

Producing Direct-reduced Iron (DRI)

Direct reduced iron (DRI) is used as a feedstock in electric arc furnace (EAFs). DRI, also known as sponge iron, is formed by the removal of oxygen from iron oxide. This process is known as reduction.

The main raw material required for production of DRI is iron ore pellets (also referred to as iron oxide). To produce one metric tonne of DRI, about 1.5 metric tonnes of iron ore is required.

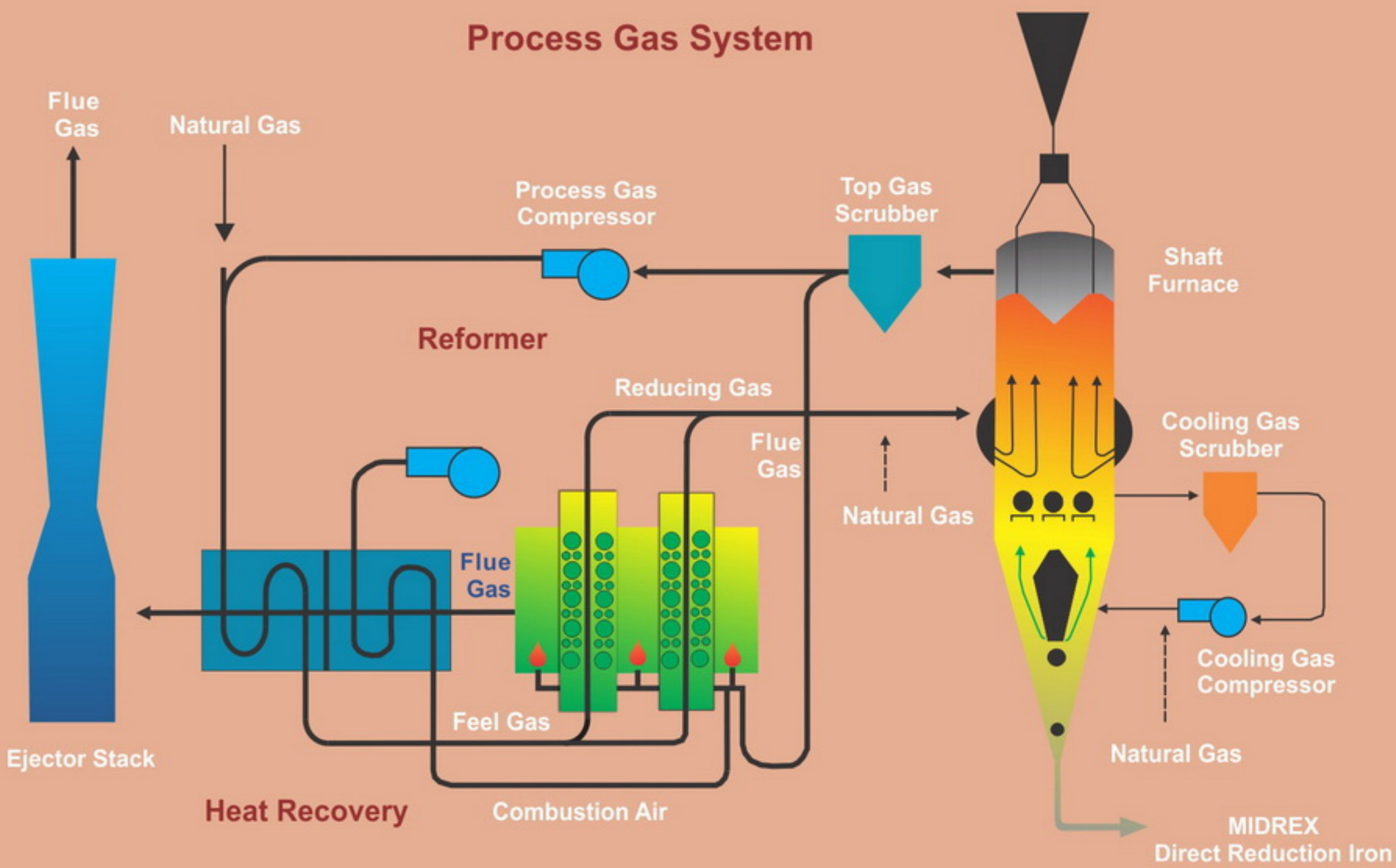
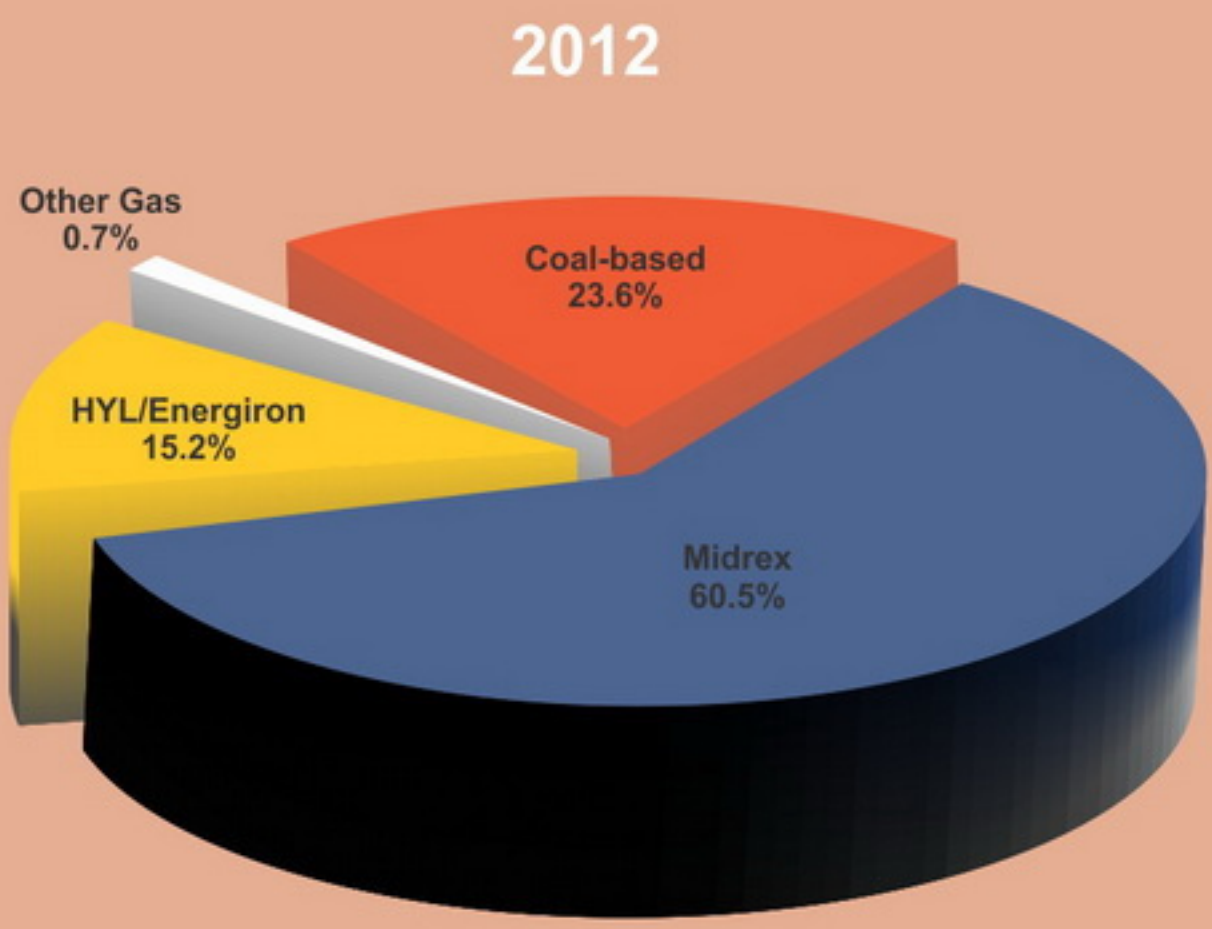
Iranian Ghadir Iron and Steel Company (IGISCO) was established in 2007 with an overall production capacity of 800,000 tonnes per year. The production of DRI is dominated by two types of technology, Midrex and HYL/Energiron, with Midrex being more prevalent in the industry. And the end-product is the same. The production process at IGISCO is based on Midrex Technology.

