Ductile Iron Society

Spring 2009 Meeting
Lancaster, Pa.
U.S.A.

2009年8月17日
A sample of Zhongwen

- Ni Hao!
- Ni Hao Ma?
- ………………
- Hen Hao!
- ………………
- XieXie!
- Hello!
- How Are You?
- ………………
- Very Good!
- ………………
- Thank You!
A view of **Ductile Iron** foundries

in

**China**

by Don Rhoda, Toledo, Ohio

Dana, retired process metallurgist
Steering Suspended Axle
Ag Tractors from 80 to 360 Horsepower

www.dana.com/offhighway_systems
### The Six Alloy Formulas and Their Properties in Kao Gong Ji

<table>
<thead>
<tr>
<th>Name and Content</th>
<th>Composition</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cu(%)</td>
<td>Sn(%)</td>
</tr>
<tr>
<td>钟鼎之齐, 6分其金</td>
<td>85.71</td>
<td>14.29</td>
</tr>
<tr>
<td>斧斤之齐, 5分其金</td>
<td>83.33</td>
<td>16.67</td>
</tr>
<tr>
<td>戈oggled之齐, 4分其金</td>
<td>80</td>
<td>20</td>
</tr>
<tr>
<td>大刀之齐, 3分其金</td>
<td>75</td>
<td>25</td>
</tr>
<tr>
<td>削杀矢之齐, 5分其金</td>
<td>71.43</td>
<td>28.57</td>
</tr>
<tr>
<td>锻炼之齐, 金, 锡半</td>
<td>66.66</td>
<td>33.33</td>
</tr>
</tbody>
</table>
Transformation

- New China (PRC) in Transformation
  16% of the world speaks English
  16% of the world speaks Mandarin
- Decades of spectacular $$$ growth
- Openness to the west
- Began with Mao Zedong 1949
- 2008 Beijing Olympics - National Pride
China’s Challenges

- Population movement - Infrastructure
- 200 million unemployed (roughly 1/2 of U.S population or England & France combined)
- Poorest 10% owns 2% of assets
- Richest 10% owns 40% of assets
- Entered W.T.O. 2001 - import barriers
- “Century of Humiliation” - Influence
Energy & Ground Vehicles

- 1990 = 6.3 million G.V.
- 2003 = 36.0 million G.V.
- 2020 = 131.6 million G.V. (est.)
- U.S. 800 cars/1000
  China 50 cars/1000
- Coal  (2/3 of country’s energy)
- Electricity
China Mainland - Foundries

- Dongfeng in XianFan
- HuiJin in Jinan City
- Tianrun Crankshaft in Wendeng
- CMI Group in Suzhou (DISA)
- W.C.L. in ChangShu - DeS
- Chuwei in Suizhou City
Shandong Crankshaft General Plant
Types of Foundries

- Russian Built - S.O.E, FAW, DongFeng
- Re-Furbished, New Capital - Huijin
- “Mom & Pop” - Small, Floor, Cupola
- Newest, Up-to-Date - CMI, OMR, Kieriu
<table>
<thead>
<tr>
<th>Company</th>
<th>Capacity/Ton/Year</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Foundry</td>
<td>200,000</td>
<td>DI/GI</td>
</tr>
<tr>
<td>Second Foundry</td>
<td>60,000</td>
<td>DI</td>
</tr>
<tr>
<td>Wuxi Subsidiary</td>
<td>50,000</td>
<td>DI/GI</td>
</tr>
<tr>
<td>Dalian Subsidiary</td>
<td>20,000</td>
<td>DI/GI</td>
</tr>
<tr>
<td>Special Foundry</td>
<td>7,000</td>
<td>DI</td>
</tr>
<tr>
<td>United Casting</td>
<td>7,000</td>
<td>AL</td>
</tr>
<tr>
<td>Non-Ferrous</td>
<td>5,000</td>
<td>AL</td>
</tr>
<tr>
<td>Foundry Research</td>
<td></td>
<td>Tech. Center</td>
</tr>
</tbody>
</table>
FAW Foundry Co., Ltd.
FIRST CASTING PLANT
Critics Complaint

Superior R & D:

R
&
D
Critics Complaint

Superior ???

Recieve &

Duplicate
Thank You - Good Bye

XieXie – Zaijian!