

Title (en)

Device for generating and handling nanobubbles

Title (de)

Vorrichtung zur Erzeugung und Verarbeitung von Nanoblasen

Title (fr)

Dispositif de génération et de manipulation de nanobulles

Publication

EP 2995369 A1 20160316 (EN)

Application

EP 14386022 A 20140911

Priority

EP 14386022 A 20140911

Abstract (en)

The present invention discloses an apparatus for generating microbubbles, nanobubbles and ultra-nanobubbles, and a methodology for collecting said bubbles. The device is consisted of three generators (G 1 ,G 2 ,G 3); the two of them (G 2 ,G 3) have a rotating porous plug head (201,301). For the production of ultra-nanobubbles, the corresponding generator has a piston (306) which oscillates the liquid back and forth over a fractal porous medium (301) (fractal pump) (Fig. 1 301). Nanobubbles have many potential industrial applications including many biological ones. They can be collected by using fine powders. In specific, by using dietary powders such as medicinal charcoal, zeolite, etc, nanobubbles become ready for human ingestion.

IPC 8 full level

B01F 5/06 (2006.01); **B01F 3/04** (2006.01); **B01F 13/10** (2006.01)

CPC (source: EP US)

B01F 23/2323 (2022.01 - EP); **B01F 23/2373** (2022.01 - EP); **B01F 23/2375** (2022.01 - EP US); **B01F 23/29** (2022.01 - EP); **B01F 25/4512** (2022.01 - EP); **B01F 25/4522** (2022.01 - EP); **B01F 33/821** (2022.01 - EP)

Citation (applicant)

- US 2007189972 A1 20070816 - CHIBA KANEO [JP], et al
- US 2010080759 A1 20100401 - CHANG WALTER H [TW], et al
- US 2012086137 A1 20120412 - RYU SANG-RYUL [KR]
- CN 101804309 B 20120829 - UNIV SHANGHAI
- US 8678354 B2 20140325 - KERFOOT WILLIAM B [US]
- US 8317165 B2 20121127 - YAMASAKI KAZUYUKI [JP], et al

Citation (search report)

- [XAY] US 2010089133 A1 20100415 - YAMASAKI KAZUYUKI [JP], et al
- [XII] US 2009018286 A1 20090115 - HASSAN ABBAS [US], et al
- [XII] US 2010219260 A1 20100902 - MATSUOKA DAIGO [JP], et al
- [XY] KR 20120008106 A 20120130 - KORE INST MACH & AMP MATERIALS [KR]
- [X] KR 20130082266 A 20130719 - NANOOZONETECH CO LTD [KR]
- [X] JP 2011218308 A 20111104 - ASUPU:KK
- [Y] EP 1777323 A2 20070425 - LYNNTECH INC [US]
- [XY] US 2012187040 A1 20120726 - MENJU TAKASHI [JP], et al

Cited by

CN109316989A; EP4424913A1

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 2995369 A1 20160316

DOCDB simple family (application)

EP 14386022 A 20140911