

Title (en)

DEVICE AND METHOD FOR GRINDING MATERIAL, IN PARTICULAR MATERIAL MADE OF THERMOPLASTICS AND/OR ELASTOMERS

Title (de)

VORRICHTUNG UND VERFAHREN ZUM VERMAHLEN VON MAHLGUT, INSBESONDERE AUS THERMOPLASTEN UND/ODER ELASTOMEREN

Title (fr)

DISPOSITIF ET PROCÉDÉ DE BROYAGE DE MATÉRIAU, EN PARTICULIER UN MATÉRIAU CONSTITUÉ DE MATIÈRES THERMOPLASTIQUES ET/OU ÉLASTOMÈRES

Publication

EP 4121211 A1 20230125 (DE)

Application

EP 21715494 A 20210319

Priority

- DE 102020107642 A 20200319
- EP 2021057063 W 20210319

Abstract (en)

[origin: WO2021186020A1] The invention relates to a grinding device (1b) for grinding material (3), comprising a cooling assembly (6) with liquid nitrogen (LN) for cooling supplied material (3) and an impact mill (4), which is arranged downstream of the cooling assembly (6), for grinding the cooled material (3) to form fine material (9), the impact mill (4) having at least one connection (4b) for supplying both the cooled material (3) and a nitrogen stream (20) of gaseous nitrogen (GN) into the impact mill (4), and a fine-material outlet (4c) for discharging the fine material (9) produced in the impact mill (4). According to invention, at least one pre-cooling assembly (16) is present, wherein provided material (3) may be pre-cooled by the at least one pre-cooling assembly (16) to a material intermediate temperature (TZ3), the at least one pre-cooling assembly (16) being arranged upstream of the cooling assembly (6) in such a way that the material (3) pre-cooled to the material intermediate temperature (TZ3) by the at least one pre-cooling assembly (16) may pass into the liquid nitrogen stream (LN) after having been supplied into the cooling assembly (6). A mixing cell is also provided, which is designed to provide the nitrogen stream of gaseous nitrogen at a predefined nitrogen stream target temperature and a predefined nitrogen stream target throughput and to supply it to the connection of the impact mill to reproducibly achieve a high degree of fineness of the discharged fine material (9).

IPC 8 full level

B02C 19/00 (2006.01); **B02C 7/04** (2006.01); **B02C 13/22** (2006.01); **B02C 19/18** (2006.01)

CPC (source: EP)

B02C 19/0056 (2013.01); **B02C 19/186** (2013.01); **B02C 7/04** (2013.01); **B02C 13/22** (2013.01)

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

Designated validation state (EPC)

KH MA MD TN

DOCDB simple family (publication)

DE 102020107642 A1 20210923; **DE 102020107642 B4 20230622**; EP 4121211 A1 20230125; EP 4121211 B1 20240306; EP 4121211 C0 20240306; WO 2021186020 A1 20210923

DOCDB simple family (application)

DE 102020107642 A 20200319; EP 2021057063 W 20210319; EP 21715494 A 20210319