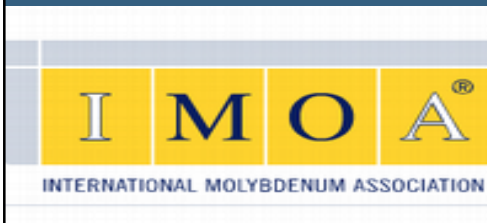


Molybdenum: An overview of current and future supply

IMOA September 2010

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and
Khayyam Jahangir
Roskill Information Services Ltd.



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Outline

- Production trends 2000-2009
 - Mine production by country and company and mine type
 - A brief look at the role of China in global supply
- Molybdenum mine capacity
 - Capacity by country, company and mine type
- Molybdenum roasting capacity
 - Country and company overview
- Ferromolybdenum capacity
- Outlook for mine capacity

Mine production

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World: Molybdenum production, 2000-2009

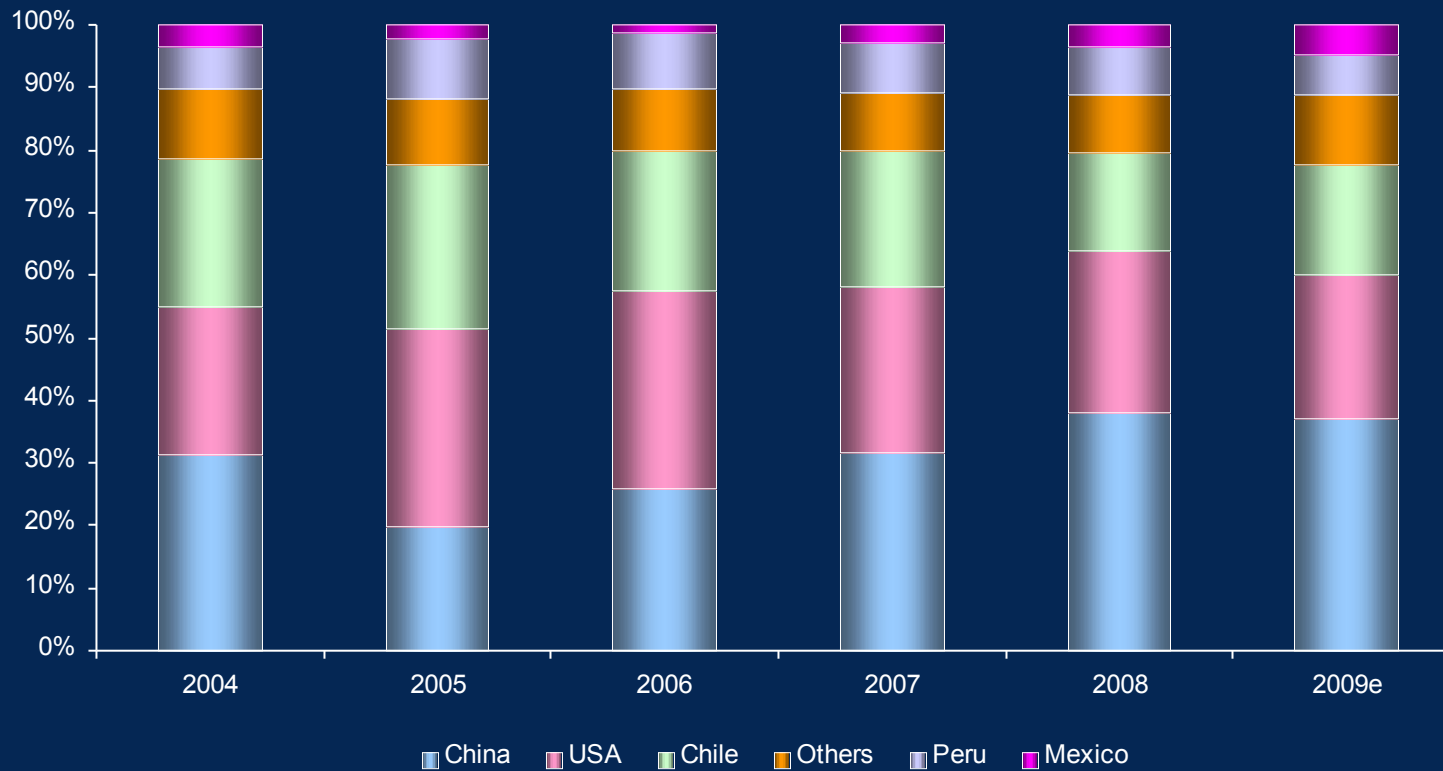


Source: IMO, Roskill

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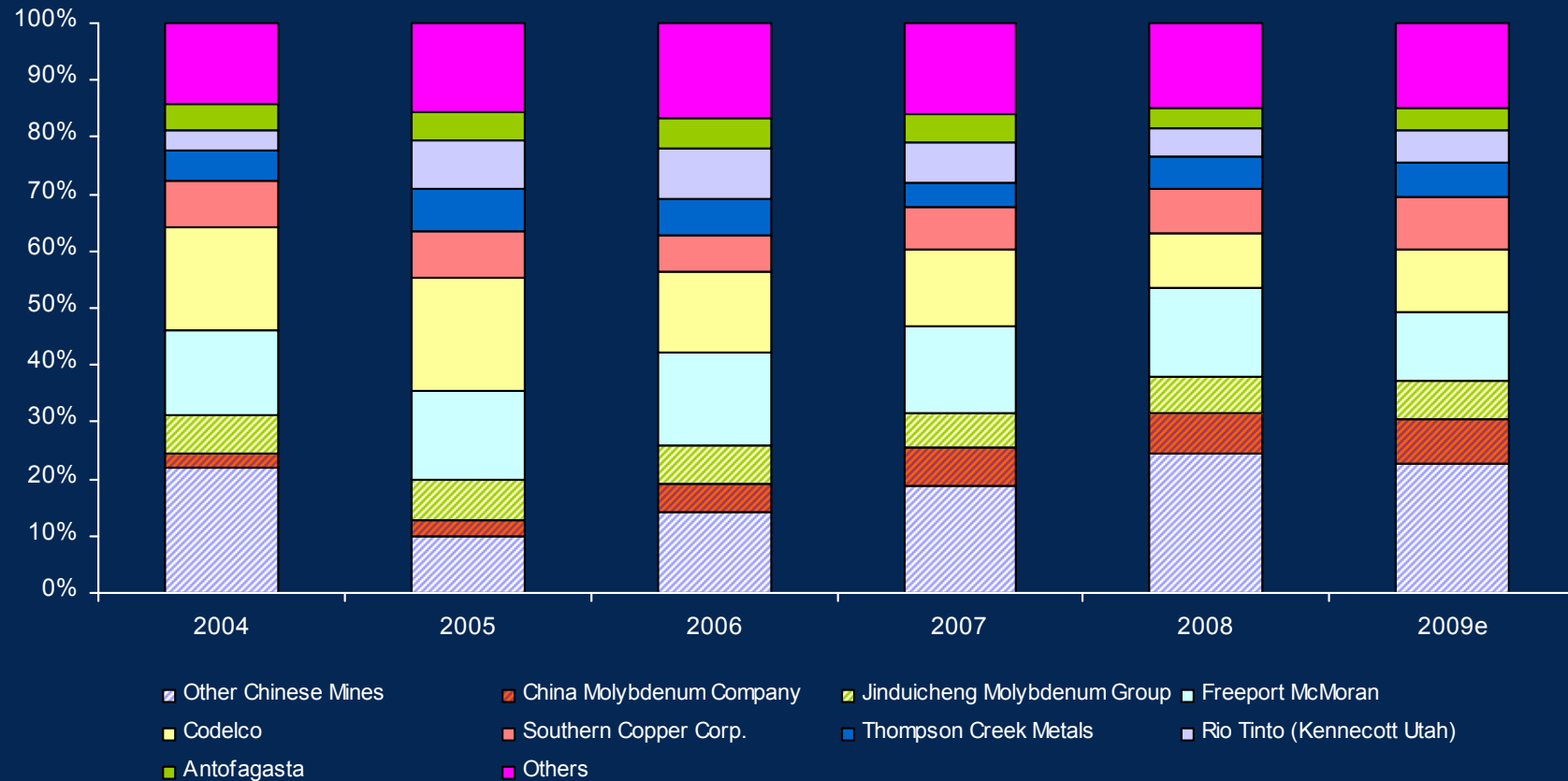
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World: Molybdenum production by country, 2004-2009



