7. The process according to claims 1 to 6, wherein before the start of the second polymerisation the pH is adjusted only to such extent that the first polymer is not neutralised and solubilised and the particles remain particles with a measurable particle size.

8. The process according to claim 7, wherein the pH at the start of the second polymerisation is below 7.

9. The process according to claims 1 to 8, further comprising a step (3) comprising hydroplasticising the multiphase particle dispersion (2B) by addition of base, preferably a volatile base, to a pH between 6.5 and 9.

10. The process according to claims 1 to 9, further comprising a step (4) comprising adding a separate crosslinking agent for reaction with crosslinking monomers in the first or second stage polymer or with unsaturated groups from pre-crosslinking monomer (2a2) in the second stage polymer.

11. The process according to claims 1 to 10, further comprising step (5) comprising adding another aqueous polymer, preferably an aqueous polymer dispersion.

12. A multiphase vinyl polymer particle dispersion obtainable according to the method according to anyone of claims 1 to 11, wherein the multiphase particles have an average particle size of less than 80 nm.

13. The multiphase hydroplasticised vinyl polymer particle dispersion according to claim 12, wherein the multiphase particles ~~have an average particle size of less than 80 nm and~~ preferably comprise less than 20wt%, preferably less than 10wt % of particles having a particle size more than 80 nm.

14. The multiphase vinyl polymer particle dispersion according to claims 12 or 13, having a transparency value of at least 35 (dL) at a solids content of at least 35 wt%.

15. The multiphase vinyl polymer particle dispersion according to claims 12 - 14, comprising neutralised hydroplasticized first stage polymer and having a pH between 6.5 and 10

16. The multiphase vinyl polymer particle dispersion according to claims 12 - 14, comprising not-neutralised hydroplasticisable first stage polymer and having a pH between 4 and 7, preferably 6.5.