



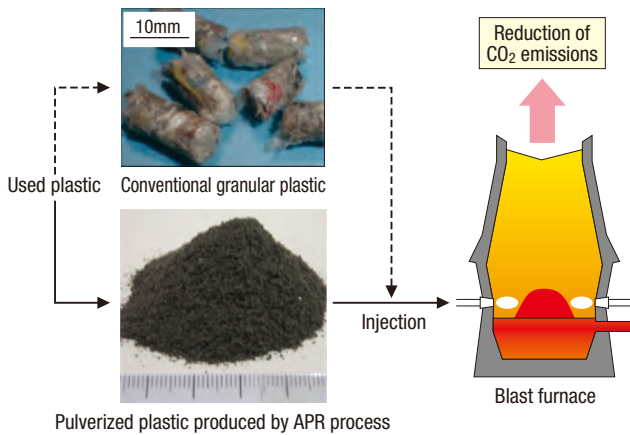
Environmental Process

Our research and development of reducing the energy consumption and CO₂ emissions and recycling resources are committed to accomplishing the environment friendly iron- and steelmaking processes.

Used Plastic Pulverization Technology for Blast Furnaces

JFE Steel successfully developed and commercialized the world's first used plastic pulverization technology, the Advanced Plastic Recycling (APR) process. Compared to conventional used plastic recycling processes for the blast furnace, this process reduces consumption of coal in the blast furnace, and contributes to CO₂ mitigation.

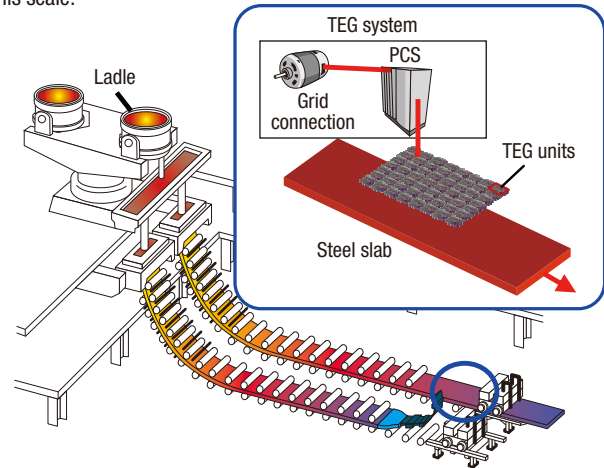
APR was awarded the 2012 Nikkei Global Environmental Technology Awards and the 40th Iwatani Naoji Memorial Award in 2013.



Used plastic technology for blast furnace

Thermoelectric Power Generation from Waste Heat

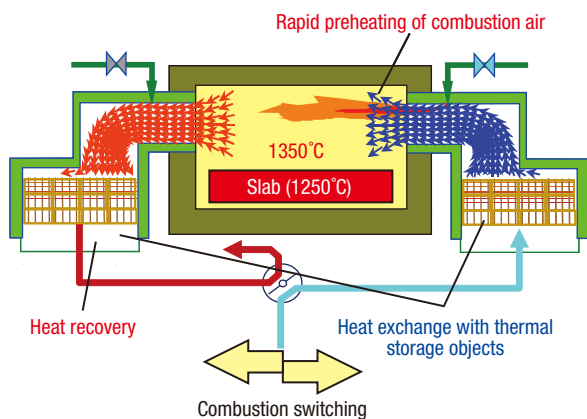
JFE Steel has developed a thermoelectric power generation (TEG) technology which produces electricity from waste heat generated in the steelworks. JFE constructed a 10 kW class in plant grid-connected TEG system at the continuous casting line at East Japan Works (Keihin District) and started verification tests to generate electric power by using radiant heat from continuous casting slabs (semi-finished product for rolling). This is the world's first verification test of thermoelectric power generation at this scale.



Layout of thermoelectric power generation system installed at continuous casting line (image)

Energy Saving Steelmaking Process

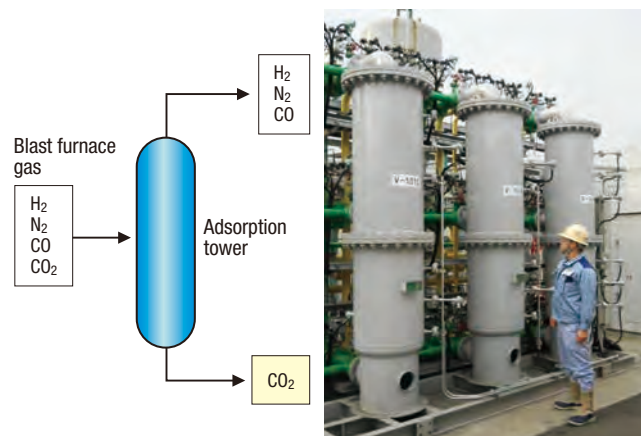
An environment friendly heating system with regenerative (thermal storage) burners was developed. The system produces air at 1350°C for combustion by highly efficient heat exchange. Honeycomb type or ball type thermal storage objects are used for the heat exchange with the high temperature exhaust gas. As a result, thermal efficiency is sharply improved compared with the conventional heating furnace.



Environment friendly heating system with regenerative burner

CO₂ Separation & Recovery System

As one part of Innovative Steelmaking Process Development (COURSE50: hydrogen reduction in iron ore and separation and recovery of CO₂ from blast furnace gases), JFE Steel is conducting verification tests for commercial application of CO₂ separation technology with a PSA (Pressure Swing Adsorption) process pilot plant at West Japan Works (Fukuyama District).



Adsorption tower

PSA (Pressure Swing Adsorption) process pilot plant: ASCOA-3