Source: Roskill

World: Molybdenum production by company, 2004-2009

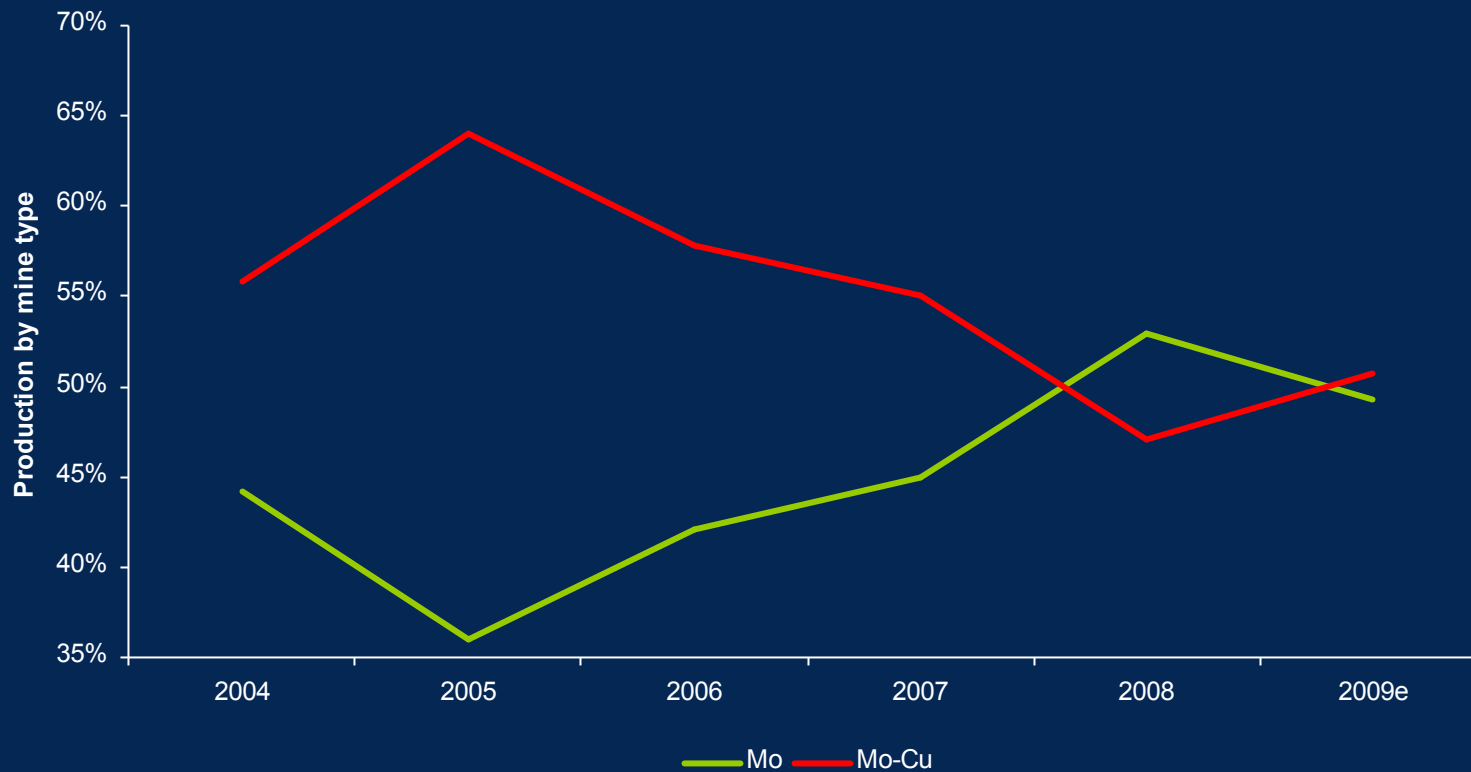


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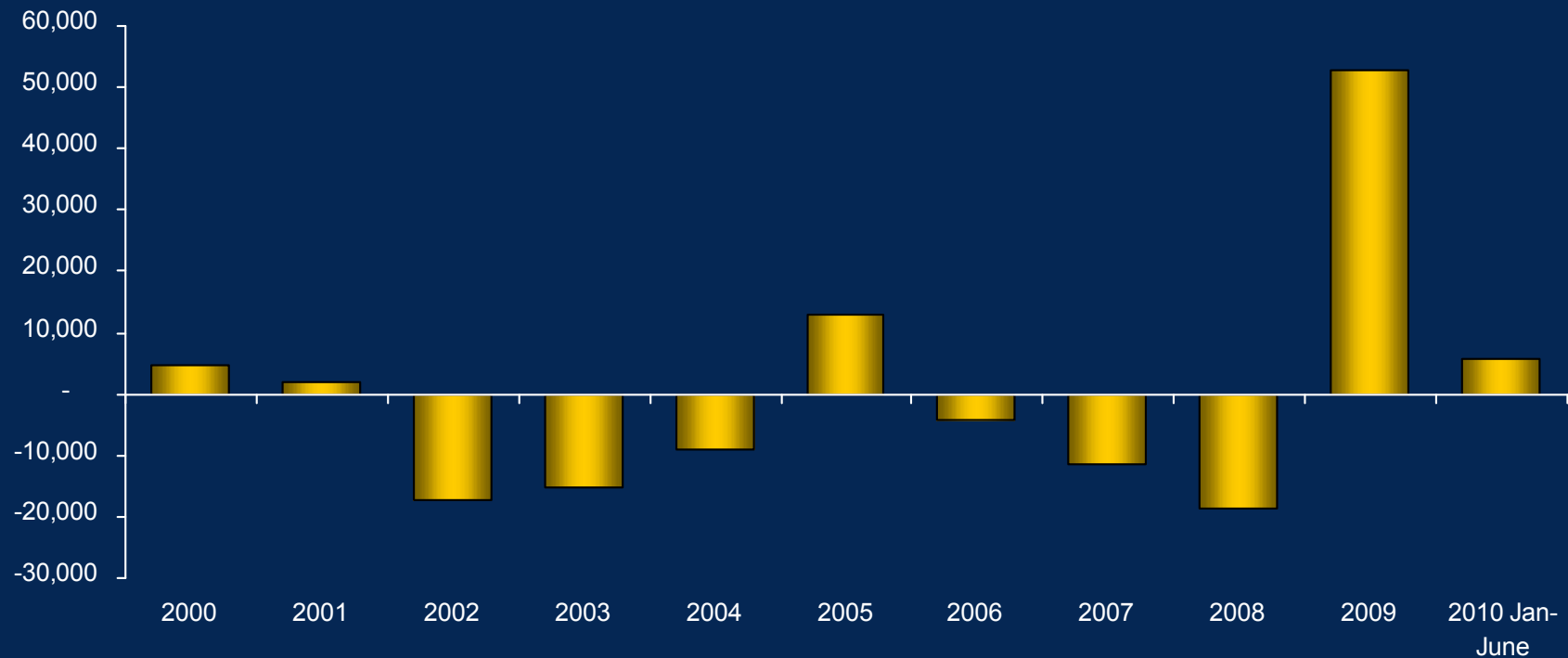
Molybdenum production from molybdenum only mines has increased



Source: Roskill

China plays a complex role in the global supply of molybdenum, switching from net exporter to net importer

