Claims

1. A pharmaceutical dosage form that is suitable for peroral administration to the gastrointestinal tract, which dosage form comprises a pharmaceutical composition in the form of a particulate mixture comprising:
(a) solid particles of N-butyloxycarbonyl-3-(4-imidazol-1-ylmethylphenyl)-5-iso-butylthiophene-2-sulfonamide, or a pharmaceutically-acceptable salt thereof, admixed with
(b) a blend of:
(i) carrier particles having a weight- based mean diameter and/or a volume-based mean diameter, and/or a structural/particle density, that is/are within about ±50% of the respective weight- based mean diameter, volume-based mean diameter, and/or structural/particle density, of the solid particles of N-butyloxycarbonyl-3-(4-imidazol-1-ylmethylphenyl)-5-iso-butylthiophene-2-sulfonamide or pharmaceutically-acceptable salt thereof, and
(ii) a glidant,
which composition is contained within a capsule that is suitable for such peroral administration.

2. A dosage form as claimed in Claim 1, wherein the capsule is a hard-shell, two-piece capsule.

3. A dosage form as claimed in Claim 2, wherein the capsule is made from hydroxypropyl methylcellulose.

4. A dosage form as claimed in any one of the preceding claims wherein the particles of N-butyloxycarbonyl-3-(4-imidazol-1-ylmethylphenyl)-5-iso-butyl-thiophene-2-sulfonamide or pharmaceutically-acceptable salt thereof have a weight- and/or a volume-based mean diameter that is no more than about 50 μm.

5. A dosage form as claimed in any one of the preceding claims wherein the carrier particles have with weight- and/or a volume-based mean diameter that is less than about 100 μm.

6. A dosage form as claimed in Claim 5 wherein the mean diameter is between about 20 μm and about 60 μm.

7. A dosage form as claimed in any one of the preceding claims wherein the carrier particle material comprises mannitol.

8. A dosage form as claimed in any one of the preceding claims wherein the glidant comprises a colloidal silica.

9. A dosage form as claimed in any one of the preceding claims, wherein smaller particles of the glidant material coat the carrier particles.

10. A dosage form as claimed in any one of the preceding claims, which further comprises a lubricant.

11. A dosage form as claimed in Claim 10, wherein the lubricant is magnesium stearate.

12. A dosage form as claimed in any one of the preceding claims that is essentially water-free.

13. A dosage form as claimed in any one of the preceding claims wherein the pharmaceutically-acceptable salt of N-butyloxycarbonyl-3-(4-imidazol-1-ylmethyl-phenyl)-5-iso-butylthiophene-2-sulfonamide is a sodium salt.

14. A process for the production of a dosage form as defined in any one of the preceding claims, which process comprises:

(a) mixing together the carrier particles and the glidant;

(b) mixing the blend from step (a) with particles of N-butyloxycarbonyl-3-(4-imidazol-1-ylmethyl-phenyl)-5-iso-butylthiophene-2-sulfonamide or pharmaceutically-acceptable salt thereof; and

(c) loading the mixture from step (b) into a capsule that is suitable for peroral administration.

15. A process as claimed in Claim 14, wherein, prior to step (c), a lubricant as defined in Claim 10 or Claim 11 is mixed together with the mixture from step (b).

16. A process as claimed in Claim 14 or Claim 15, wherein the mixture from step (a), and/or step (b) (before and/or after adding the lubricant as appropriate) is passed through a sieve at least once in order to break up any agglomerates that are formed during the blending process.

17. A process as claimed in Claim 16, wherein at least one of sieving steps comprises passing through a sieve that is of a size of about 800 μm.

18. A dosage form obtainable by a process as defined in any one of Claims 14 to 17.

19. A dosage form as defined in any one of the Claims 1 to 13 or 18 for use in the treatment of an interstitial lung disease.

