

Title (en)

METHOD FOR PRODUCING PIG IRON IN A SHAFT FURNACE

Title (de)

VERFAHREN ZUM ERZEUGEN VON ROHEISEN IN EINEM SCHACHTOFEN

Title (fr)

PROCÉDÉ DE PRODUCTION DE FONTE BRUTE DANS UN FOUR À CUVE

Publication

EP 4225954 A1 20230816 (DE)

Application

EP 21785789 A 20210921

Priority

- DE 102020212806 A 20201009
- EP 2021075844 W 20210921

Abstract (en)

[origin: WO2022073751A1] The invention relates to a method for producing pig iron in a shaft furnace which is supplied with raw materials in an upper region of the shaft furnace, said raw materials sinking in the shaft furnace under the influence of gravity. Some of the raw materials are melted and/or at least partly reduced under the effect of the atmosphere within the shaft furnace, and a hot gas flow is introduced in a lower region of the shaft furnace, said gas flow flowing through the atmosphere within the shaft furnace and influencing the chemical composition and the temperature of the atmosphere, wherein a cold gas flow is supplied to at least one heat exchanger in which the cold gas flow is heated to a temperature in order to form a hot gas flow, said temperature being higher than 700 °C. According to the invention, the cold gas flow comprises a CO₂ component of at least 5 vol.% prior to being introduced into the at least one heat exchanger, and, in addition to impurities, the cold gas flow can contain a remainder of air and/or pure oxygen.

IPC 8 full level

C21B 7/00 (2006.01); **C21B 9/14** (2006.01)

CPC (source: EP US)

C21B 5/001 (2013.01 - EP US); **C21B 7/002** (2013.01 - EP US); **C21B 9/14** (2013.01 - EP US); **C21B 2005/005** (2013.01 - EP); **C21B 2100/26** (2017.04 - EP US); **C21B 2100/66** (2017.04 - EP US)

Citation (search report)

See references of WO 2022073751A1

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

Designated validation state (EPC)

KH MA MD TN

DOCDB simple family (publication)

DE 102020212806 A1 20220414; CN 116323983 A 20230623; EP 4225954 A1 20230816; JP 2023544805 A 20231025; US 2024018615 A1 20240118; WO 2022073751 A1 20220414

DOCDB simple family (application)

DE 102020212806 A 20201009; CN 202180069032 A 20210921; EP 2021075844 W 20210921; EP 21785789 A 20210921; JP 2023521385 A 20210921; US 202118030553 A 20210921