Title (en)

METHOD AND RIBBED TUBE FOR THERMALLY CLEAVING HYDROCARBONS

Title (de)

VERFAHREN UND RIPPENROHR ZUM THERMISCHEN SPALTEN VON KOHLENWASSERSTOFFEN

Title (fr)

PROCEDE ET TUBE A AILETTES POUR SEPARATION THERMIQUE D'HYDROCARBURES

Publication

**EP 1525289 B1 20110928 (DE)**

Application

**EP 03725176 A 20030508**

Priority

- DE 10233961 A 20020725
- EP 0304827 W 20030508

Abstract (en)

[origin: EP2298850A1] In a process to crack crude oil in the presence steam, super-heated gases pass through pipes with helical inner ribs which twist the rising gases, progressively forming a core zone with a primarily axial flow. The helical ribs impart a twist action at their outer margins. The gas speed is faster at the tub roots than at the rib tips. The ribs are set at an angle of 22.5-32.5[deg] w.r.t the pipe axis. The temperature varies within the pipe wall by less than 12[deg]C. The notional isothermal lines in the core are circular. The flow of twisting gases advances in the pipe at a speed of 1.8-2 m/s, representing 7-8% of the free cross sectional area. The ribs and their separation are symmetrical.

IPC 8 full level

**B01J 19/00** (2006.01); **C10G 9/20** (2006.01); **C07C 4/02** (2006.01); **C10G 9/36** (2006.01); **C22C 19/05** (2006.01); **C22C 30/00** (2006.01); **C22C 38/40** (2006.01); **C22C 38/48** (2006.01); **F28F 1/40** (2006.01)

CPC (source: EP KR)

**C10G 9/20** (2013.01 - EP KR); **C10G 9/24** (2013.01 - KR); **C22C 19/05** (2013.01 - EP); **C22C 38/40** (2013.01 - EP); **C22C 38/48** (2013.01 - EP); **F28F 1/40** (2013.01 - EP); C10G 2300/807 (2013.01 - EP)

Citation (examination)

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**EP 2298850 A1 20110323**; AT E526385 T1 20111015; AU 2003227737 A1 20040225; BR 0312919 A 20050705; BR 0312919 B1 20140624; CA 2493463 A1 20040219; CA 2493463 C 20130115; CN 100523133 C 20090805; CN 1671824 A 20050921; DE 10233961 A1 20040212; EA 010936 B1 20081230; EA 200500258 A1 20050825; EP 1525289 A1 20050427; EP 1525289 B1 20110928; EP 1525289 B9 20120229; ES 2374568 T3 20120217; HR P20050072 A2 20050831; IL 166229 A0 20060115; IL 166229 A 20081126; JP 2005533917 A 20051110; JP 2010150553 A 20100708; JP 4536512 B2 20100901; KR 101023668 B1 20110325; KR 20050052457 A 20050602; MA 27325 A1 20050502; MX PA05001070 A 20051005; NO 20050493 L 20050317; NO 337398 B1 20160404; NZ 537827 A 20070427; PL 204769 B1 20100226; PL 373967 A1 20050919; PT 1525289 E 20120104; RS 20050060 A 20070921; UA 85044 C2 20081225; WO 2004015029 A1 20040219

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**EP 10012045 A 20030508**; AT 03725176 T 20030508; AU 2003227737 A 20030508; BR 0312919 A 20030508; CA 2493463 A 20030508; CN 03817885 A 20030508; DE 10233961 A 20020725; EA 200500258 A 20030508; EP 0304827 W 20030508; EP 03725176 A 20030508; ES 03725176 T 20030508; HR P20050072 A 20050124; IL 16622905 A 20050111; JP 2004526658 A 20030508; JP 2010034129 A 20100218; KR 20057001384 A 20030508; MA 28048 A 20050118; MX PA05001070 A 20030508; NO 20050493 A 20050128; NZ 53782703 A 20030508; PL 37396703 A 20030508; PT 03725176 T 20030508; UA 2005001718 A 20030508; YU P20050060 A 20030508