



# China's Magnesium Industry

Unalloyed Optimism  
A New China Report From Urandaline

2006 Edition

**China's Magnesium Industry** explains China's transition from a minor producer of magnesium to the world's largest producer and a potential force in the die-casting of magnesium.

Until 1993, China's production of magnesium was negligible. Since then however, it has been expanding at an average annual average rate of 34%, reaching 469,700 tonne in 2005. Initially, China's undeveloped economy was not able to absorb the massive increase in production, but now, with the emergence of new domestic end-users, particularly the automotive industry, domestic demand has burgeoned and in 2010 the local die-cast industry alone is expected to consume 176,400 tonne.

With the growth in China's magnesium production, the industry has consolidated and companies have progressed up the value curve to focus on more profitable sectors like die-cast applications of magnesium.

China's magnesium industry has benefited from the combined support of government, industry and academia. In the early years, government owned research institutes pioneered process improvements that lifted efficiency and drove down prices. Public money was also important in enabling China to perfect its understanding of the production and use of magnesium alloys. Now an \$80 million fund has been provided by industry and local governments who have an interest in expanding China's understanding of magnesium die-casting.

China's magnesium industry draws its competitiveness from outside the business, not from within. Access to low-cost dolomite and the ability to harness the labour-intensive Pidgeon process have certainly helped China's magnesium industry grow, but the advantage of low-cost magnesium has diminished as China has progressed up the magnesium value-added curve. The high-volume production of precision magnesium castings has more to do with the design skills of China's die-casters and their relationship with key suppliers and consumers than it does with access to cheap metal.

Despite its spectacular growth, China's magnesium industry is confronted by some real threats. Higher occupational health and safety standards as well as stricter enforcement of environmental regulations, have forced the closure of several plants, and unless companies modify their operations there will be further closures.



Inappropriate and outmoded business structures are another threat to the future of China's magnesium industry. These structures need to change if China is to create truly global magnesium companies.

Another threat to China's magnesium industry is the sustained pressure by China's trading partners to revalue its currency. Because 80% of China's magnesium is exported, any revaluation would have a significant impact on the industry. Producers would receive fewer Chinese reniminbi for their magnesium so their profit margins would contract.

**China's Magnesium Industry** provides a strategic assessment of the industry based on the latest data and strategic thinking from hard-to-access Chinese sources. This is the only report which goes beyond a mere estimation of Chinese costs – it examines the threats and opportunities facing the industry.

**China's Magnesium Industry** offers a detailed explanation of the unique silicothermic process used to produce magnesium in China, a process that is not widely used outside China. However, its relatively simple flow sheet and the fact that plants can be built quickly and with very little capital investment makes it ideal for China's particular circumstances.

**China's Magnesium Industry** uses flow sheets, drawings and colour photographs to explain how China's use of the silicothermic process has forced the closure of technically more elegant foreign competitors, with the result that China is now the world's dominant producer of magnesium.

**China's Magnesium Industry** provides a comprehensive analysis of the costs of producing magnesium at a range of plants in Shanxi, Ningxia and Henan. These costs are benchmarked with those of international competitors, to yield a global ranking of magnesium production costs.

**China's Magnesium Industry** explains that while its competitors continue to look inward at their costs, China's magnesium producers have progressed from a production focus to focusing on expanding the metal's die-casting applications.

**China's Magnesium Industry** shows how the industry's competitive position has been enhanced by the formation of industry clusters that combine government and industry sponsored research. The clusters have evolved around three regions and involve competitors in related industries, (such as the automotive industry), doing business with each other, (rather than against each other), in that they share common talent, technology and infrastructure.



**China's Magnesium Industry** contains more than 170 pages of detailed and concisely written reporting with 75 graphs, tables, photographs and illustrations. It is an essential source of information for anyone who needs to understand the world's largest magnesium industry.

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# Urandaline

## WHO WE ARE – WHAT WE DO

**Urandaline Investments** is an Australian based consultancy specializing in capital-intensive commodity businesses. A large part of our activity relates to China where, with the assistance of a network of local experts, we follow industries such as electricity, petro-chemicals, mining and metallurgy.

Most of our work is by commission for specific clients but we also produce multi-client studies where there is sufficient demand.

**China's Industries** is an occasional newsletter we publish for clients and friends. The newsletter, with a circulation of over 500 people in more than 20 countries, gives us an opportunity to publicize areas of special interest which could appeal to existing and potential clients.

Urandaline's Principal, **Michael Komesaroff**, has over 25 years experience within Asia's mineral industries. During this time he has lived and worked in Japan, the Russian Far East and China. Mr Komesaroff is a frequent presenter to international conferences and briefings dealing with China's capital intensive industries. He also contributes to authoritative industry publications including Metal-Pages, Metal Bulletin, Metal Bulletin Monthly and Industrial Minerals.

Some of Mr Komesaroff's presentations and articles are available for public viewing and free download at Urandaline's web-site: [www.urandaline.com.au](http://www.urandaline.com.au).

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*Photographs on pages 03 and 04 supplied by Wogen, Beijing.*