

Title (en)
DEVICE FOR FREEZING, TRANSPORTING AND THAWING FLUIDS

Title (de)
VORRICHTUNG ZUM EINFRIEREN, TRANSPORTIEREN UND AUFTAUEN VON FLUIDEN

Title (fr)
DISPOSITIF POUR CONGELER, TRANSPORTER, ET DÉCONGELER DES FLUIDES

Publication
EP 2016356 A1 20090121 (DE)

Application
EP 07720111 A 20070502

Priority
• CH 2007000214 W 20070502
• CH 7372006 A 20060508

Abstract (en)
[origin: WO2007128151A1] The invention relates to a device (1) for freezing, transporting and thawing fluids, in particular sterile liquids, solutions and suspensions for the chemical, biotechnology, pharmaceutical and food industries. Said device comprises a container (10) with a lid (20), a wall (40) and a base (30) and at least one heat exchanger element (50) that is operatively connected to the fluids held in the container, such that said fluids can be cooled or heated. An immersion pipe (60) is operatively connected to at least one heat exchanger element (50) via at least one sub-region of its longitudinal extension, said region preferably extending approximately from a lowest point in the container to a maximum fill level. Preferably, the immersion pipe is in direct contact with at least one heat exchanger element and can be passively heated. During the thawing process, the thus liquefied product is withdrawn via the heatable immersion pipe(s), which preferably penetrate(s) the interior of the container from top to bottom and open(s) over the lowest point in the container. In comparison to known devices, in which the feed pipe is freely located in the container interior and thus freely located in the frozen product, the advantage of the heatable immersion pipe is that the frozen product thaws extremely quickly inside the immersion pipe and the withdrawal of the thawed liquid product is only blocked in the initial phase of the thawing process. During withdrawal, the thawed product is, in addition, gently heated during its passage through the heated immersion pipe, such that it can be fed, preferably from above, onto portions of the product that are still frozen at a temperature that is significantly higher than the freezing point, thus accelerating the thawing process.

IPC 8 full level
F28D 1/02 (2006.01)

CPC (source: EP US)
F28D 1/0213 (2013.01 - EP US); **F28D 1/0477** (2013.01 - EP US); **F28D 7/106** (2013.01 - EP US); **F28D 2021/0022** (2013.01 - EP US); **F28D 2021/0042** (2013.01 - EP US)

Citation (search report)
See references of WO 2007128151A1

Cited by
WO2015114516A1; US10208280B2

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR

Designated extension state (EPC)
AL BA HR MK RS

DOCDB simple family (publication)
WO 2007128151 A1 20071115; AT E451588 T1 20091215; DE 502007002271 D1 20100121; EP 2016356 A1 20090121; EP 2016356 B1 20091209; RU 2008143701 A 20100620; RU 2415362 C2 20110327; US 2009308567 A1 20091217

DOCDB simple family (application)
CH 2007000214 W 20070502; AT 07720111 T 20070502; DE 502007002271 T 20070502; EP 07720111 A 20070502; RU 2008143701 A 20070502; US 22708007 A 20070502