

## Title (en)

ATMOSPHERIC DISTILLATION COLUMN OVERHEAD OIL-GAS HEAT EXCHANGE APPARATUS AND HEAT EXCHANGE METHOD

## Title (de)

ATMOSPHERISCHE OVERHEAD-ÖL-GAS-WÄRMEAUSTAUSCHVORRICHTUNG MIT DESTILLATIONSKOLONNE UND WÄRMEAUSTAUSCHVERFAHREN

## Title (fr)

APPAREIL D'ÉCHANGE DE CHALEUR À PÉTROLE-GAZ AÉRIEN À COLONNE DE DISTILLATION ATMOSPHÉRIQUE ET PROCÉDÉ D'ÉCHANGE DE CHALEUR

## Publication

**EP 3171110 A4 20180418 (EN)**

## Application

**EP 16829559 A 20160726**

## Priority

- CN 201510460303 A 20150730
- CN 2016000416 W 20160726

## Abstract (en)

[origin: EP3171110A1] The present invention relates to a heat exchange device for atmospheric tower oil-gas and a heat exchange method thereof, the heat exchange device comprises a shell (11), an upper tube plate (16), a lower tube plate (17) and heat exchange tubes (5), a tube pass entrance (13) arranged on the bottom of the shell and a tube pass exit (18) arranged on the top of the shell; a shell pass entrance for connecting to an atmospheric tower oil-gas pipeline (2) is arranged on an upper portion of the shell (5); and a shell pass exit is arranged on a lower portion of the shell; an annular water injection pipe (6) is arranged within the upper portion of the shell (11), the annular water injection pipe (6) has multiple water pores (61) communicated to the interior of the shell; the atmospheric tower oil-gas pipeline (2) is connected to the external water injection pipeline (3) via a first water injection pipeline (31) and a third water injection pipeline (33); a first solenoid valve (34) and a second solenoid valve (35) are respectively arranged on the first water injection pipeline (31) and the third water injection pipeline (33); and, the annular water injection pipe (6) is communicated to the external water injection pipeline (3) via a second water injection pipeline (32). In the heat exchange device, the first stream of injected water and the second stream of injected water are continuously fed into the shell pass with a certain ratio, the third stream of injected water is intermittently fed into the shell pass, so that the fouling in the shell pass is washed away and the occlusion and corrosion of the heat exchanger is avoided.

## IPC 8 full level

**F28D 7/04** (2006.01); **F28D 7/00** (2006.01); **F28F 19/00** (2006.01)

## CPC (source: EP KR)

**C10G 9/18** (2013.01 - KR); **F28D 7/00** (2013.01 - EP); **F28D 7/0066** (2013.01 - EP); **F28F 9/0246** (2013.01 - EP); **F28F 19/00** (2013.01 - EP KR); **F28F 21/086** (2013.01 - EP KR); **F28F 27/02** (2013.01 - EP); **F28G 9/00** (2013.01 - KR); **F28D 7/024** (2013.01 - EP); **F28D 7/16** (2013.01 - EP); **F28D 201/0059** (2013.01 - EP); **F28F 2265/22** (2013.01 - KR); **F28G 9/00** (2013.01 - EP)

## Citation (search report)

- [A] GB 883593 A 19611206 - ANDRE HUET
- [A] EP 0899318 A2 19990303 - JGC CORP [JP], et al
- [A] JP H09159393 A 19970620 - TOKYO GESUIDO ENERGI KK, et al
- See references of WO 2017016187A1

## 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

## DOCDB simple family (publication)

**EP 3171110 A1 20170524; EP 3171110 A4 20180418; EP 3171110 B1 20190327**; CN 104964583 A 20151007; CN 104964583 B 20170111; JP 2017532388 A 20171102; JP 6315869 B2 20180425; KR 101848697 B1 20180528; KR 20170023989 A 20170306; WO 2017016187 A1 20170202

## DOCDB simple family (application)

**EP 16829559 A 20160726**; CN 201510460303 A 20150730; CN 2016000416 W 20160726; JP 2017506929 A 20160726; KR 20177001699 A 20160726