20. The use of a dosage form as defined in any one of the Claims 1 to 13 or 18 for the manufacture of a medicament for the treatment of an interstitial lung disease.

21. A method of treatment of an interstitial lung disease, which method comprises the administration of a dosage form as defined in any one of the Claims 1 to 13 or 18 to a patient in need of such treatment.

22. A dosage form for use as defined in Claim 19, a use as defined in Claim 20, or a method of treatment as defined in Claim 21, wherein the interstitial lung disease is idiopathic pulmonary fibrosis.

23. A dosage form for use as defined in Claim 19, a use as defined in Claim 20, or a method of treatment as defined in Claim 21, wherein the interstitial lung disease is sarcoidosis.

24. A dosage form as defined in any one of the Claims 1 to 13 or 18 for use in the treatment of respiratory virus-induced tissue damage.

25. The use of a dosage form as defined in any one of the Claims 1 to 13 or 18 for the manufacture of a medicament for the treatment of respiratory virus-induced tissue damage.

26. A method of treatment of respiratory virus-induced tissue damage, which method comprises the administration of a dosage form as defined in any one of the Claims 1 to 13 or 18 to a patient in need of such treatment.

27. A dosage form for use as defined in Claim 24, a use as defined in Claim 25, or a method of treatment as defined in Claim 26, wherein the damage comprises injury and/or dysfunction of the mucosal tissue of the respiratory tract that is caused by a respiratory virus.

28. A dosage form for use, a use or a method of treatment as claimed in Claim 27, wherein the respiratory virus is a coronavirus or is an influenza virus.

29. A dosage form for use, a use or a method of treatment as claimed in Claim 28, wherein the respiratory virus is severe acute respiratory syndrome coronavirus 2.

30. A dosage form for use, a use or a method of treatment as claimed in any one of Claims 24 to 29 (as appropriate), wherein the treatment includes treatment of the symptoms of the disease that is being, or has been, caused by the virus.

31. A dosage form for use, a use or a method of treatment as claimed in Claim 30, wherein the symptoms of the damage or the disease include one or more of cough, dyspnea, respiratory distress, respiratory failure, pneumonia, fibrosis in one or more internal organs selected from the lungs, the heart and/or the kidneys.

32. A dosage form for use, a use, or a method of treatment as defined in any lone of Claims 19 to 31 (as appropriate), wherein the treatment includes prevention of morbidity and/or mortality in the relevant condition.

33. A dosage form for use, a use, or a method of treatment as defined in any lone of Claims 19 to 32 (as appropriate), wherein the composition is administered by the peroral route.

CLAIMS

1. A pharmaceutical dosage form that is suitable for peroral administration to the gastrointestinal tract, which dosage form comprises a pharmaceutical composition in the form of a particulate mixture comprising solid particles of N-butyloxycarbonyl-3-(4-imidazol-1-ylmethylphenyl)-5-iso-butylthiophene-2-sulfonamide, or a pharmaceutically-acceptable salt thereof, admixed with a blend of carrier particles with a weight- and/or a volume-based mean diameter, and/or a structural/particle density, that is/are similar to the weight- and/or a volume-based mean diameter, and/or the structural/particle density, of the solid particles of C21, or a pharmaceutically-acceptable salt thereof, and a glidant, which composition is contained within a capsule that is suitable for such peroral administration.

2. A dosage form according to Claim 1, in which the capsule is a hard-shell, two-piece capsule.

3. A dosage form according to Claim 2, in which the capsule is made from hydroxypropyl methylcellulose.

4. A dosage form according to Claim 1, 2 or 3, in which the particles of N-butyloxycarbonyl-3-(4-imidazol-1-ylmethylphenyl)-5-iso-butyl-thiophene-2-sulfonamide or pharmaceutically-acceptable salt thereof have a weight- and/or a volume-based mean diameter that is no more than about 50 μm.

5. A dosage form according to any preceding claim, in which the carrier particles have with weight- and/or a volume-based mean diameter that is less than about 100 μm.

