

CLAIMS

1. A process for the manufacture of a plurality of capsules each comprising a crosslinked hydrogel outer shell surrounding a central core, wherein a hydrogel solution and an aqueous composition of interest, designed to form the central core, are concentrically coextruded to form mixed drops each comprising a layer of hydrogel solution surrounding a drop of composition of interest, characterized in that the coextrusion step is carried out above a crosslinking aerosol so that the mixed drops pass through said crosslinking aerosol, so that the layer of hydrogel solution at least partially crosslinks around the drop of composition of interest in contact with said aerosol, the osmotic concentration of the crosslinking aerosol being between 0.3 to 3 times the osmotic concentration of the composition of interest forming the central core of the capsules, said capsules being spherical and having a diameter of between 50 and 500 μm .
2. The capsule manufacturing process as claimed in claim 1, wherein the crosslinking aerosol is formed from microdroplets of crosslinking solution, the diameter of which is advantageously between 0.5 and 20 μm , preferentially between 1 and 10 μm , preferentially equal to 5 $\mu\text{m} \pm 2 \mu\text{m}$.
3. The capsule manufacturing process as claimed in claim 2, wherein the microdroplets of crosslinking solution forming the aerosol have a falling velocity lower than the velocity at which the mixed drops are projected by the extrusion flow through the crosslinking aerosol.
4. The capsule manufacturing process as claimed in one of the preceding claims, wherein the capsules are immersed in a recovery bath after passing through the crosslinking aerosol, said recovery bath advantageously comprising a crosslinking solution.
5. The capsule manufacturing process as claimed in one of the preceding claims, wherein the mixed drop is free of surfactant.
6. The capsule manufacturing process as claimed in one of the preceding claims, wherein the crosslinking aerosol and the composition of interest forming the central core of the capsules are iso-osmotic.
7. The capsule manufacturing process as claimed in one of the preceding claims, wherein the mixed drops are charged so as to disperse and the crosslinking aerosol is oppositely charged or neutral.

8. The capsule manufacturing process as claimed in one of the preceding claims, wherein the composition of interest for forming the central core is selected from a cell solution, a food composition, a cosmetic composition or a pharmaceutical composition.
- 5 9. The capsule manufacturing process as claimed in one of the preceding claims, wherein the hydrogel solution is an alginate solution, the composition of interest for forming the central core comprises cells and the crosslinking aerosol comprises microdroplets of a calcium chloride solution.