China: Net trade in Mo Concentrates



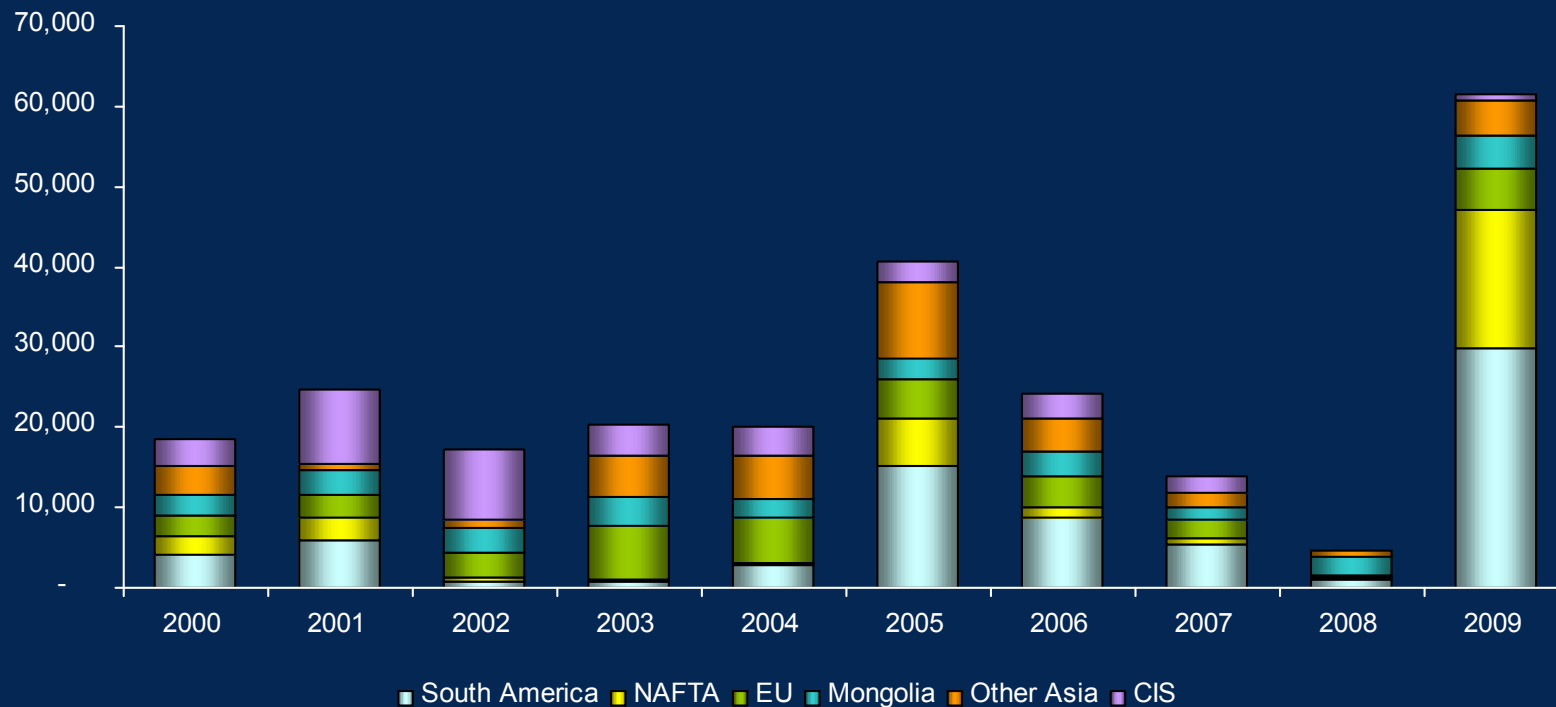
Source: GTA

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China moved to import lower cost concentrates in 2009 - the cost of importing material from the Americas was less than the cost of some domestic production

China: Imports of molybdenum concentrates



Source: GTA

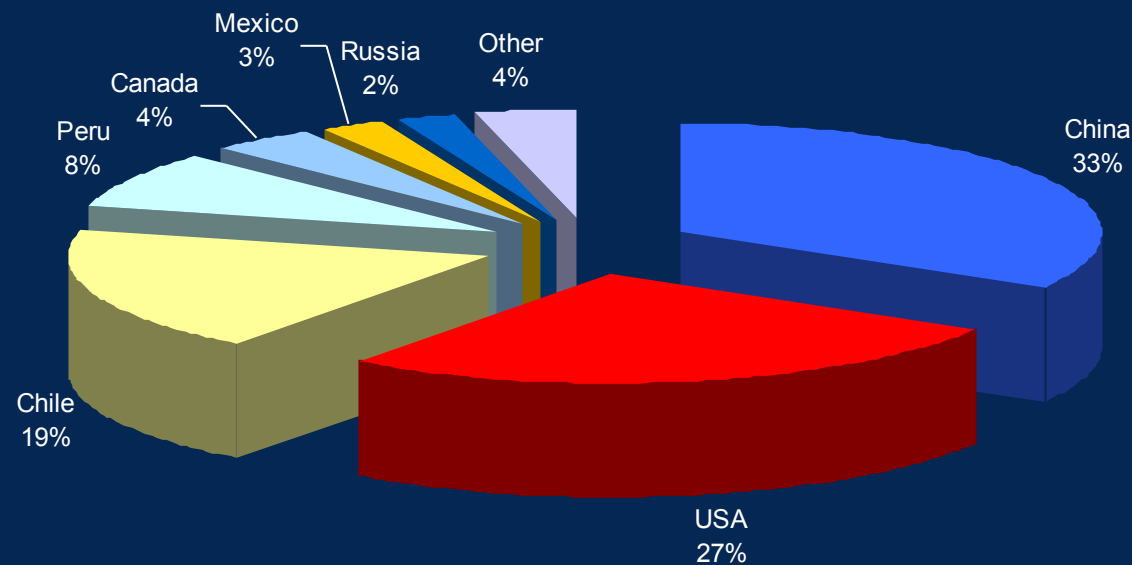
Molybdenum mine capacity

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China, the USA and Chile dominate world mine capacity

World molybdenum mine capacity, 2009



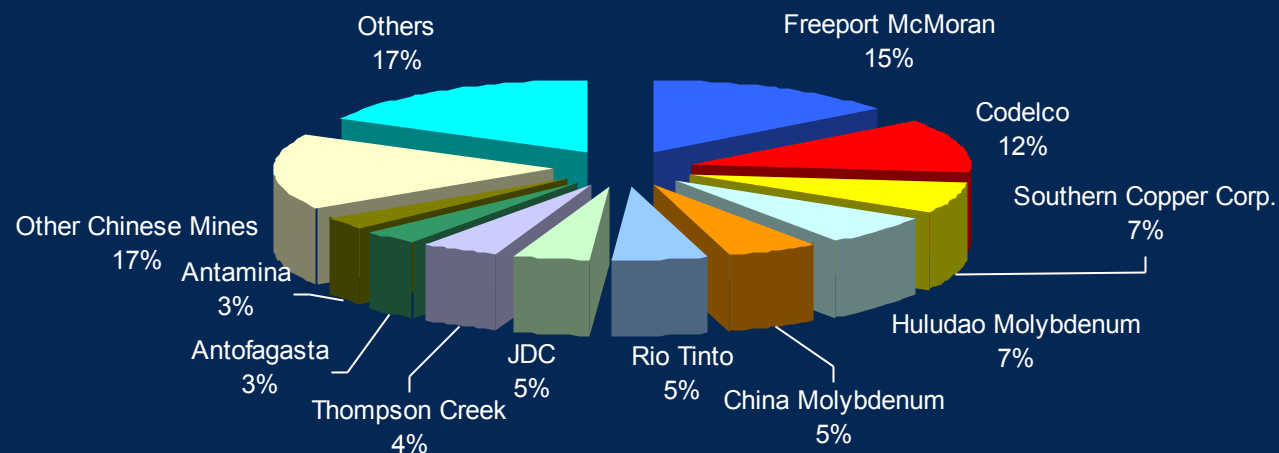
Source: Roskill

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Two companies, Freeport McMoran and Codelco account for just over a quarter of world mine capacity

