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| <b>(51) International Patent Classification <sup>7</sup> :</b><br><b>B02C 19/06</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>A1</b> | <b>(11) International Publication Number:</b> <b>WO 00/32313</b><br><b>(43) International Publication Date:</b> 8 June 2000 (08.06.00)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>(21) International Application Number:</b> PCT/GB99/04047<br><b>(22) International Filing Date:</b> 1 December 1999 (01.12.99)<br><b>(30) Priority Data:</b><br>9826286.8 1 December 1998 (01.12.98) GB<br><b>(71) Applicant (for all designated States except US):</b><br>RHONE-POULENC RORER LIMITED [GB/GB];<br>Patents Dept., London Road, Holmes Chapel, Cheshire<br>CW4 8BE (GB).<br><b>(72) Inventors; and</b><br><b>(75) Inventors/Applicants (for US only):</b> AUTHELIN, Jean-René<br>[FR/FR]; Rhône-Poulenc Rorer S.A., 13, quai Jules<br>Guesde, Boîte postale 14, F-94403 Cedex Vitry-Sur-Seine<br>(FR). HOSEK, Patrick [FR/FR]; Rhône-Poulenc Rorer<br>S.A., 13, quai Jules Guesde, Boîte postale 14, F-94403<br>Cedex Vitry-Sur-Seine (FR).<br><b>(74) Agent:</b> CAFFIN, Lee; Rhône-Poulenc Rorer Ltd., Patent Dept.,<br>London Road, Holmes Chapel, Cheshire CW4 8BE (GB). |           | <b>(81) Designated States:</b> AE, AL, AM, AT, AU, AZ, BA, BB, BG,<br>BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE,<br>ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,<br>KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,<br>MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU,<br>SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG,<br>US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE,<br>LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM,<br>AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT,<br>BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU,<br>MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM,<br>GA, GN, GW, ML, MR, NE, SN, TD, TG).<br><br><b>Published</b><br><i>With international search report.</i><br><i>Before the expiration of the time limit for amending the</i><br><i>claims and to be republished in the event of the receipt of</i><br><i>amendments.</i> |
| <b>(54) Title:</b> MILLING PROCESS FOR THE PRODUCTION OF FINELY MILLED MEDICINAL SUBSTANCES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>(57) Abstract</b><br><p>The present invention is a method of milling materials to form a fine powder with a median particle size below 10 micrometers which is suitable for inhalation and which has substantially no amorphous content generated during milling. The method is particularly suitable for milling materials which are soft. The method comprises milling the material in a fluid energy mill at reduced temperature using helium, or helium mixed with another gas, as milling fluid. Temperatures of -30 °C or less are used.</p>                                                                                                                                                                                                                                                                                                                                          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |



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