

Title (en)

CRYOGENIC COOLING METHOD USING A GAS-SOLID DIPHASIC FLOW OF CO2

Title (de)

KRYOGENES KÜHLVERFAHREN MIT EINEM DIPHASISCHEN GAS/FESTSTOFF-CO2-FLUSS

Title (fr)

PROCEDE DE REFROIDISSEMENT CRYOGENIQUE UTILISANT UN ECOULEMENT DE CO2 DIPHASIQUE SOLIDE-GAZ

Publication

EP 2539650 B1 20141126 (FR)

Application

EP 11705937 A 20110127

Priority

- FR 1051344 A 20100225
- FR 2011050159 W 20110127

Abstract (en)

[origin: WO2011104453A1] The invention relates to a method implementing liquid CO2 as a cryogenic fluid for transferring negative calories to products, said method being of the so-called indirect injection type wherein the liquid CO2 is sent into a heat exchanger system where same evaporates, the method being characterized in that, prior to reaching the exchanger system, the liquid CO2 undergoes an expansion operation, at a pressure selected to obtain a gas/solid mixture at the output of the expansion operation.

IPC 8 full level

F25D 3/10 (2006.01); **F25B 9/00** (2006.01)

CPC (source: EP US)

F25D 3/10 (2013.01 - EP US); **F25B 2309/06** (2013.01 - EP US)

Cited by

US11022347B2

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)

FR 2956730 A1 20110826; FR 2956730 B1 20120406; AU 2011219693 A1 20120906; AU 2011219693 B2 20140327;
AU 2011219693 B9 20140410; BR 112012021510 A2 20160705; DK 2539650 T3 20150302; EP 2539650 A1 20130102;
EP 2539650 B1 20141126; ES 2531044 T3 20150310; JP 2013520638 A 20130606; PT 2539650 E 20150220; US 2012312505 A1 20121213;
WO 2011104453 A1 20110901

DOCDB simple family (application)

FR 1051344 A 20100225; AU 2011219693 A 20110127; BR 112012021510 A 20110127; DK 11705937 T 20110127;
EP 11705937 A 20110127; ES 11705937 T 20110127; FR 2011050159 W 20110127; JP 2012554389 A 20110127; PT 11705937 T 20110127;
US 201113581128 A 20110127