World molybdenum capacity by company, 2009



Source: Roskill

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Molybdenum by-product mines account for the majority of total mine capacity

World capacity by mine type, 2009



Source: Roskill

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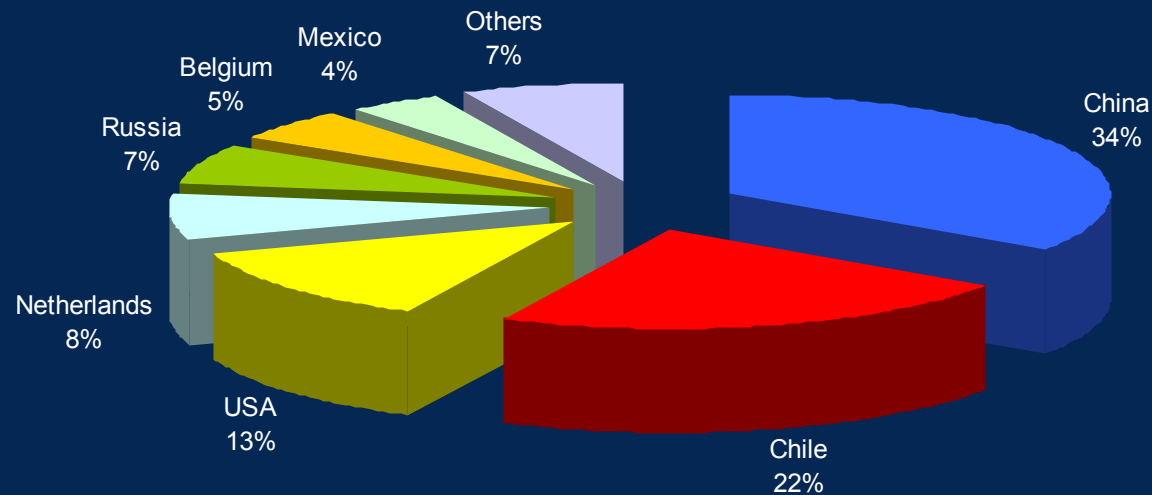
Roasting capacity

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Three countries account for over two-thirds of global roasting capacity

World roasting capacity, 2009



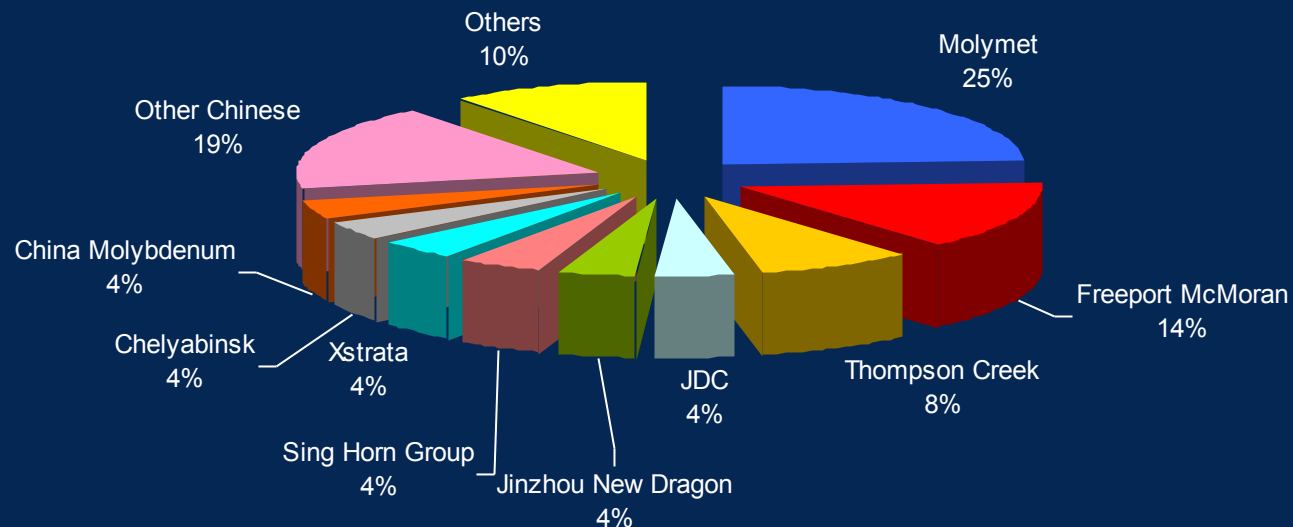
Source: Roskill

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Although China dominates global roasting capacity, the domestic industry is fragmented

