CLAIMS

1. A process for the removal of the solvent from a polymeric solution including at least one elastomeric polymer, which comprises subjecting said polymeric solution to a stripping step by means of water vapour, in the presence of a dispersant system comprising:

- from 0.005% by weight to 1% by weight with respect to the total weight of the dry elastomeric polymer of at least one lamellar material;
- from 0.0005% by weight to 1% by weight with respect to the total weight of the dry elastomeric polymer of at least one cationic surfactant.

2. The process for the removal of the solvent from a polymeric solution according to claim 1, wherein said dispersant system comprises from 0.008% by weight to 0.8% by weight with respect to the total weight of the dry elastomeric polymer of at least one lamellar material.

3. The process for the removal of the solvent from a polymeric solution according to claim 1 or 2, wherein said dispersant system comprises from 0.0008% by weight to 0.8% by weight with respect to the total weight of the dry elastomeric polymer of at least one cationic surfactant.

4. The process for the removal of the solvent from a polymeric solution according to any of the previous claims, wherein said elastomeric polymer is selected from: polybutadiene (BR); polyisoprene (IR); unsaturated styrene copolymers with a random, block,

tapered distribution, linear or branched such as styrene-butadiene (SB) copolymers, styrene-butadiene-styrene (SBS) copolymers, styrene-isoprene-styrene (SIS) copolymers; saturated styrene copolymers, with a random, block, tapered distribution, linear or branched such as styrene-ethylene-propylene (SEP) copolymers, styrene-ethylene/butylene-styrene (SEBS) copolymers, styrene-ethylene-propylene-styrene (SEPS) copolymers; or mixtures thereof.

5. The process for the removal of the solvent from a polymeric solution according to any of the previous claims, wherein said polymeric solution comprises at least one non-polar organic solvent which is selected from: butane, pentane, cyclopentane, hexane, benzene, toluene, cyclohexane, methylcyclohexane, chlorobenzene, or mixtures thereof.

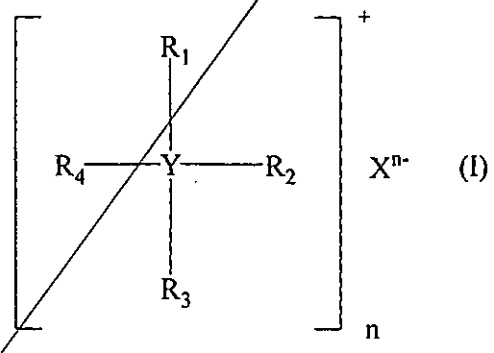
6. The process for the removal of the solvent from a polymeric solution according to any of the previous claims, wherein said elastomeric polymer is present in said polymeric solution in a quantity ranging from 2% by weight to 30% by weight with respect to the total weight of the polymeric solution.

7. The process for the removal of the solvent from a polymeric solution according to any of the previous claims, wherein said lamellar material has lamellae having a thickness ranging from 0.01 nm to 30 nm.

8. The process for the removal of the solvent from a polymeric solution according to any of the previous claims, wherein said lamellar material is selected from

phyllosilicates such as: smectites, such as montmorillonite, bentonite, nontronite, beidellite, volkonskoite, hectorite, saponite, sauconite, magadite, stevensite, or mixtures thereof; vermiculite; halloysite; sericite; aluminate oxides; hydrotalcite; or mixtures thereof.

9. The process for the removal of the solvent from a polymeric solution according to claim 8, wherein said lamellar material is modified with an alkyl ammonium or alkyl phosphonium salt which is selected from quaternary ammonium or phosphonium salts having general formula (I):



(I)

wherein:

- Y represents N or P;
- R_1, R_2, R_3 and R_4, the same or different, represent a linear or branched C_1-C_{20} alkyl or hydroxyalkyl group; a linear or branched C_2-C_{20} alkenyl or hydroxyalkenyl group; a group $-R_5-SH$ or $-R_5-NH$ wherein R_5 represents a linear or branched C_1-C_{20} alkylene group; a C_6-C_{18} aryl group; a C_7-C_{20} arylalkyl or alkylaryl group; a C_5-C_{18} cycloalkyl group; said cycloalkyl group optionally containing

heteroatoms such as oxygen, nitrogen, sulfur;

- X^{n-} represents an anion such as a chloride ion, a sulfate ion, a phosphate ion;
- n represents 1, 2 or 3.

10. The process for the removal of the solvent from a polymeric solution according to any of the previous claims, wherein said lamellar material is subjected to a delamination step.

11. The process for the removal of the solvent from a polymeric solution according to claim 10, wherein said delamination step is carried out by subjecting an aqueous solution of said lamellar material to stirring in a mixer, or in a centrifuge, at a rate ranging from 1,000 rpm to 20,000 rpm, at a temperature ranging from 10°C to 40°C, for a time ranging from 10 minutes to 3 hours.

12. The process for the removal of the solvent from a polymeric solution according to claim 11, wherein said aqueous solution comprises from $2.5x10^{-5}$% by weight to $5x10^{-3}$% by weight of lamellar material with respect to the total weight of the aqueous solution.

13. The process for the removal of the solvent from a polymeric solution according to any of the previous claims, wherein said cationic surfactant is selected from alkyl ammonium or alkyl phosphonium salts having general formula (I) according to claim 9.