6. A dosage form according to Claim 5, in which the mean diameter is between about 20 μm and about 60 μm.

7. A dosage form according to any preceding claim, in which the carrier particle material comprises mannitol.

8. A dosage form according to any preceding claim, in which the glidant comprises a colloidal silica.

9. A dosage form according to any preceding claim, in which smaller particles of the glidant material coat the carrier particles.

10. A dosage form according to any preceding claim, which further comprises a lubricant.

11. A dosage form according to Claim 10, in which the lubricant is magnesium stearate.

12. A dosage form according to any preceding claim, that is essentially water-free.

13. A dosage form according to any preceding claim, in which the pharmaceutically-acceptable salt of N-butyloxycarbonyl-3-(4-imidazol-1-ylmethyl-phenyl)-5-iso-butylthiophene-2-sulfonamide is a sodium salt.

14. A process for the production of a dosage form as defined in any preceding claim, which process comprises:

mixing together the carrier particles and the glidant;

mixing the blend from step (a) with particles of N-butyloxycarbonyl-3-(4-imidazol-1-ylmethyl-phenyl)-5-iso-butylthiophene-2-sulfonamide or pharmaceutically-acceptable salt thereof; and

loading the mixture from step (b) into a capsule that is suitable for peroral administration.

15. A process according to Claim 14, in which, prior to step (c), a lubricant as defined in Claim 10 or 11 is mixed together with the mixture from step (b).

16. A process according to Claim 14 or 15, in which the mixture from step (a), and/or step (b) (before and/or after adding the lubricant as appropriate) is passed through a sieve at least once in order to break up any agglomerates that are formed during the blending process.

17. A process according to Claim 16, in which at least one of sieving steps comprises passing through a sieve that is of a size of about 800 μm.

18. A dosage form obtainable by a process as defined in any of Claims 14 to 17.

19. A dosage form as defined in any of Claims 1 to 13 or 18 for use in the treatment of an interstitial lung disease.

20. Use of a dosage form as defined in any of Claims 1 to 13 or 18 for the manufacture of a medicament for the treatment of an interstitial lung disease.

21. A dosage form for use as defined in Claim 19 or a use as defined in Claim 20, in which the interstitial lung disease is idiopathic pulmonary fibrosis.

22. A dosage form for use as defined in Claim 19 or a use as defined in Claim 20, in which the interstitial lung disease is sarcoidosis.

23. A dosage form as defined in any of Claims 1 to 13 or 18 for use in the treatment of respiratory virus-induced tissue damage.

24. Use of a dosage form as defined in any of Claims 1 to 13 or 18 for the manufacture of a medicament for the treatment of respiratory virus-induced tissue damage.

25. A dosage form for use as defined in Claim 23 or a use as defined in Claim 24, in which the damage comprises injury and/or dysfunction of the mucosal tissue of the respiratory tract that is caused by a respiratory virus.

26. A dosage form for use according to Claim 25, in which the respiratory virus is a coronavirus or is an influenza virus.

27. A dosage form for use according to Claim 25, in which the respiratory virus is severe acute respiratory syndrome coronavirus 2.

28. A dosage form for use or a use according to any of Claims 23 to 27 (as appropriate), in which the treatment includes treatment of the symptoms of the disease that is being, or has been, caused by the virus.

29. A dosage form for use or a use according to Claim 28, in which the symptoms of the damage or the disease include one or more of cough, dyspnea, respiratory distress, respiratory failure, pneumonia, fibrosis in one or more internal organs selected from the lungs, the heart and/or the kidneys.

30. A dosage form for use or a use as defined in any of Claims 19 to 29 (as appropriate), in which the treatment includes prevention of morbidity and/or mortality in the relevant condition.

31. A dosage form for use or a use as defined in any of Claims 19 to 29 (as appropriate), in which the composition is to be administered by the peroral route.