In the Midrex process reducing gases are introduced to iron oxide at high temperature to conduct the reforming process.

World DRI Producing by Process

Total World Production : 73.3 Mt

	2008	2009	2010	2011	2012
Midrex	58.6%	59.9%	59.7%	60.5%	60.5%
HYL/Energiron	14.5%	12.4%	14.1%	15.2%	15.2%
Other Gas	1.6%	0.8%	0.5%	0.7%	0.7%
Coal-based	25.3%	26.9%	25.7%	23.6%	23.6%



Benefits of DRI

- Consistent quality depending on ore feed mix into DRI plant
- Virtually free residuals (Cu, Ni, Mo)
- Very low in sulfur
- Ore supply determines amount and composition of gangue , sulfure and phosphorus

DRI producers, IGISCO supplies high-quality sponge iron to various steel plants regionally . Its products also meets international standards .

DRI is a cargo that requires care whilst handling . Due to the risk of oxidization when exposed to air and water , teams involved in handling DRI must have sufficient technical expertise and training where necessary , to transport DRI safely and successfully . The oxidization process can release hydrogen which is a combustible gas and is exothermic , i.e. generates excessive external heat . It is therefore important that it is handled carefully and expertly.

IGISCO also delivers exceptional sales, customer care and after-sales services to ensure client satisfaction. IGISCO's executives have substantial backgrounds in technology and always deploy best of breed solutions to run the production process optimally.



	Parameters	Quality in Percentage
Chemical Composition	Metallization Degree (MD)	Min 90
	Fe (Total)	Min 80
	Fe (Metal)	Min 80
	SiO ₂	Max 4.2
	CaO	Max 1.5
	C	1.5±0.3
	S	Max 0.005
Size Distribution	P	Max 0.1
	+16mm	0.13
	6.3-16mm	Min 96
Bulk Density	-6.3mm	1.71
	1.6-1.9 t/m ₃	

