Tohoku Univ. Technology

Carbon recovery from dry smelting flue gases

Carbon recovery from CO2 and CO containing gas
Use as raw material for ironmaking

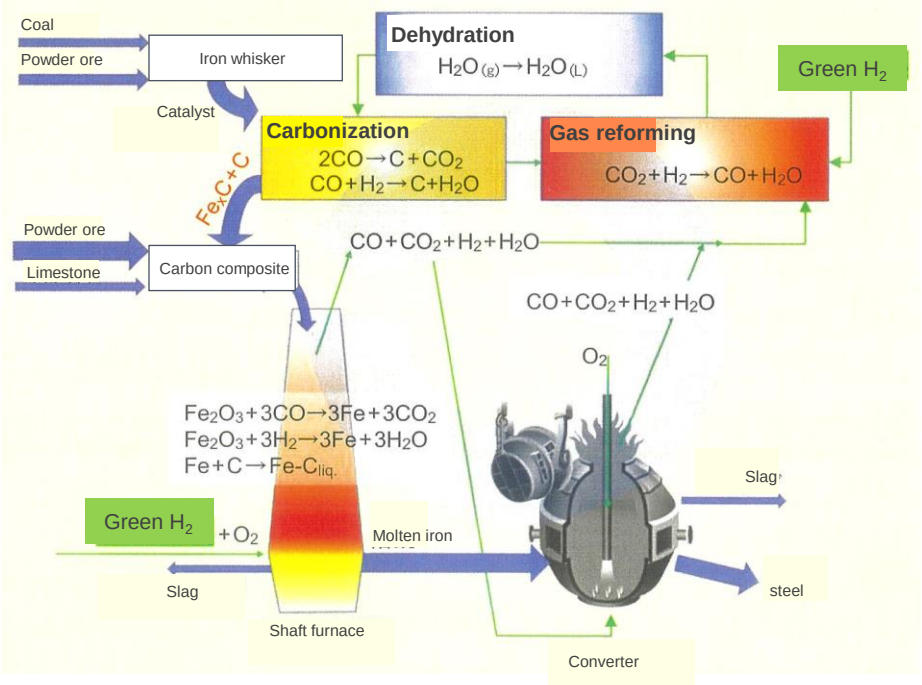
Overview

The steel industry, which emits the largest amount of carbon dioxide (CO_2), is required to reduce its CO_2 emissions as soon as possible.

A process for recovering and recycling solid carbon from gases containing CO_2 and carbon monoxide (CO) is known. This process uses water gas shift reaction (CO_2+H2→CO+H2O) and carbon deposition reaction (2CO→C+CO2, CO+H2→C+H2O). However, there has been concern that the precipitated carbon is fine and difficult to recover.

This invention enables carbon recovery from CO2 and CO in gas by using porous fibrous iron (iron whisker) as a carbon deposition site. Furthermore, iron raw materials containing carbon could be used directly in the ironmaking process. This may lead to the carbon cycle process in the ironmaking process.

Carbon cycle process flow



Product Application

- ☐ Carbon recovery from CO2 and CO containing gas
- ☐ Use as raw material for ironmaking

Related Works

IP Data

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