

Title (en)
OXYGEN-PERMEABLE MEMBRANE AND METHOD FOR THE PRODUCTION THEREOF

Title (de)
SAUERSTOFF DURCHLÄSSIGE MEMBRAN SOWIE VERFAHREN ZU DESSEN HERSTELLUNG

Title (fr)
MEMBRANE PERMÉABLE À L'OXYGÈNE ET SON PROCÉDÉ DE FABRICATION

Publication
EP 2257364 A1 20101208 (DE)

Application
EP 09724584 A 20090221

Priority
• DE 2009000256 W 20090221
• DE 102008016158 A 20080328

Abstract (en)
[origin: WO2009117978A1] The invention relates to a composite membrane for selective gas separation, comprising a layer system having a through-and-through porous, mechanically stable carrier layer, which has an average pore size in the μm range, further having at least one through-and-through porous intermediate layer, which is disposed on the carrier layer and has an average pore size in the range between 2 and 200 nm, and further having a gas-tight functional layer, which is disposed on the intermediate layer and is made of mixed-conductive material having a maximum layer thickness of 1 μm . The carrier layer comprises structural ceramics, a metal or a cermet and has a layer thickness of no more than 1 mm. The intermediate layer is present in a total layer thickness of no more than 100 μm and has an average pore size in the range of 10 and 100 nm. The functional layer comprises a perovskite, a fluorite, or a material having a K_2NiF_4 structure, such as $\text{La}_{1-x}\text{Sr}_x\text{Co}_{1-y}\text{Fe}_y\text{O}_{3-8}$ (LSCF). The layer thickness of the functional layer is no more than 50 nm, particularly between 25 and 400 nm. In order to produce said composite membrane, at least one porous intermediate layer is applied onto a through-and-through porous, mechanically stable carrier layer, which has an average pore size in the μm range, said intermediate layer having an average pore size in the range between 2 and 200 nm. A further gas-tight, functional layer made of a mixed-conductive material and having a maximum layer thickness of 1 μm is applied onto said intermediate layer.

IPC 8 full level
B01D 71/02 (2006.01); **B01D 53/22** (2006.01); **B01D 67/00** (2006.01); **B01D 69/10** (2006.01); **B01D 69/12** (2006.01); **C01B 13/02** (2006.01)

CPC (source: EP US)
B01D 53/228 (2013.01 - EP US); **B01D 67/0048** (2013.01 - EP US); **B01D 67/0072** (2013.01 - EP US); **B01D 69/108** (2022.08 - EP US); **B01D 69/1216** (2022.08 - EP US); **B01D 69/141** (2013.01 - EP US); **B01D 71/0271** (2022.08 - EP US); **C01B 13/0255** (2013.01 - EP US); **B01D 2323/46** (2013.01 - EP US); **B01D 2325/0283** (2022.08 - EP US); **B01D 2325/04** (2013.01 - EP US); **B01D 2325/10** (2013.01 - EP US); **B01D 2325/24** (2013.01 - EP US)

Citation (examination)
WO 2006032230 A1 20060330 - FORSCHUNGSZENTRUM JUELICH GMBH [DE], et al

Designated contracting state (EPC)
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 SE SI SK TR

Designated extension state (EPC)
AL BA RS

DOCDB simple family (publication)
DE 102008016158 A1 20091001; EP 2257364 A1 20101208; US 2011020192 A1 20110127; US 8486184 B2 20130716; WO 2009117978 A1 20091001

DOCDB simple family (application)
DE 102008016158 A 20080328; DE 2009000256 W 20090221; EP 09724584 A 20090221; US 73601509 A 20090221