CLAIMS

1. A pharmaceutical composition comprising an arsenic carbonate and/or arsenic bicarbonate and a pharmaceutically acceptable excipient.

2. The composition of claim 1 wherein the pharmaceutical composition comprises the arsenic carbonate and/or bicarbonate in solid form.

3. The composition of claim 1 or claim 2 wherein the arsenic carbonate and/or bicarbonate is an arsenic (III) carbonate or bicarbonate.

4. The composition of any one of the preceding claims wherein the arsenic carbonate and/or bicarbonate is an alkali metal and/or an alkaline earth metal arsenic carbonate and/or bicarbonate.

5. The composition of any one of the preceding claims wherein the arsenic carbonate and/or bicarbonate is selected from the group consisting of a sodium arsenic carbonate and/or bicarbonate, a potassium arsenic carbonate and/or bicarbonate and a calcium arsenic carbonate and/or bicarbonate.

6. The composition of any one of the preceding claims wherein the arsenic carbonate and/or bicarbonate is a sodium arsenic (III) carbonate or bicarbonate.

7. The composition of any one of the preceding claims wherein the arsenic carbonate and/or bicarbonate ion forming part of the arsenic carbonate and/or bicarbonate salt is selected from the group consisting of $As(CO_3)_2^-$, $As(CO_3)(OH)_2^-$, $As(CO_3)_2(OH)^{2-}$, and $As(CO_3)^+As(OH)_2CO^{3-}$ and $As(OH)_3(HCO^{3-})_2$.

8. The composition of claim 7 wherein the arsenic carbonate and/or bicarbonate ion can be combined with a counter ion selected from the group consisting of sodium, potassium, calcium and ammonium.

9. The composition of any one of the preceding claims wherein the arsenic (III) carbonate or bicarbonate may be selected from the group consisting of $NaAs(OH)_2CO_3$, $NaAs_2(CO_3)_3$, $As(HCO_3)_3$, $Na_2As(OH)_3CO_3$, $NaAs(CO_3)_2$, $Na_3As(CO_3)_3$, $NaAs(HCO_3)_4$, $Na_2As(HCO_3)_5$, $Na_3As(HCO_3)_6$ and closely related analogues wherein the sodium in the formulae is replaced with another counter ion.

10. The composition of any one of the preceding claims wherein the arsenic (III) carbonate is $NaAs(OH)_2CO_3$.

11. The composition of any one of the preceding claims further comprising one or more of a

drying agent, a disintegrant and a dispersant.

12. The composition of claim 11 wherein the drying agent, disintegrant or dispersant is a bicarbonate and/or a carbonate compound.

13. The composition of claim 12 wherein the disintegrant or dispersant is selected from the group consisting of sodium bicarbonate, sodium carbonate, potassium carbonate, potassium bicarbonate, calcium carbonate, magnesium carbonate and magnesium bicarbonate.

14. The composition of any one of the preceding claims wherein the composition is in the form of a tablet, granule or capsule.

15. Arsenic carbonate and/or bicarbonate for use in the treatment of a cancer in a patient.

16. The arsenic carbonate and/or bicarbonate of claim 15 wherein the arsenic carbonate and/or bicarbonate is in solid form.

17. The arsenic carbonate and/or bicarbonate of claim 15 or claim 16 wherein the cancer is selected from a haematological malignancy, a solid tumour and a lymphoma.

18. The arsenic carbonate and/or bicarbonate of any one of claim 15 to claim 17 wherein when the cancer is selected from the group consisting of acute lymphoblastic leukaemia (ALL), acute lymphoblastic B-cell leukaemia, acute lymphoblastic T-cell leukaemia, acute myeloblastic leukaemia (AML), acute promyelocytic leukaemia (APL), acute monoblastic leukaemia, acute erythroleukemic leukaemia, acute megakaryoblastic leukaemia, acute myelomonocytic leukaemia, acute undifferentiated leukaemia, chronic myelocytic leukaemia and chronic lymphocytic leukaemia.

19. The arsenic carbonate and/or bicarbonate of claim 18 wherein the cancer is acute promyelocytic leukaemia (APL).

20. The arsenic carbonate and/or bicarbonate of claim 15 wherein the cancer is multiple myeloma.

21. The arsenic carbonate and/or bicarbonate of any one of claim 15 to claim 20 wherein the arsenic carbonate and/or bicarbonate is used as part of a combination therapy with a further non-arsenic carbonate and/or bicarbonate anti-cancer agent.

22. The arsenic carbonate and/or bicarbonate of any one of claim 15 to claim 21 wherein the arsenic carbonate and/or bicarbonate is used as a component of the pharmaceutical composition of any one of claim 1 to claim 14.

23. A process for producing an arsenic carbonate and/or bicarbonate in solid form for oral delivery to a patient in need of cancer therapy including the steps of:

(a) solubilizing arsenic trioxide in a strongly basic solution;

(b) contacting the strongly basic solution with a carbonate and/or bicarbonate compound;

(c) removing the solvent from the strongly basic solution containing dissolved arsenic carbonate and/or bicarbonate compound,

to thereby produce the arsenic carbonate and/or bicarbonate in solid form.

24. The process of claim 23 wherein the strongly basic solution is a solution of at least pH 9.

25. The process of claim 23 or claim 24 wherein the strongly basic solution is a solution of a hydroxide of an alkali metal and/or an alkaline earth metal or is ammonium hydroxide.

26. The process of claim 25 wherein the hydroxide of an alkali metal and/or an alkaline earth metal is selected from the group consisting of sodium hydroxide, potassium hydroxide, magnesium hydroxide, calcium hydroxide, lithium hydroxide, rubidium hydroxide, strontium hydroxide, barium hydroxide and caesium hydroxide.

27. The process of any one of claim 23 to claim 26 wherein one or more of a drying agent, dispersant or disintegrant is added to the arsenic carbonate and/or bicarbonate in solid form after the solvent has been removed.

28. An arsenic carbonate and/or bicarbonate in solid form when produced by the process of any one of claim 23 to claim 27.

29. Arsenic ion for use in the treatment of a cancer in a patient, wherein the arsenic ion is selected from the group consisting of arsenic carbonate and bicarbonate.

30. Use of arsenic ion in the manufacture of a medicament for the treatment of cancer, wherein the medicament is a pharmaceutical composition according to claim 1 to claim 14.

31. The use of claim 30 wherein the cancer is one according to claim 17 to claim 20.