

Title (en)

CONTROLLED NUCLEATION DURING FREEZING STEP OF FREEZE DRYING CYCLE USING PRESSURE DIFFERENTIAL ICE CRYSTALS DISTRIBUTION FROM CONDENSED FROST

Title (de)

KONTROLLIERTE NUKLEIERUNG WÄHREND DES GEFRIERSCHRITTES EINES GEFRIERTROCKNUNGSZYKLUS MITTELS DIFFERENZIELLER EISKRYSTALLVERTEILUNG VON KONDENSIERTEM FROST

Title (fr)

NUCLÉATION CONTRÔLÉE PENDANT L'ÉTAPE DE CONGÉLATION D'UN CYCLE DE LYOPHILISATION EN UTILISANT LA DISTRIBUTION DES CRISTAUX DE GLACE À DIFFÉRENTIEL DE PRESSION DU GIVRE CONDENSÉ

Publication

EP 3117165 B1 20200325 (EN)

Application

EP 14885084 A 20140918

Priority

- US 201414205802 A 20140312
- US 2014056192 W 20140918

Abstract (en)

[origin: WO2015138005A1] A method of controlling and enhancing the nucleation of product in a freeze dryer, wherein the product is maintained at a predetermined temperature and pressure in a chamber of the freeze dryer, and a predetermined volume of condensed frost is created on an inner surface of a condenser chamber separate from the product chamber and connected thereto by a vapor port. The opening of the vapor port into the product chamber when the condenser chamber has a pressure that is greater than that of the product chamber creates gas turbulence that breaks down the condensed frost into ice crystals that rapidly enter the product chamber for even distribution therein to create uniform and rapid nucleation of the product in different areas of the product chamber.

IPC 8 full level

F26B 5/06 (2006.01); **F26B 21/00** (2006.01); **F26B 25/00** (2006.01)

CPC (source: EP)

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Cited by

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DOCDB simple family (publication)

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US 2014056192 W 20140918; CN 201480076298 A 20140918; CN 201910394343 A 20140918; EP 14885084 A 20140918; EP 19214972 A 20140918; ES 14885084 T 20140918; JP 2016557074 A 20140918