CLAIMS

1.- A carboxyalkyl chitosan having glucosamine units, N -acetyl -glucosamine units and glucosamine units substituted by a carboxyalkyl group, the said carboxyalkyl chitosan having a zeta potential, measured at pH 7.5, that is lower than or equal to -18 mV, said carboxyalkyl chitosan has a degree of acetylation comprised between 40% and 80%, expressed in number of moles of N -acetyl -glucosamine units in relation to the number of moles of total units and said carboxyalkyl chitosan having a degree of substitution by a carboxyalkyl group that is greater than 20%, for example greater than 50%, expressed as the number of moles of the substituent in relation to the number of moles of total units.

2-. A carboxyalkyl chitosan according to claim 1, characterised in that the said carboxyalkyl chitosan has a zeta potential, measured at pH 7.5, that is less than or equal to -20 mV.

3.- A carboxyalkyl chitosan chitosan according to claim 1 or 2, the said carboxyalkyl chitosan having a degree of substitution by a carboxyalkyl group that is greater than 70% expressed as the number of moles of the substituent in relation to the number of moles of total units.

4.- A carboxyalkyl chitosan according to any one of claims 1 to 3, characterised in that the chitosan is derived from the mycelium of a fungus of the type *Ascomycetes*, and in particular from *Aspergillus niger*, and / or from a fungus *Basidiomycetes*, and in particular *Lentinula edodes* (shiitake) and / or *Agaricus bisporus* (button mushroom).

5.- A carboxyalkyl chitosan according to any one of claims 1 to 4, characterised in that the carboxyalkyl chitosan is a N-carboxylalkylated and O-carboxylalkylated chitosan.

6.- A carboxyalkyl chitosan according to any one of claims 1 to 5, characterised in that the carboxyalkyl chitosan is reacetylated.

7.- A carboxyalkyl chitosan according to any one of claims 1 to 6, characterised in that it is sterilised.

8.- A composition characterised in that it comprises at least one carboxyalkyl chitosan defined according to any one of claims 1 to 7.

9.- The composition according to claim 8, characterised in that the composition also comprises hyaluronic acid or sodium hyaluronate, either crosslinked or not crosslinked by covalent bonds.

10.- An injectable composition characterised in that it comprises at least one carboxyalkyl chitosan defined according to any one of claims 1 to 7.

11.- A pharmaceutical composition, characterised in that it comprises at least one carboxyalkyl chitosan defined according to any one of claims 1 to 7.

12.- The composition according to claim 10 or 11, characterised in that the composition also comprises hyaluronic acid or sodium hyaluronate, either crosslinked or not crosslinked by covalent bonds.

13.- A composition according to any one of claims 10 to 12, characterised in that the composition is an injectable pharmaceutical composition, an implantable pharmaceutical composition, a pharmaceutical composition suitable for instillation, or an injectable medical device, an implantable medical device or a medical device suitable for instillation.

14.- A carboxyalkyl chitosan defined according to any one of claims 1 to 7 for use in a therapeutic treatment method.

15.- Use of at least one carboxyalkyl chitosan defined according to any one of claims 1 to 7 in the manufacture of a composition according to claim 14 for the repair or filling in of at least one body tissue requiring repair or filling in, by instillation or the injection via a subcutaneous, intradermal, ocular, intraocular, or intra-articular route.

16.- The use according to claim 15, characterised in that the body tissue is chosen from tissues belonging to the vocal cords, muscles, ligaments, tendons, cartilages, sexual organs, bones, joints, eyes, dermis, or one any of their combinations, and more particularly at the joint joints. the body tissue is selected from the tissues belonging to the vocal cords, muscles, ligaments, tendons, cartilages, sexual organs, bones, joints, eyes, dermis, epidermis, or any one of the combinations thereof, and more particularly belonging to the articular joints

17.- A use of at least one carboxyalkyl chitosan defined according to any one of claims 1 to 7 in the manufacture of a composition according to claim 13 or 14, for treating osteoarthritis, or for the repair of a cartilage defect, optionally by injection into the synovial fluid or after mixing with the blood and implantation in the cartilage.

18.- A composition according to any one of claims 10 to 13 comprising a reducing sugar.

19.- A medical device, characterised in that it comprises or consists of a composition as defined in any one of claims 8 to 13.

20.- A preparation method for preparing a composition comprising a carboxyalkyl chitosan defined according to any one of claims 8 to 13, the said method including:

- the dissolution of a carboxyalkyl chitosan defined according to any one of claims 1 to 9 in an aqueous solution, optionally buffered;
- the optional adjustment of the pH to a desired pH;
- the optional addition of other excipients;
- the optional adjustment of the final osmolality of the composition.