World roasting capacity by company, 2009



Source: Roskill

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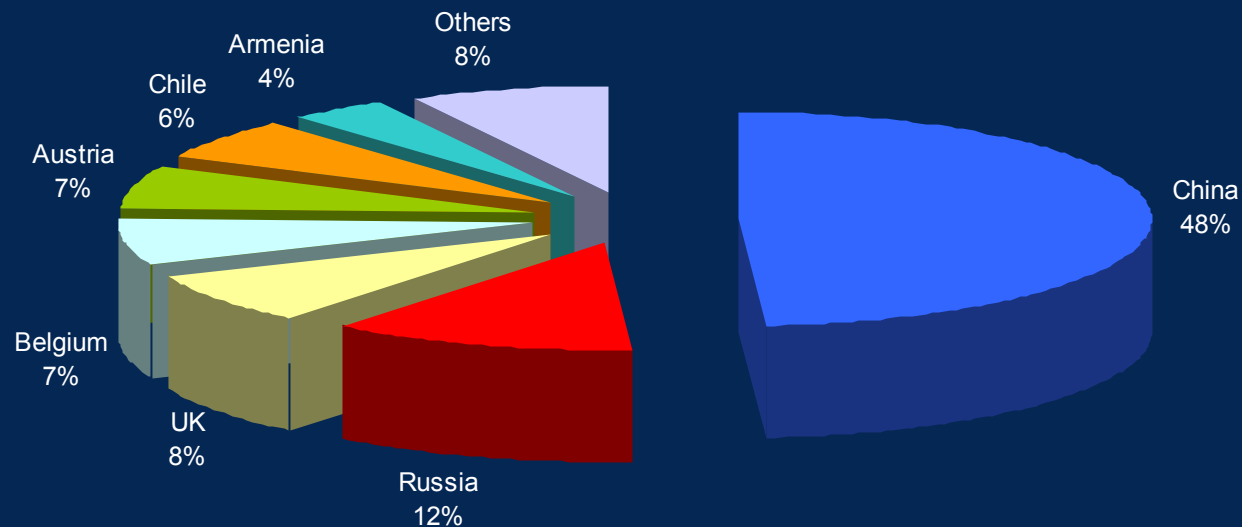
Ferro-molybdenum capacity

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As with mine and roasting capacity, China dominates the ferro-molybdenum market

World ferro-molybdenum capacity by country, 2009



Source: Roskill

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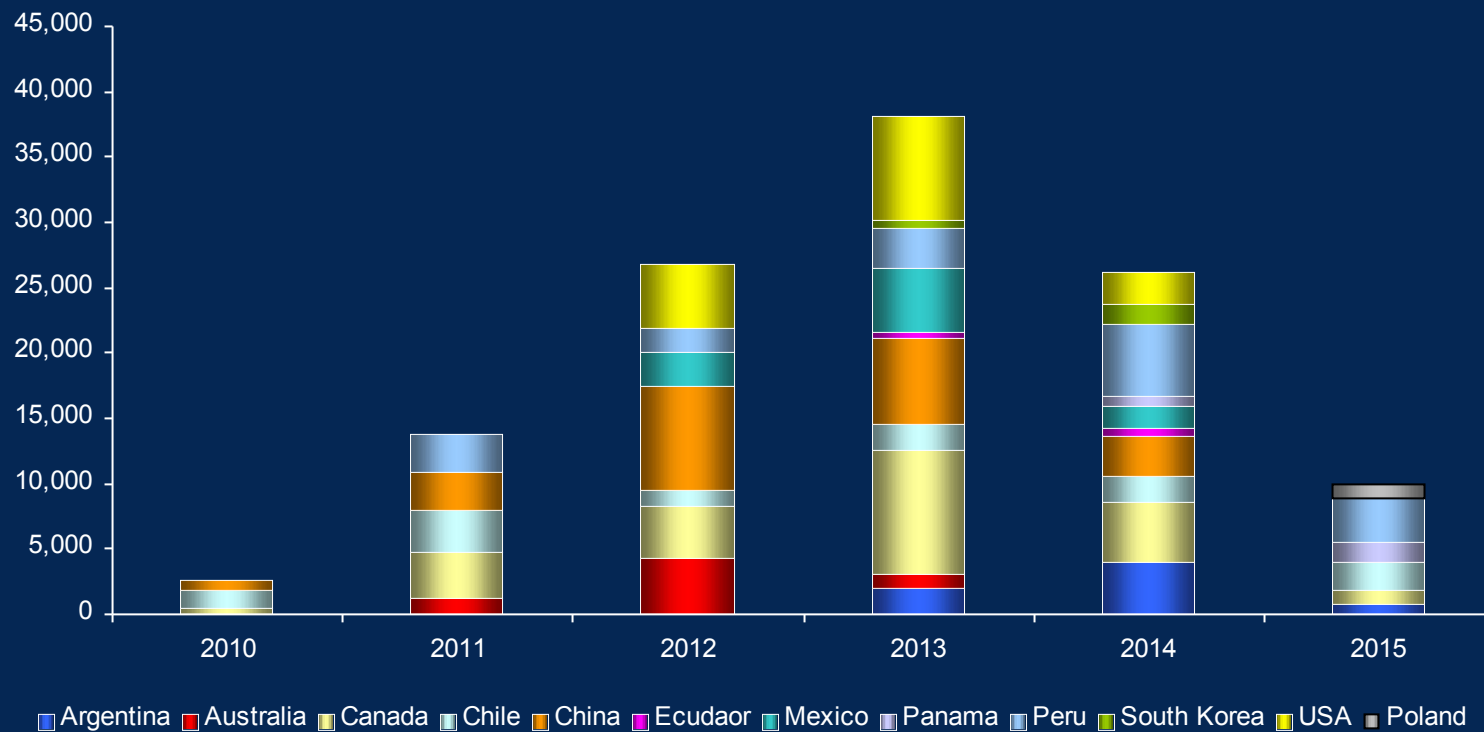
Future mine and roasting capacity

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Around 100kt of new capacity could enter the market by 2015

World: Announced future molybdenum mine capacity, 2010-2015 (t)

