

Title (en)  
SIMULTANEOUS DETERMINATION OF MULTIPHASE FLOWRATES AND CONCENTRATIONS

Title (de)  
GLEICHZEITIGES BESTIMMEN VON MEHRPHASIGEN DURCHFLUSSMENGEN UND KONZENTRATIONEN

Title (fr)  
DETERMINATION SIMULTANEE DE DEBITS ET DE CONCENTRATIONS POLYPHASIQUES

Publication  
**EP 1261846 B8 20031001 (EN)**

Application  
**EP 01912592 A 20010305**

Priority  
• NL 0100180 W 20010305  
• NL 0000159 W 20000309

Abstract (en)  
[origin: US6658944B2] The present invention relates to a method and a device for measuring volume flow rates of liquid phase components and gas and determination their volume concentrations in a multiphase mixture along a pipeline. Measurements are executed with an ultrasonic system which includes a set of local acoustic transducers arranged in the interior of the pipeline. Each pair of an emitter and a receiver of the transducer forms a sampling volume of a medium being under control. Volume concentrations of mixture components are determined by timing of passage of acoustic pulses through the sampling volume of the medium. Volume flow rates of the mixture components are calculated by measuring phase velocities and volume concentrations in two pipeline divisions with different cross-section areas located in series at a distance one from the other in flow direction.

IPC 1-7  
**G01F 1/74**; **G01F 1/712**; **G01F 1/708**; **G01F 1/66**; **G01N 29/02**

IPC 8 full level  
**G01F 1/00** (2006.01); **G01F 1/56** (2006.01); **G01F 1/66** (2006.01); **G01F 1/708** (2006.01); **G01F 1/712** (2006.01); **G01F 1/74** (2006.01); **G01N 29/00** (2006.01); **G01N 29/02** (2006.01); **G01N 29/032** (2006.01); **G01N 29/09** (2006.01)

CPC (source: EP KR US)  
**G01F 1/663** (2013.01 - EP KR US); **G01F 1/7082** (2013.01 - EP KR US); **G01F 1/712** (2013.01 - EP KR US); **G01F 1/74** (2013.01 - EP KR US); **G01N 29/032** (2013.01 - EP KR US); **G01N 29/09** (2013.01 - KR); **G01N 2291/02** (2013.01 - KR); **G01N 2291/02433** (2013.01 - EP KR US); **G01N 2291/02809** (2013.01 - EP US); **G01N 2291/02836** (2013.01 - EP KR US); **G01N 2291/02863** (2013.01 - EP KR US); **G01N 2291/105** (2013.01 - EP US)

Cited by  
RU2487390C2

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)  
**WO 0167051 A1 20010913**; **WO 0167051 A9 20020815**; AT E242872 T1 20030615; AU 3334800 A 20010917; AU 4128101 A 20010917; CA 2393727 A1 20010913; CA 2393727 C 20040427; CN 1217161 C 20050831; CN 1427948 A 20030702; CZ 20022958 A3 20030115; CZ 298873 B6 20080227; DE 60100360 D1 20030717; DE 60100360 T2 20040513; DK 1261846 T3 20030901; EA 003869 B1 20031030; EA 200200632 A1 20021226; EP 1261846 A1 20021204; EP 1261846 B1 20030611; EP 1261846 B8 20031001; ES 2201033 T3 20040316; HK 1052549 A1 20030919; IL 151612 A0 20030410; IL 151612 A 20070617; JP 2003526101 A 20030902; JP 4800543 B2 20111026; KR 100808729 B1 20080229; KR 20020092979 A 20021212; NO 20022700 D0 20020606; NO 20022700 L 20020903; NO 325636 B1 20080630; PT 1261846 E 20031031; US 2003051558 A1 20030320; US 6658944 B2 20031209; WO 0167050 A1 20010913

DOCDB simple family (application)  
**NL 0100180 W 20010305**; AT 01912592 T 20010305; AU 3334800 A 20000309; AU 4128101 A 20010305; CA 2393727 A 20010305; CN 01809249 A 20010305; CZ 20022958 A 20010305; DE 60100360 T 20010305; DK 01912592 T 20010305; EA 200200632 A 20010305; EP 01912592 A 20010305; ES 01912592 T 20010305; HK 03103907 A 20030602; IL 15161201 A 20010305; IL 15161202 A 20020904; JP 2001565976 A 20010305; KR 20027011824 A 20020909; NL 0000159 W 20000309; NO 20022700 A 20020606; PT 01912592 T 20010305; US 17694102 A 20020621