - Metallic Materials, 2011

## [Number of Foundries]



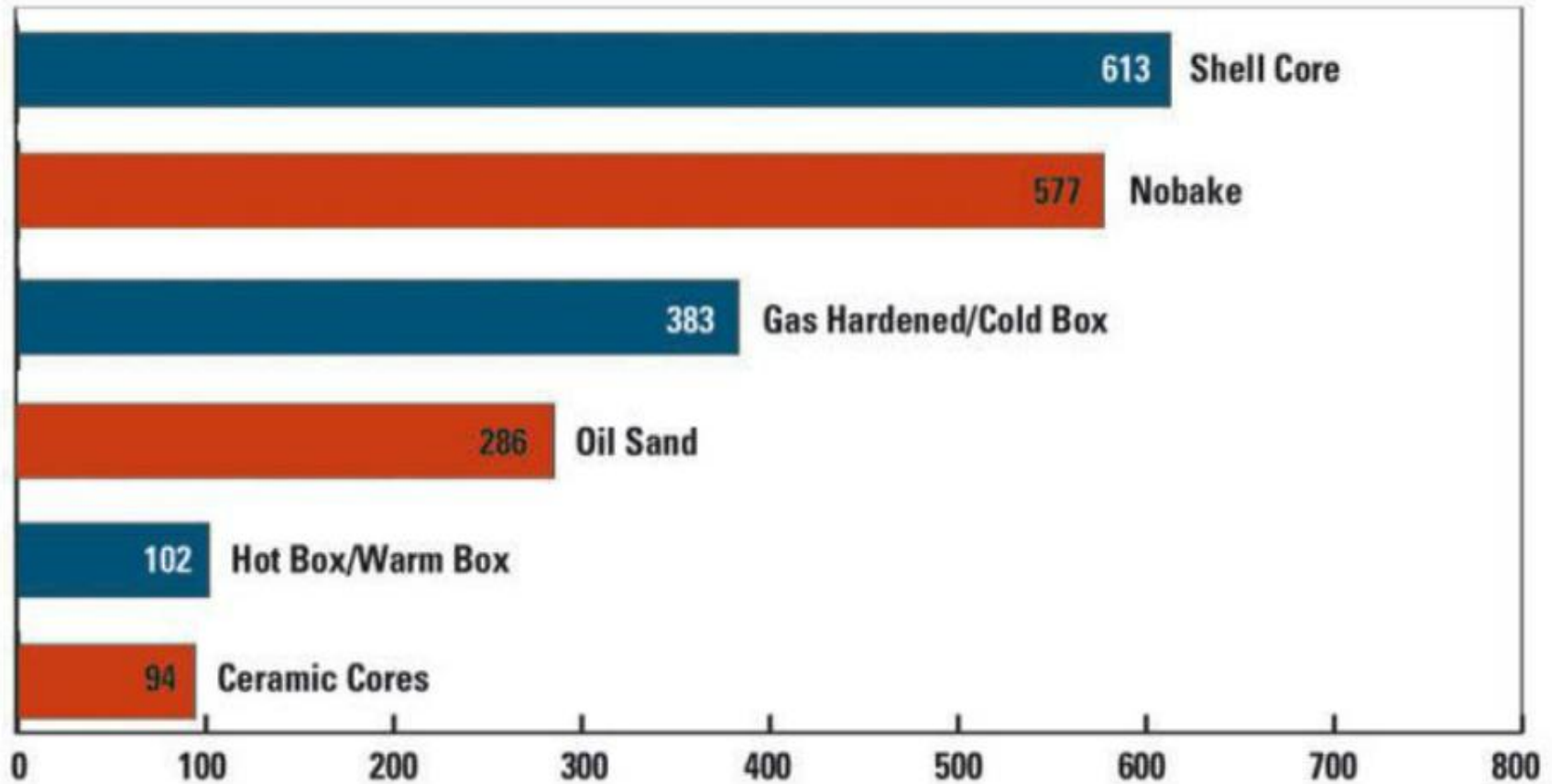
# US - Metalcasting Processes, 2011

## [Number of Foundries]



# **US - Coremaking Processes, 2011**

## **[Number of Foundries]**



# **Nisip Turnatorie vs Fracturare Hidraulica [Gaz Natural]**

- ❖ **SUA** - crestere de 2-3 ori a productiei de Gaz Natural
  - din 2015 – disponibilitati la export
- ❖ **Fracturare Hidraulica: Verticala sau Orizontala**
- ❖ **“Proppant”**
  - \* material de injectare in sol
  - \* contine “Frac Sand”=“Foundry Sand” [puritate/granulatie/ rotunjire]
  - \* Fracturare Hidraulica Orizontala:
    - tot mai utilizata
    - de 5 ori mai mult nisip
- ❖ **“Frac Sand” vs. “Foundry Sand”**
  - \* “Frac Sand”: 2000 – 2 mil.t
    - 2006 – 5 mil.t
    - 2011 – 10 mil.t
    - 2016 – 20 mil.t
  - \* “Foundry Sand”: 3-4 mil.t
- ❖ **Toti producatorii de nisip: concentrare pe “Frac Sand”**
  - Wisconsin: 28 producatori noi – toti “Frac Sand”
- ❖ **Industria de Turnatorie SUA in impas**
  - revedere tehnologii formare / miezuire
  - intensificare regenerare



# AWARDS

## American Foundry Society [AFS]-

## Award of Scientific Merit - 2012

**“for advancing the knowledge of the cast iron industry through extensive research and for generously sharing his knowledge and expertise with the industry”**

**“This is the highest recognition the American Foundry Society and your peers can give to the individuals who have served the industry honorably and well. In presenting this award, we are confident it will bring you the recognition you so well deserve. The spirit in which you have fulfilled AFS’ mission of sharing knowledge has been one of the main considerations in making this award”.**

### METALCASTING CONGRESS

April 17-20, 2012  
Columbus, Ohio

#### Awards of Scientific Merit

**Julian Roposan**, professor at the Politehnica Univ. of Bucharest, Bucharest, Romania, won for "advancing the knowledge of the cast iron industry through extensive research and for generously sharing his knowledge and expertise with the industry."