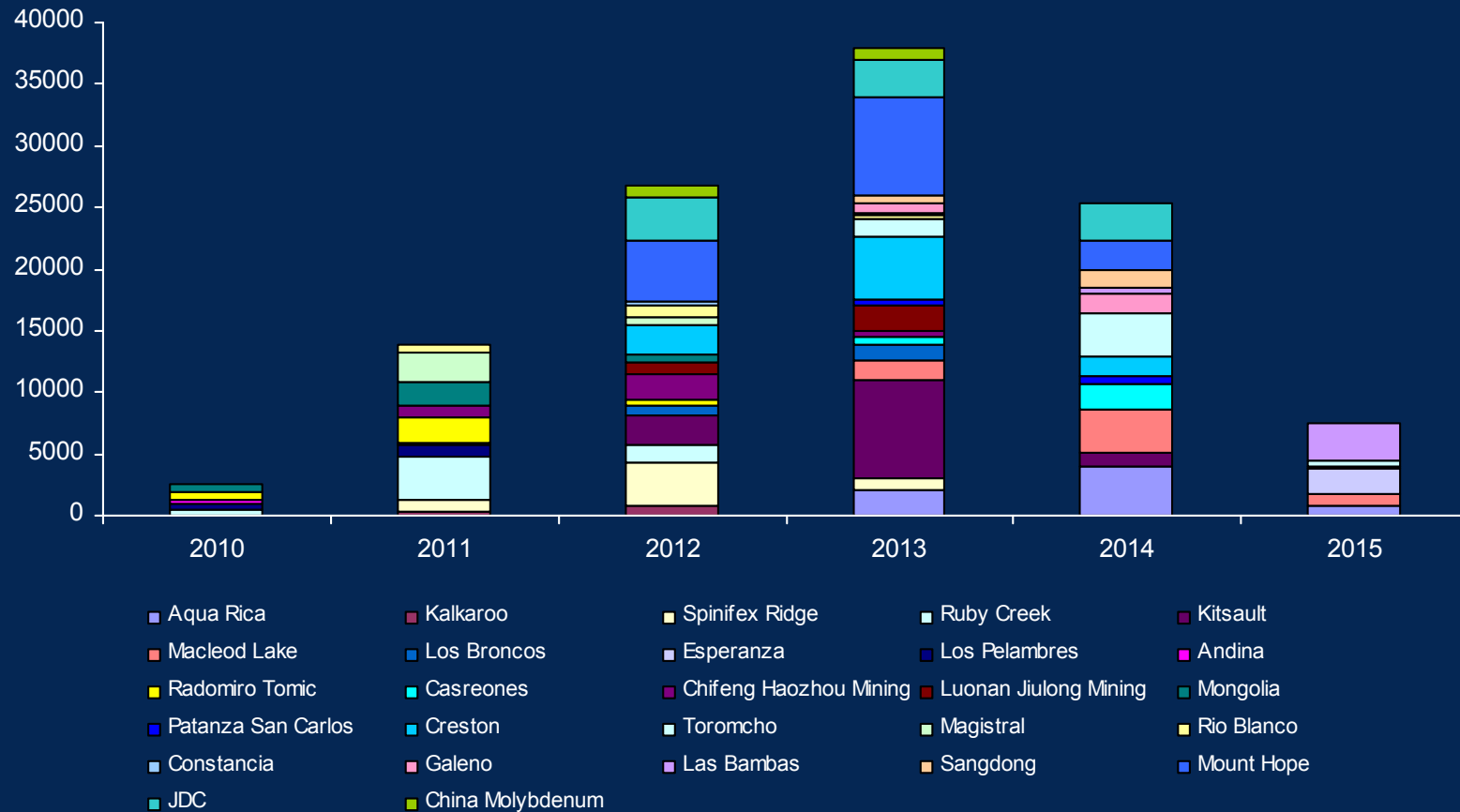


Source: Roskill

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Announced future mine capacity by project, 2010-2015 (t)



Source: Roskill

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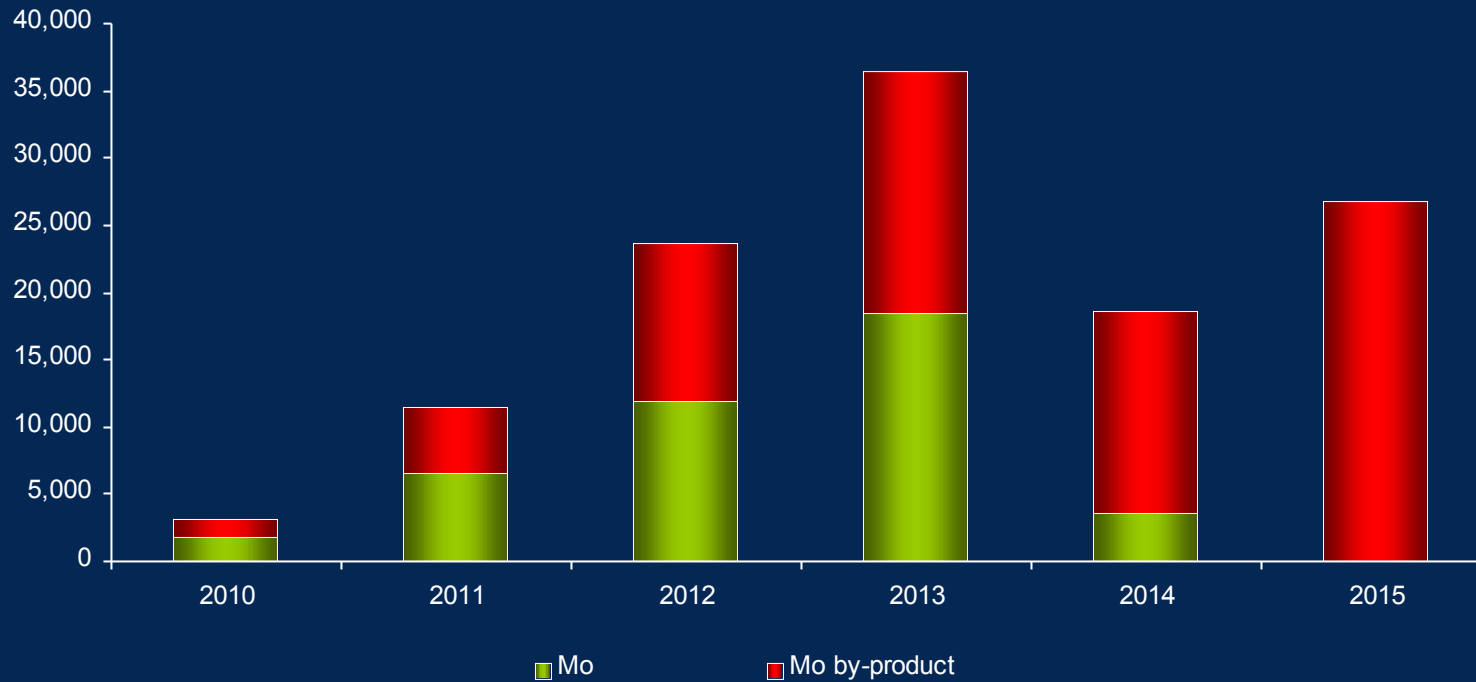
The average size of potential new projects is around 5ktpy – for example:

