

Title (en)
METHOD FOR DISCHARGING WASTE GAS FROM SUBMARINES WITHOUT A SIGNATURE

Title (de)
VERFAHREN ZUM SIGNATURFREIEN AUSBRINGEN VON ABGAS AUS UNTERWASSERFAHRZEUGEN

Title (fr)
PROCEDE PERMETTANT DE CHASSER DISCRETEMENT DES GAZ D'ECHAPPEMENT DE SOUS-MARINS

Publication
EP 1252058 A1 20021030 (DE)

Application
EP 01999508 A 20011105

Priority
• DE 0104140 W 20011105
• DE 10061487 A 20001209

Abstract (en)
[origin: US2003119388A1] The invention relates to a method and a device for discharging signature free exhaust gas from underwater vehicles, said exhaust gas being a by-product of the production of electric energy in energy converters and being directed by means of pressure into a pipe length through which outboard water is flowing. The thereby generated gas bubbles are reduced by means of static mixers arranged inside of the pipe length through which water is flowing, with the gas being dissolved by the high turbulence of the fluid. As the exhaust gas is dissolved inside of the underwater vehicle, no gas bubbles that might be located are produced outside the vehicle. Since the working pressure of the method equals the immersion pressure, but little energy is consumed.

IPC 1-7
B63G 8/34; **B63G 13/02**

IPC 8 full level
B63G 8/00 (2006.01); **B01F 3/04** (2006.01); **B01F 5/04** (2006.01); **B63G 8/34** (2006.01); **B01F 5/00** (2006.01); **B01F 15/00** (2006.01)

CPC (source: EP US)
B01F 23/232 (2022.01 - EP US); **B01F 25/3131** (2022.01 - EP US); **B01F 35/7176** (2022.01 - EP US); **B63G 8/34** (2013.01 - EP US); **B01F 23/23123** (2022.01 - EP US); **B01F 35/32015** (2022.01 - EP US); **B01F 2025/916** (2022.01 - EP US)

Citation (search report)
See references of WO 0246034A1

Cited by
DE102009051308A1; EP2330029A2

Designated contracting state (EPC)
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

DOCDB simple family (publication)
US 2003119388 A1 20030626; **US 6736687 B2 20040518**; AT E306417 T1 20051015; AU 2154402 A 20020618; AU 782458 B2 20050728; CA 2396902 A1 20020613; CA 2396902 C 20090120; DE 10061487 C1 20020321; DE 10195275 D2 20031120; DE 50107681 D1 20060223; DK 1252058 T3 20060213; EP 1252058 A1 20021030; EP 1252058 B1 20051012; ES 2250519 T3 20060416; JP 2004532761 A 20041028; KR 100855399 B1 20080829; KR 20020087396 A 20021122; NO 20023339 D0 20020711; NO 20023339 L 20020729; NO 334678 B1 20140512; WO 0246034 A1 20020613; WO 0246034 B1 20040527

DOCDB simple family (application)
US 20366302 A 20021002; AT 01999508 T 20011105; AU 2154402 A 20011105; CA 2396902 A 20011105; DE 0104140 W 20011105; DE 10061487 A 20001209; DE 10195275 T 20011105; DE 50107681 T 20011105; DK 01999508 T 20011105; EP 01999508 A 20011105; ES 01999508 T 20011105; JP 2002547789 A 20011105; KR 20027009523 A 20020724; NO 20023339 A 20020711