CLAIMS

1. A material comprising a multi-block thermogelling polymer, said multi-block thermogelling polymer comprising poly(ethylene glycol) (PEG); poly(propylene glycol) (PPG); and poly(caprolactone) diol (PCL-diol),

wherein the PEG, the PPG and the PCL-diol are chemically coupled together by at least a urethane/carbamate linkage,

and wherein the material is suitable for use as a vitreous substitute.

2. The material of claim 1, wherein the molar ratio of PEG to PPG is in the range of 1:1 to 10:1.

3. The material of claim 2, wherein the molar ratio of PEG to PPG is in a range of 2:1 to 6:1.

4. The material of claim 3, wherein the molar ratio of PEG to PPG is 4:1.

5. The material of any one of the preceding claims, wherein the PCL-diol is in an amount of from 1 wt% to 10 wt% of the multi-block thermogelling polymer.

6. The material of any one of the preceding claims, wherein the material comprises 1% to 30% w/v of the multi-block thermogelling polymer in an aqueous medium.

7. The material of any one of the preceding claims, wherein the material has a high water content of more than 60% by weight.

8. The material of any one of the preceding claims, wherein the material has a pH value in a range of from 7.1 to 7.7.

9. The material of any one of the preceding claims, wherein the material is in a flowable state at a temperature falling in the range of 20°C to 30°C and is in a non-flowable gel-like state at a temperature falling in the range of 36°C to 40°C.

10. The material of any one of the preceding claims, wherein the material is substantially transparent.

11. The material of any one of the preceding claims, wherein the material has a refractive index falling in the range of from 1.20 to 1.48.

12. The material of any one of the preceding claims, wherein the material is substantially devoid of a metal.

13. A method of preparing a material of any one of claims 1 to 12, the method comprising:

coupling one or more PEG, one or more PPG and one or more PCL together such that the PEG, the PPG and the PCL are chemically coupled together by at least a urethane/carbamate linkage to form a multi-block polymer,

wherein the PCL is derived from PCL-diol.

14. The method according to claim 13, wherein the one or more PEG, one or more PPG and one or more PCL are mixed in a molar ratio of 1-10: 1: 0.01-1.5.

15. The method according to claim 14, wherein the mixing step is performed at an elevated temperature in the range of from 70°C to 150°C.

16. The method according to any one of claims 14-15, wherein the mixing step is carried out for at least 12 hours.

17. The method according to any one of claims 13-16, wherein the coupling step is carried out in the presence of a coupling agent and the coupling agent comprises an isocyanate monomer that contains at least two isocyanate functional groups.

18. The method according to claim 17, wherein the coupling agent is a diisocyanate selected from the group consisting of hexamethylene diisocyanate, tetramethylene diisocyanate, cyclohexane diisocyanate, tetramethylxylene diisocyanate, dodecylene diisocyanate, tolylene 2,4-diisocyanate and tolylene 2,6-diisocyanate.

19. The method according to any one of claims 13-18, wherein the coupling step is carried out in the presence of an anhydrous solvent selected from the group consisting of toluene, benzene and xylene.

20. The method according to any one of claims 13-19, wherein the coupling step is carried out in the presence of a tin catalyst selected from the group consisting of alkyltin compounds, aryltin compounds and dialkyltin diesters.

21. The method according to any one of claims 13-20, the method further comprises

removing the multi-block polymer of contaminants; and

solubilizing the multi-block polymer in aqueous medium to form a multi-block thermogelling polymer.

22. A synthetic vitreous humour or part thereof comprising the material of any one of claims 1 to 12.