CLAIMS

1. A pharmaceutical composition in form of dry powder for inhalation comprising one or more active ingredients and carrier particles constituted of particles of lactose having a mass diameter in the range 212~~50~~-355~~500~~ micron coated with 0.15~~0.1~~-0.5~~1.0~~ percent magnesium stearate by weight of the carrier to an extent such that the coated particles have an extent of surface coating higher than 60%, said carrier particles being obtainable by a process which comprises dry coating out in a higher shear mixer granulator based on friction behavior at a rotation speed comprised between 500 and 2000 r.p.m.

2. The pharmaceutical composition according to claim 1, wherein the coated particles have an extent of surface coating of at least 80%.

3. The pharmaceutical composition according to claim 2, wherein the coated particles have an extent of surface coating equal to or higher than 90%.

4. The pharmaceutical composition according to claim 3, wherein the coated particles have an extent of surface coating equal to or higher than 95%.

~~5. The pharmaceutical composition according to any one of claims 1 to 4, wherein the lactose particles are coated with 0.15-0.5 percent magnesium stearate.~~

5~~6~~. The pharmaceutical composition according to any one of claims 1 to ~~5~~4, wherein the lactose particles have a diameter in the range 90-150 micron.

6~~7~~. The pharmaceutical composition according to any one of claims 1 to ~~5~~4, wherein the lactose particles have a diameter in the range 60-90 micron.

~~8. The pharmaceutical composition according to any one of claims 1 to 5, wherein the lactose particles have a diameter in the range 212-355 micron.~~

79. The pharmaceutical composition according to any of the preceding claims, wherein the lactose particles are made of alpha-lactose monohydrate.

810. The pharmaceutical composition according to claim 1 wherein one or more active ingredients are selected from the group consisting of beta$_2$-agonists, anticholinergics, and corticosteroids alone or in any combination thereof.

119. The pharmaceutical composition according to claim 108, wherein the beta$_2$-agonist is selected from the group consisting of salmeterol, formoterol, milveterol, vilanterol, olodaterol and indacaterol or a salt and/or solvate form thereof.

1210. The pharmaceutical composition according to claim 108 or 119, wherein the anticholinergic is selected from the group consisting of tiotropium bromide, ipratropium bromide, oxitropium bromide, oxybutynin chloride, aclidinium bromide, trospium chloride, and glycopyrronium bromide, ~~GSK 573719 and GSK 1160274~~.

1311. The pharmaceutical composition according to any one of claims 108 to 1210, wherein the corticosteroid is selected from the group consisting of beclomethasone dipropionate, fluticasone propionate, fluticasone furoate, budesonide and mometasone furoate.

1412. A dry powder inhaler filled with the pharmaceutical composition of any one of claims 1 to 1311.

1513. Carrier particles constituted of particles of lactose having a mass diameter in the range 212~~50~~-355~~500~~ micron coated with 0.15~~0.1~~-0.5~~1.0~~ percent magnesium stearate by weight of the carrier to an extent such that the coated particles have an extent of surface coating higher than 60%, said carrier particles being obtainable by a process which comprises dry coating out in a higher shear mixer granulator

based on friction behavior at a rotation speed comprised between 500 and 2000 r.p.m.

~~16~~14. A process for the preparation of the powder pharmaceutical composition for inhalation of claim 1, the process comprising the steps of:

i) subjecting particles of lactose having a mass diameter in the range 212~~50~~-355~~500~~ micron to dry coating with 0.15~~0.1~~-0.5~~1.0~~% magnesium stearate by weight of the carrier to provide a surface coating of the lactose particles with said magnesium stearate to an extent such that the coated particles have more than 60% of surface coating, wherein the dry coating step is carried out in a high shear mixer granulator based on friction behavior at a rotation speed comprised between 500 and 2000 r.p.m.;

ii) mixing the obtained particles with one or more active ingredients.

~~17~~15. The process of claim ~~16~~14, wherein the rotation speed is comprised between 1000 and 1500 r.p.m.

~~18~~16. The process according to claim ~~16~~14 or ~~17~~15, wherein the high shear mixer granulator is the CYCLOMIX™ apparatus.

~~19~~17. The process according to any one of claims ~~16~~14 to ~~18~~16, wherein the dry coating step is carried out for a time comprised between 2 and 20 minutes.

~~20~~18. The process according to claim ~~19~~17, wherein the time is comprised between 5 and 15 minutes.