**Ralph Shawman**, senior staff metallurgist at ASK Chemicals, Dublin, Ohio, won for his "extensive research and excellence in technology transfer in the area of metal-lurgy and core and mold making."

**David Weiss**, vice president of sales and engineering at Eck Industries Inc., Mechanicsville, Wis., won for his "technical innovations in light metal casting, application of best practices in premium castings and leadership in the AFS Division Council, Technology Development Council and Research Board."

#### Service Citations

**Gregory Miskinis**, director of research and process development for "Thyssen Krupp" Waukegan, Waukegan, Wis., won for "serving the metalcasting industry through participation in AFS research activities and the education of casting designers and mold users."

**Raymond Masone**, executive vice president of the Steel Founders' Society of America, Crystal Lake, IL, won for "dedicated service to the metalcasting industry and service to the Cast Metals Coalition, the Alliance for Materials Manufacturing Excellence and the American Metalcasting Consortium."

**Sandy Salisbury-Linton**, CFO/co-owner of Toolkasa Foundry Inc., Toolkasa, Ohio, was chosen for her "dedication, service and leadership as an advocate and champion for AFS, the Cast Metals Institute, the Plains States chapter and the metalcasting industry."

#### Michael J. Trzeciński CMI Award

The Michael J. Trzeciński CMI Award was given to **Warren Ramussen**, CMI Instructor/Consultant. The award recognizes an individual who has made substantial personal contributions (including service) to the development and continuing successful operation of the Institute and its programs.

RWP Group  
SIMTEC WinCast  
Experts ViewCast

RWP purchased Experts ViewCast and introduces a new full featured hybrid software "WinCast ViewCast"

The combining of these well established technologies integrates Experts' advanced mold flow into WinCast's full featured finite element solidification & stress analysis software. This creates the most accurate, lowest cost package available with low maintenance fees and advanced operator control.

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- \* Easy to Use

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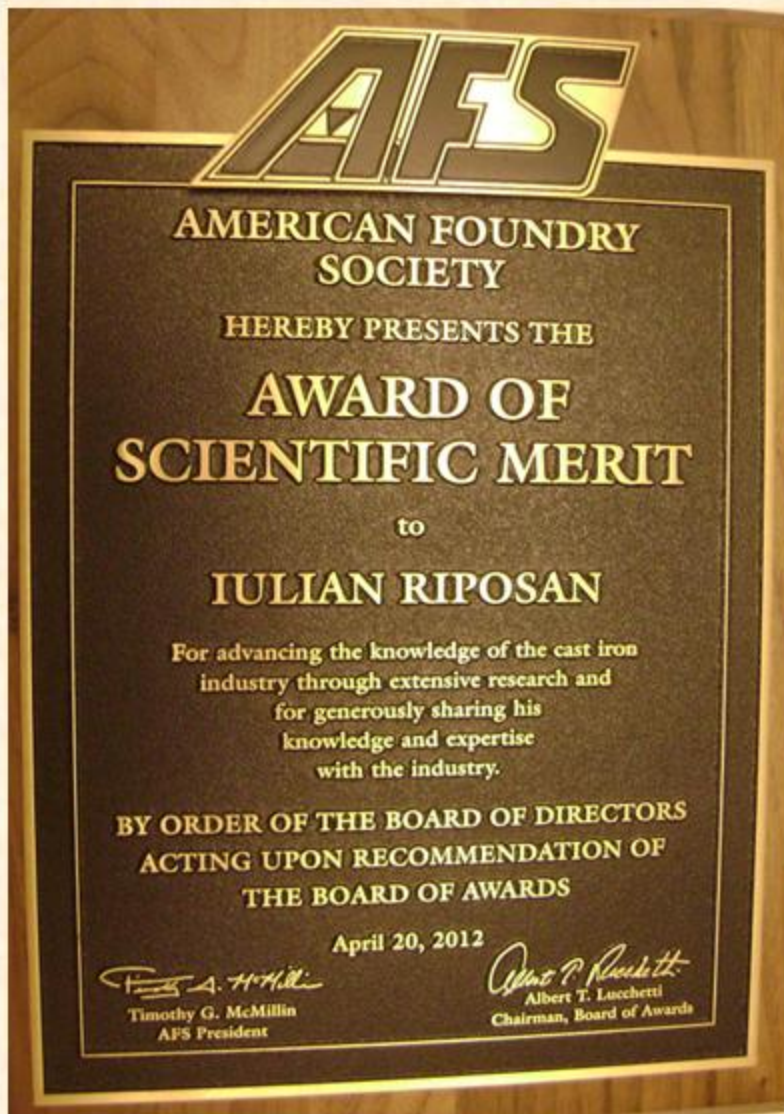
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