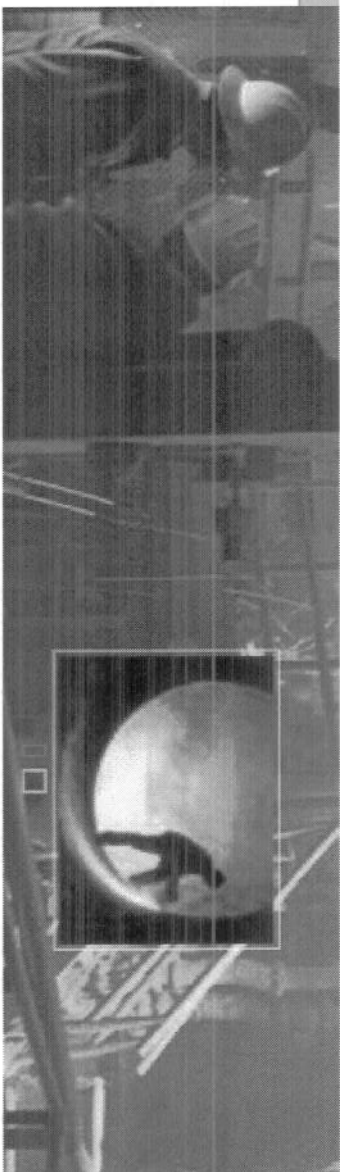


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DRI Industry: Widening Horizons

Dinesh K Sindwani

The growth of the sponge iron or DRI Industry in India in its nascent form commenced towards the latter half of the 20th century. Until then, steel scrap formed a major chunk of our imports, next only to petroleum products. But India faced a severe foreign exchange crunch and the change in the dollar-rupee parity made scrap imports more difficult. Then the Indian Government imposed curtailment measures and the search for alternative input materials began. Since India is richly endowed with reserves of high-grade iron ore as well as non-coking coal and natural gas from Bombay High, direct reduced iron came under scrutiny.

Direct Reduced Iron or sponge iron as it is often referred to, is the substitute for melting scrap in the steel making process. It is a manufactured high ferrous content charge material for iron and steel making. It is produced in lump or pellet form sized typically at 4 by 40 mm. It also comes in compacted and briquette form known as Hot Briquetted Iron (HBI), which is made by hot compacting DRI at temperatures over 650°C into a pillow - shaped briquette measuring 110x50x30mm.

There are two types of technologies available for producing sponge iron : coal-based and gas-based. In the former case, coal is the reductant, while for the latter natural gas is used to reduce iron ore. For coal-based rotary kiln processes, several technologies like SL/RN, CODIR, ACCAR, JINDAL, TISCO and OSIL are in use while gas-based plants have used MIDREA, HYL - I and HYL - III technologies.

The rapid growth of electric steel making in India created the need to develop alternative source/s of iron bearing materials. The high prices of steel scrap in the international market, coupled with difficult foreign exchange resources, DRI then was the most viable alternative. Further, the merits of using DRI vis-a-vis scrap with respect to the residual elements in shredded scrap and DRI/HBI show that the latter is superior as charge material (see Table).

Typical composition shredded scrap and DRI/HBI (per cent)		
Item	Shredded Scrap	DRI/HBI