CLAIMS

1. A method for producing complex fluid bubbly material that is suitable for being used in 3D printing, the method comprising producing to liquid material primary bubbles, and secondary bubbles, as a supporting material for printing a 3D object or for using as printing ink, wherein the complex fluid bubbly material comprises at least the primary bubbles and the secondary bubbles, wherein

producing the primary bubbles comprises adding water and methyl cellulose to the liquid material to form hydrogel material, and shaking the hydrogel material or using an aerator,

after which the secondary bubbles are produced by producing nitrogen gas to the hydrogel material, and the bubbles are stabilized by adding sucrose to the hydrogel material.

2. A method according to claim I, wherein method further comprises causing rheology transition of a liquid phase to viscous liquid and temperature sweeping stability of viscosity between 20.1 - 300.0 Pa·s.

3. A method according to claim 1 or 2, wherein producing the primary bubbles comprises:

adding surfactant to the liquid material and the liquid material is Newtonian or non-Newtonian liquid material; and

shaking the liquid material or using the aerator.

4. A method according to any previous claim, comprising stabilizing the primary bubbles by adding sucrose and free radical forming compound, ions, molecular compounds, nanofillers or function of cells in continuous liquid phase of the liquid material.

5. A method according to any previous claim, wherein compounds of the complex fluid bubbly material change a state of matter of the printing ink upon becoming in contact with the complex fluid bubbly material.

6. A method according to any previous claim, comprising producing to the hydrogel material the secondary bubbles for increasing homogeneity of the hydrogel material by a chemical reaction.

7. A method according to any previous claim, wherein the method further comprises producing to the hydrogel material tertiary bubbles by injecting gas to the hydrogel material or by a chemical reaction.

8. A method according to claim 7, wherein the tertiary bubbles comprise air or nitrogen gas.

9. A method according to any previous claim, wherein it comprises UV radiating the hydrogel material comprising the primary bubbles and the secondary bubbles, to increase viscosity of the hydrogel material.

10. A method according to any previous claim, wherein the bubbles are comprised in a bubble system, and the bubble system and the bubbles in the bubble system are of one or several different gas compositions.

11. A method according to any previous claim, wherein the hydrogel material contains cross-linking compounds and living cells.