

Title (en)

METHOD FOR OPERATING TOP-BLOWN CONVERTER

Title (de)

VERFAHREN ZUM BETRIEB EINES AUFBLASKONVERTERS

Title (fr)

PROCÉDÉ DE FONCTIONNEMENT D'UN CONVERTISSEUR À SOUFFLAGE PAR LE HAUT

Publication

**EP 3279340 A4 20180207 (EN)**

Application

**EP 16772595 A 20160325**

Priority

- JP 2015068542 A 20150330
- JP 2016059541 W 20160325

Abstract (en)

[origin: EP3279340A1] [Task] It is to provide a method of operating a top and bottom blowing converter which is capable of suppressing oscillation of a converter and generation of duct and also suppressing wear of furnace wall refractory in a decarburization refining with a top and bottom blowing converter. [Solution] A method of operating a top and bottom blowing converter by using a top-blown multihole lance having a plurality of lance nozzles for jetting oxygen gas, jetting oxygen jets from the lance nozzles at a nozzle tilting angle inclined with respect to a center axis of the top-blown multihole lance, disposing n bottom-blown tuyeres in a bottom of the converter and blowing an agitating gas from the bottom-blown tuyeres, wherein an interference rate (IR) showing an involving degree between a hot spot formed by impinging the oxygen jet jetted from the top-blown multihole lance to a bath surface of molten iron and an agitating gas floating region formed on a bath surface of molten iron by blowing and floating the agitating gas from the bottom-blown tuyeres in molten iron is not more than 0.7.

IPC 8 full level

**C21C 5/35** (2006.01); **C21C 5/46** (2006.01); **C21C 5/48** (2006.01)

CPC (source: EP KR)

**C21C 5/35** (2013.01 - EP KR); **C21C 5/4606** (2013.01 - EP KR); **C21C 5/48** (2013.01 - EP KR)

Citation (search report)

- [X] WO 8201012 A1 19820401 - KAWASAKI STEEL CO [JP], et al
- [I] JP 2013142189 A 20130722 - NIPPON STEEL & SUMITOMO METAL CORP
- [A] JP 2000309816 A 20001107 - SUMITOMO METAL IND
- See references of WO 2016158714A1

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US11976340B2

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

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**EP 3279340 A1 20180207**; **EP 3279340 A4 20180207**; **EP 3279340 B1 20201118**; BR 112017021087 A2 20180703; BR 112017021087 B1 20210831; CN 107429303 A 20171201; CN 107429303 B 20191231; JP 6358454 B2 20180718; JP WO2016158714 A1 20170525; KR 102026765 B1 20190930; KR 20170117168 A 20171020; TW 201641696 A 20161201; TW I585208 B 20170601; WO 2016158714 A1 20161006

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**EP 16772595 A 20160325**; BR 112017021087 A 20160325; CN 201680017773 A 20160325; JP 2016059541 W 20160325; JP 2017509888 A 20160325; KR 20177025588 A 20160325; TW 105110092 A 20160330