EP 1379220 Patent Claims

1. Capsules for inhalation which contain as the inhalable powder tiotropium in admixture with a physiologically acceptable excipient, characterised in that the capsule material used is gelatine in admixture with polyethyleneglycol (PEG) 3350 in an amount of 1-10 wt.-%, preferably 3-8 %, and has a reduced moisture content as a TEWS or halogen drier moisture content of ~~less than 15%~~≤ 10% and in that the physiologically acceptable excipient is lactose.

2. Capsules for inhalation according to claim 1, characterised in that the ~~capsule material is selected from among gelatine, cellulose derivatives, starch, starch derivatives, chitosan and synthetic plastics.~~inhalable powder contains 0.001 to 2% tiotropium.

3. Capsules for inhalation according to claim 2, characterised in that the ~~capsule material used is gelatine in admixture with other additives selected from among polyethyleneglycol (PEG), preferably PEG 3350, glycerol, sorbitol, propyleneglycol, PEO-PPO-block-copolymers and other polyalcohols and polyethers.~~excipient consists of a mixture of coarser excipient with an average particle size of 15 to 80µm and finer excipient with an average particle size of 1 to 9µm, the proportion of finer excipient in the total quantity of excipient being 1 to 20%.

4. Capsules for inhalation according to claim 3, characterised in that the ~~capsule material contains, in addition to gelatine, PEG in an amount of 1-10 wt. %, preferably 3-8 %.~~tiotropium is in the form of its chloride, bromide, iodide, methanesulphonate, para-toluenesulphonate or methylsulphate.

~~5. Capsules for inhalation according to claim 3 or 4, characterised in that the capsule material has a TEWS or halogen drier moisture content of less than 12%, particularly preferably ≤ 10%.~~

~~6.~~5. Capsules for inhalation ~~according to claim 2~~ which contain as the inhalable powder tiotropium in admixture with a physiologically acceptable excipient, characterised in that the capsule material is ~~selected from~~ the cellulose derivatives hydroxypropylmethylcellulose~~, hydroxypropylcellulose, methylcellulose, hydroxymethylcellulose and hydroxyethylcellulose~~ and has a reduced moisture content as a TEWS or halogen drier moisture content of ≤ 5% and in that the physiologically acceptable excipient is lactose.

~~7. Capsules for inhalation according to claim 6, characterised in that the capsule material has a TEWS or halogen drier moisture content of less than 8%, particularly preferably ≤ 5%.~~

~~8.~~6. Capsules for inhalation according to claim ~~2~~5, characterised in that the ~~capsule material is selected from the synthetic plastics polyethylene, polycarbonate, polyester, polypropylene and polyethylene terephthalate.~~capsule material has a TEWS or halogen drier moisture content of less than 2%.

~~9. Capsules for inhalation according to claim 8, characterised in that the capsule material is selected from polyethylene, polycarbonate and polyethylene terephthalate.~~

~~10. Capsules for inhalation according to claim 8 or 9, characterised in that the capsule material has a TEWS or halogen drier moisture content of less than 3%, particularly preferably ≤ 1%.~~

~~11.~~7. Capsules for inhalation according to one of claims ~~1~~5 to ~~10~~6, characterised in that the inhalable powder contains 0.001 to 2% tiotropium ~~in admixture with a physiologically acceptable excipient~~.

~~12.~~8. Capsules for inhalation according to claim ~~11~~7, characterised in that the excipient consists of a mixture of coarser excipient with an average particle size of 15 to 80µm and finer excipient with an average particle size of 1 to 9µm, the proportion of finer excipient in the total quantity of excipient being 1 to 20%.

~~13.~~9. Capsules for inhalation according to claim ~~12~~8, characterised in that the tiotropium is in the form of its chloride, bromide, iodide, methanesulphonate, para-toluenesulphonate or methylsulphate.

~~14.~~10. Use of capsules for inhalation according to one of claims 1 to ~~13~~9 and an inhaler for preparing a medicament for inhalation.

~~15.~~11. Use according to claim ~~14~~10 for the treatment of asthma or COPD.

~~16. Use of empty capsules which are characterised by a TEWS or halogen drier moisture content of less than 15%, for preparing tiotropium-containing capsules for inhalation according to one of claims 1 to 13.~~