<u>Company</u>	<u>Deposit</u>	<u>Capacity (ktpy)</u>
Yamana Gold	Agua Rica	6,800
General Moly/POSCO	Mt Hope	15,400
Northern Dynasty	Pebble	14,500
Avanti Mining	Kitsault	11,600
Western Troy	Macleod Lake	6,000
Creston Moly	Creston	9,100

Source: Roskill

Almost two-thirds of future capacity will be derived as a by-product of copper mining

Future molybdenum capacity by mine type, 2010-2015 (t)



Source: Roskill

Roskill

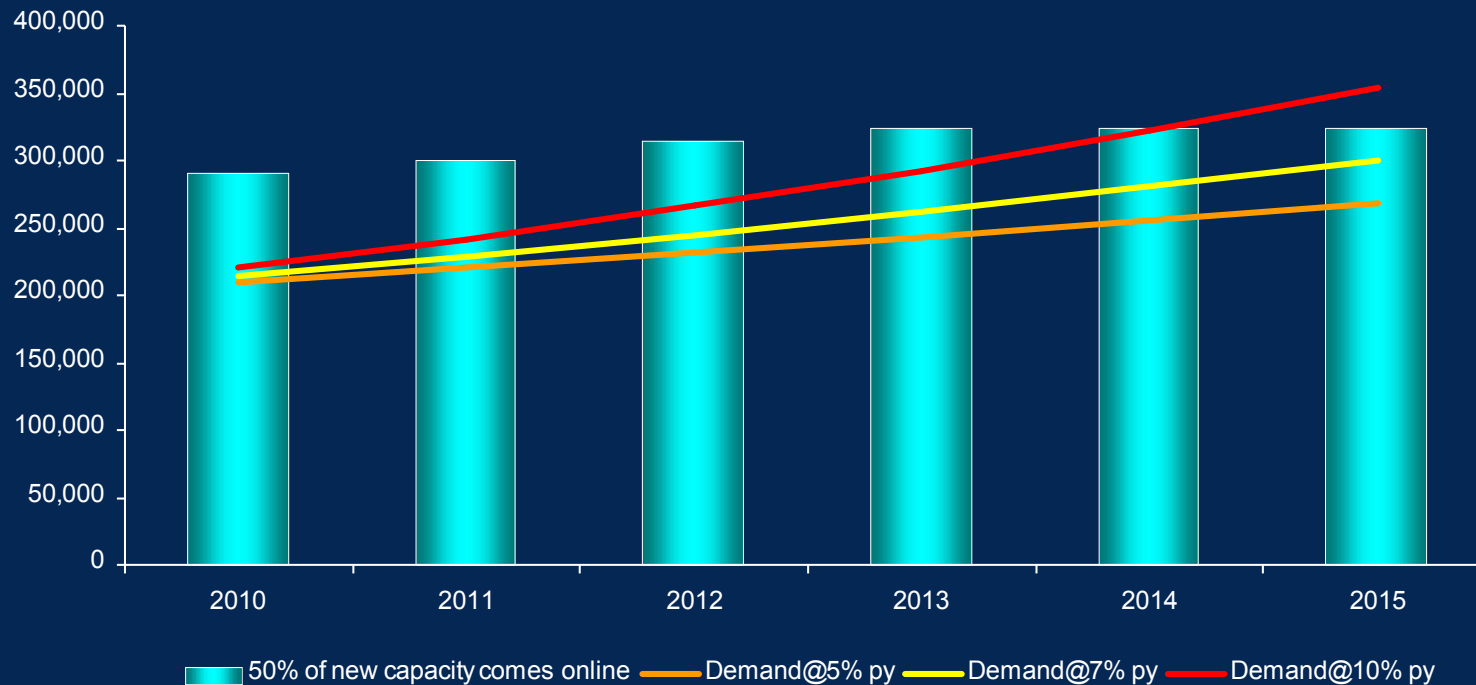
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Although the largest global producer, Chinese firms continue to invest overseas

- Hanlong Mining Investment company has provided funding for Moly Mines Spinifex Ridge deposit.
- CITC has signed an off-take agreement with Thor Mining for all output from Molyhil.
- China Investment Corp has invested in Teck Resources.
- China Minmetals and Jiangxi Copper own Northern Copper Peru and the Galeno Copper-Gold-Molybdenum deposit.
- Chinalco owns 100% of the Toromocho Copper-Molybdenum-Gold deposit in Peru.

Delays in developing new roasting capacity could result in a potential shortage by 2015

Forecast roasting capacity and demand projections, 2010-2015 (t)



Source: Roskill

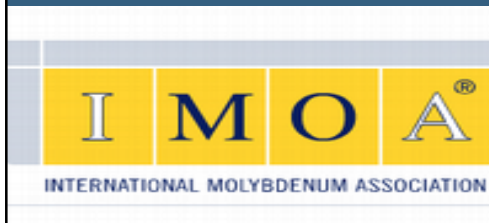
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