

Title (en)  
APPARATUS COMPRISING A MEMBRANE UNIT AND A WATER SCRUBBER UNIT FOR REMOVING CARBON DIOXIDE FROM A GAS

Title (de)  
VORRICHTUNG MIT MEMBRANEINHEIT UND WASSERSCHRUBBEREINHEIT ZUR ENTFERNUNG VON KOHLENDIOXID AUS EINEM GAS

Title (fr)  
APPAREIL COMPORTANT UNE UNITÉ MEMBRANAIRE ET UNITÉ DE LAVAGE À L'EAU POUR ÉLIMINER LE DIOXYDE DE CARBONE D'UN GAZ

Publication  
**EP 3094398 A4 20171101 (EN)**

Application  
**EP 14878070 A 20141216**

Priority  
• SE 1400012 A 20140113  
• SE 2014000149 W 20141216

Abstract (en)  
[origin: WO2015105438A1] Apparatus, where a water scrubber unit (20), mainly consisting of an absorption column (21), flash column (22) and desorption column (23) is integrated with a membrane unit (10), for purification/separation/enrichment of a gas or biogas containing significant amount of methane and carbon dioxide, wherein the carbon dioxide concentration of the gas is to be reduced, where an incoming gas stream (1) is merged with flash gas stream (24) from flash column (22) and pressurized in compressor (30) and then led into a membrane unit (10) for separation of carbon dioxide in a membrane (11), if necessary separation of water or heating in separation unit for water (12), separation of hydrogen sulfide in the separation unit for hydrogen sulfide (13) and separation of particles and other contaminants in the separation unit for particles and other contaminants (14), whereby a residue gas stream (3) departs and the purified gas stream (4) is led to water scrubber unit (20), wherein the energy for cooling and pumping of the recirculating water flow through the columns (21, 22 and 23) drops, alternatively, that the capacity for the production of upgraded biogas (5) increases.

IPC 8 full level  
**B01D 53/14** (2006.01); **B01D 53/22** (2006.01); **B01D 53/62** (2006.01); **C10L 3/10** (2006.01)

CPC (source: EP SE)  
**B01D 53/1418** (2013.01 - EP); **B01D 53/1443** (2013.01 - EP SE); **B01D 53/1475** (2013.01 - SE); **B01D 53/229** (2013.01 - EP SE); **B01D 53/62** (2013.01 - SE); **C10L 3/104** (2013.01 - EP); **B01D 53/1475** (2013.01 - EP); **B01D 2257/304** (2013.01 - EP); **B01D 2257/504** (2013.01 - EP); **B01D 2258/05** (2013.01 - EP); **Y02C 20/40** (2020.08 - EP)

Citation (search report)  
• [Y] DE 20300663 U1 20040812 - FARMATIC BIOTECH ENERGY AG [DE]  
• [Y] US 2011290111 A1 20111201 - DUNNE STEPHEN R [US], et al  
• [Y] WO 2012128648 A1 20120927 - SCHOU GRANT BRIAN [NZ], et al  
• See references of WO 2015105438A1

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

DOCDB simple family (publication)  
**WO 2015105438 A1 20150716**; EP 3094398 A1 20161123; EP 3094398 A4 20171101; SE 1400012 A1 20150714; SE 538348 C2 20160524

DOCDB simple family (application)  
**SE 2014000149 W 20141216**; EP 14878070 A 20141216; SE 1400012 A 20140113