

Title (en)

METHOD AND SYSTEM FOR PRODUCING ONE OR MORE OLEFINS

Title (de)

VERFAHREN UND ANLAGE ZUR HERSTELLUNG EINES ODER MEHRERER OLEFINE

Title (fr)

PROCÉDÉ ET SYSTÈME DE PRODUCTION D'UNE OU DE PLUSIEURS OLÉFINES

Publication

EP 4090645 A1 20221123 (DE)

Application

EP 21701688 A 20210114

Priority

- DE 102020101054 A 20200117
- EP 2021050686 W 20210114

Abstract (en)

[origin: WO2021144359A1] The invention relates to a method for producing one or more olefins having a carbon number of two to eight, in which method carbon dioxide and hydrogen are supplied to a hydrogenation step (10), wherein at least some of the carbon dioxide and at least some of the hydrogen, which are supplied to the hydrogenation step (10), are reacted with one another in the hydrogenation step (10) by a bifunctional catalyst via an oxygenate as an intermediate product to form the one or more olefins. According to the invention, the hydrogen that is supplied to the hydrogenation step (10) is prepared at least in part by a reforming step (20), in which methane and water are reacted to form hydrogen, carbon monoxide and carbon dioxide, and the carbon dioxide that is supplied to the hydrogenation step (10) is prepared in part by using the reforming step (20) and in part independently of the reforming step (20). The preparation of at least some of the hydrogen and some of the carbon dioxide by the reforming step (20) comprises: preparing a gas mixture that contains hydrogen, carbon monoxide and carbon dioxide using the reforming step (20); and supplying at least some of the gas mixture to the hydrogenation step (10) without separating hydrogen, carbon monoxide and carbon dioxide. The present invention also relates to a corresponding system.

IPC 8 full level

C07C 1/12 (2006.01); **C07C 11/06** (2006.01)

CPC (source: EP US)

B01J 19/245 (2013.01 - US); **C07C 1/12** (2013.01 - EP US); **B01J 2219/0004** (2013.01 - US); **Y02P 20/141** (2015.11 - EP)

C-Set (source: EP)

C07C 1/12 + **C07C 11/06**

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 102020101054 A1 20210722; CN 114945545 A 20220826; EP 4090645 A1 20221123; SA 522433324 B1 20231121; US 2024025819 A1 20240125; WO 2021144359 A1 20210722

DOCDB simple family (application)

DE 102020101054 A 20200117; CN 202180009453 A 20210114; EP 2021050686 W 20210114; EP 21701688 A 20210114; SA 522433324 A 20220717; US 202117793306 A 20210114