



## NEWS RELEASE

Midrex Technologies, Inc  
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# 74 Million Tons of DRI Produced in 2012

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### World Direct Reduction Industry sets new record

The world's total DRI production in 2012 topped 74 million tons, setting yet another new record for the industry according to data compiled by Midrex Technologies, Inc. and audited by World Steel Dynamics. Growth slowed in some areas of the world, primarily in India due to domestic factors influencing natural gas and ore, but in other regions increased production more than offset this decline.

Almost all of the world's DRI is produced using either shaft furnace or rotary kiln technology. Rotary kiln technology is largely exclusive to India; however, most new growth in India and the remainder of the world is using shaft furnace technology because of reliability and higher product quality. Shaft furnace DRI production in 2012 was led by MIDREX® Direct Reduction Plants once again, which produced 44.8 million tons, followed by Energiron (HYL) plants, which produced 11.7 million tons. The fluidized bed based process Finmet made more than 500,000 tons. The remaining 17.1 million tons was produced using various rotary kiln technologies found in India and in other areas of the world. Complete data is available for download from [www.midrex.com](http://www.midrex.com).

### Details of DR growth and decline

World DRI growth did slow in comparison to previous years, primarily due to disruption of raw materials supply in the largest producer nation, India. A 9% decline in India, from 21.97 million tons in 2011 to 20.05 million tons in 2012, limited world growth to only 0.81 million tons, just over 1%. Outside of India, world production increased by 5.3%.

Despite the large decline, India remained the number one producer, making more than 27% of the world's DRI. Iran continued its growth and was the second largest producer with almost 16%. Saudi Arabia was in third place with 5.7 million tons, and Mexico fell to fourth place with 5.6 million tons. Relatively new plants ramping up toward capacity was the primary reason for most of the growth. Despite production problems in India, DRI production rose in most other nations. Other major producing nations that set new all-time highs include Russia at 5.2 million tons, the United Arab Emirates at 2.7 million tons, Qatar at 2.4 million tons and Oman at 1.5 million tons.

### India Decline in Production

The problem that affected production in India involved a decline in the availability of iron ore caused by court ordered bans on mining until questions involving regulation, licensing and environmental problems could be resolved by the Indian government. Nationwide, iron ore production was down by more than 40 million tons (about 20%) and in some provinces, iron ore mining was nearly shuttered. For example, in the Indian state of Andhra Pradesh, ore output was down by 85%. Simultaneously, allotments of natural gas were fully subscribed causing the price of the gas to escalate rapidly. Both coal based and gas based DRI production fell; however, gas based fell by a larger share because it was hit by both the ore shortage and the increased gas prices. At least three natural gas based DR plants were completely closed.



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Other than the ore supply problem within India, there were other forces that caused DRI growth to proceed at a slower rate. The slow recovery by some of the world's major economies from the Financial Crisis of 2008-2009 was still placing a drag on growth throughout most of the world. Political strife in many areas also detracted from growth. On the positive side, the shale gas phenomenon in the United States and Canada remarkably lowered pricing of natural gas in North America. This is causing a number of companies to investigate the building of DR capacity within the US, Canada and Mexico.

### **DRI Production Forecast**

There are a large number of shaft furnace plants currently under construction, representing nearly 20 million tons/year of capacity. Even though most of this capacity is currently scheduled for start-up in 2013-2014, a conservative view of the situation is that many of the plants are in locations where it will be difficult to maintain schedules as planned. Economic and political factors are apt to slow completion. Therefore, Midrex is forecasting these plants to actually come on stream over the period 2013 through 2015. Some of the plants will likely ramp up to capacity quite swiftly, but others may take some time. This should result in an average increase in production of about 5 to 6 million tons/year over the next few years.

Over the longer term, there are two significant economic forces that should cause DRI production to continue to grow rapidly. First, it is expected that natural gas supplies will grow at a more rapid rate than in previous years. The technology for shale gas production has radically altered the supply/demand picture in North America and this technology is quickly expanding worldwide. Second, the movement to monetize a penalty for CO<sub>2</sub> generation is gathering momentum and within the next decade or so is expected to have a worldwide effect as more integrated mills will begin to use HBI. Both of these forces will cause additional DR capacity to be constructed. The expectation for longer term DR industry growth is that it will accelerate: sometime between the year 2025 and 2030, we expect worldwide DRI production could surpass 200 million tons per year.

For more information on Midrex and to download the detailed 2012 World Direct Reduction Statistics booklet, visit [www.midrex.com](http://www.midrex.com).

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