CLAIMS

1. A process for the removal of a solvent from a polymeric solution including at least one elastomeric polymer, which comprises subjecting said polymeric solution to a stripping step by means of water vapour, in the presence of a dispersant system comprising:

- from 0.005% by weight to 1% by weight with respect to the total weight of the dry elastomeric polymer of at least one lamellar material, said lamellar material has lamellae having a thickness ranging from 0.01 nm to 30 nm and being selected from phyllosilicates such as: smectites, such as montmorillonite, bentonite, nontronite, beidellite, volkonskoite, hectorite, saponite, sauconite, magadite, stevensite, or mixtures thereof; vermiculite; halloysite; sericite; aluminate oxides; hydrotalcite; or mixtures thereof;
- from 0.0005% by weight to 1% by weight with respect to the total weight of the dry elastomeric polymer of at least one cationic surfactant.

2. The process for the removal of the solvent from a polymeric solution according to claim 1, wherein said dispersant system comprises from 0.008% by weight to 0.8% by weight with respect to the total weight of the dry elastomeric polymer of at least one lamellar material.

3. The process for the removal of the solvent from a polymeric solution according to claim 1 or 2, wherein said dispersant system comprises from 0.0008% by weight to 0.8% by weight with respect to the total weight of

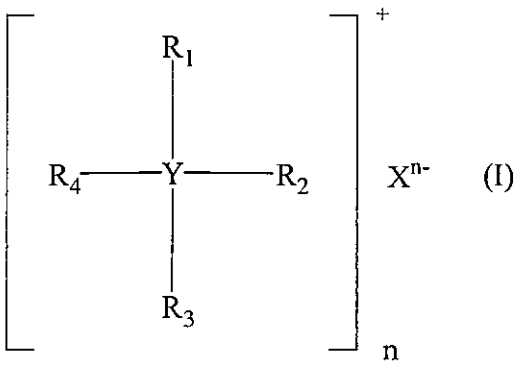
the dry elastomeric polymer of at least one cationic surfactant.

4. The process for the removal of the solvent from a polymeric solution according to any of the previous claims, wherein said elastomeric polymer is selected from: polybutadiene (BR); polyisoprene (IR); unsaturated styrene copolymers with a random, block, tapered distribution, linear or branched such as styrene-butadiene (SB) copolymers, styrene-butadiene-styrene (SBS) copolymers, styrene-isoprene-styrene (SIS) copolymers; saturated styrene copolymers, with a random, block, tapered distribution, linear or branched such as styrene-ethylene-propylene (SEP) copolymers, styrene-ethylene/butylene-styrene (SEBS) copolymers, styrene-ethylene-propylene-styrene (SEPS) copolymers; or mixtures thereof.

5. The process for the removal of the solvent from a polymeric solution according to any of the previous claims, wherein said polymeric solution comprises at least one non-polar organic solvent which is selected from: butane, pentane, cyclopentane, hexane, benzene, toluene, cyclohexane, methylcyclohexane, chlorobenzene, or mixtures thereof.

6. The process for the removal of the solvent from a polymeric solution according to any of the previous claims, wherein said elastomeric polymer is present in said polymeric solution in a quantity ranging from 2% by weight to 30% by weight with respect to the total weight of the polymeric solution.

7. The process for the removal of the solvent from a polymeric solution according to claim 6, wherein said lamellar material is modified with an alkyl ammonium or alkyl phosphonium salt which is selected from quaternary ammonium or phosphonium salts having general formula (I):



(I)

wherein:

- Y represents N or P;
- R_1, R_2, R_3 and R_4, the same or different, represent a linear or branched C_1-C_{20} alkyl or hydroxyalkyl group; a linear or branched C_2-C_{20} alkenyl or hydroxyalkenyl group; a group -R_5-SH or -R_5-NH wherein R_5 represents a linear or branched C_1-C_{20} alkylene group; a C_6-C_{18} aryl group; a C_7-C_{20} arylalkyl or alkylaryl group; a C_5-C_{18} cycloalkyl group; said cycloalkyl group optionally containing heteroatoms such as oxygen, nitrogen, sulfur;
- X^{n-} represents an anion such as a chloride ion, a sulfate ion, a phosphate ion;
- n represents 1, 2 or 3.

8. The process for the removal of the solvent from a polymeric solution according to any of the previous

claims, wherein said lamellar material is subjected to a delamination step.

9. The process for the removal of the solvent from a polymeric solution according to claim 8, wherein said delamination step is carried out by subjecting an aqueous solution of said lamellar material to stirring in a mixer, or in a centrifuge, at a rate ranging from 1,000 rpm to 20,000 rpm, at a temperature ranging from 10°C to 40°C, for a time ranging from 10 minutes to 3 hours.

10. The process for the removal of the solvent from a polymeric solution according to claim 9, wherein said aqueous solution comprises from $2.5x10^{-5}$% by weight to $5x10^{-3}$% by weight of lamellar material with respect to the total weight of the aqueous solution.

11. The process for the removal of the solvent from a polymeric solution according to any of the previous claims, wherein said cationic surfactant is selected from alkyl ammonium or alkyl phosphonium salts having general formula (I) according to claim 7.