Claims:

1. A process for the preparation of an aqueous slurry comprising a plurality of elastomer particles suspended therein, the process comprising at least the step of:

   A) contacting an organic medium comprising

      i) at least one elastomeric ethylene/α-olefin copolymer and

      ii) an organic diluent

   with an aqueous medium comprising at least one LCST compound having a cloud point of 0 to 100℃ and

   B) removing at least partially the organic diluent to obtain the aqueous slurry comprising the elastomeric ethylene/α-olefin copolymer particles.

2. The process according to claim 1, wherein the elastomeric ethylene/α-olefin copolymer is selected from the groups consisting of ethylene-propylene diene M-class rubbers (EPDM) and ethylene-propylene copolymer.

3. The process according to claim 1 or 2, wherein the organic medium comprising at least one elastomeric ethylene/α-olefin copolymer and an organic diluent is obtained from a polymerization reaction or a post-polymerization reaction.

4. The process according to one of claims 1 to 3, wherein the organic medium is obtained from a polymerization reaction and further contains residual monomers of the polymerization reaction.

5. The process according to one of claims 1 to 4, wherein the aqueous medium contains of from 0 to 5,000 ppm of salts of multivalent metal ions calculated on their metal content and with respect to the amount of copolymer present in the medium obtained according to step A).

6. The process according to one of claim 1 to 5, wherein the salts of multivalent metal ions are calcium stearate and/or zinc stearate and/or calcium palmitate and/or zinc palmitate.

7. The process according to one of claim 1 to 6, wherein the aqueous medium comprises 250 ppm or less of talcum calculated on with respect to the amount of elastomer present in the medium obtained according to step B).

8. The process according to one of claim 1 to 7, wherein the aqueous medium comprises 250 ppm or less of layered silicate calculated with respect to the amount of elastomer present in the medium obtained according to step B).

9. The process according to one of claim 1 to 8, wherein the aqueous medium comprises 25 ppm or less of salts of talcum calculated with respect to the amount of elastomer present in the medium obtained according to step B).

10. The process according to claim 1 or 9, wherein the organic medium comprising at least one elastomeric ethylene/α-olefin copolymer and an organic diluent is obtained from a polymerization reaction comprising at least the steps of:

a) providing a reaction medium comprising an organic diluent, and at least one polymerizable monomer

b) polymerizing the monomers within the reaction medium in the presence of an catalyst to form an organic medium comprising the elastomeric ethylene/α-olefin copolymer, the organic diluent and optionally residual monomers.

11. The process according to claim 1 or 10, wherein the organic medium comprising at least one elastomeric ethylene/α-olefin copolymer and an organic diluent is obtained from a polymerization reaction comprising at least the steps of:

a) providing a reaction medium comprising an organic diluent, and at least two monomers being ethylene and an α-olefin;

b) polymerizing the monomers within the reaction medium in the presence of an initiator system to form an organic medium comprising the elastomeric ethylene/α-olefin copolymer, the organic diluent and optionally residual monomers.

12. The process according to one of claims 1 to 11, wherein step A) is carried out batchwise or continuously.

13. The process according to one of claims 1 to 12, wherein the temperature in step A) is between 75 ℃ and 140 ℃.

14. The process according to one of claims 1 to 13, wherein the at least one LCST compound is selected from the group consisting of:

poly(N-isopropylacrylamide), poly(N-isopropylacrylamide-co-N,N-dimethylacrylamide, poly(N-isopropylacrylamide)-alt-2-hydroxyethylmethacrylate, poly(N-vinylcaprolactam), poly(N,N-diethylacrylamide), poly[2-(dimethylamino)ethyl methacrylate], poly(2-oxazoline) glyelastomers, Poly(3-ethyl-N-vinyl-2-pyrrolidone), hydroxylbutyl chitosan, polyoxyethylene (20) sorbitan monostearate, polyoxyethylene (20) sorbitan monolaurate, polyoxyethylene (20) sorbitan monooleate, methyl cellulose, hydroxypropyl cellulose, hydroxyethyl methylcellulose, hydroxypropyl methylcellulose, poly(ethylene glycol) methacrylates with 2 to 6 ethylene glycol units, polyethyleneglycol-co-polypropylene glycols, compounds of formula (I):

$$HO\text{-}[\text{-}CH_2\text{-}CH_2\text{-}O]_x\text{-}[\text{-}CH(CH_3)\text{-}CH_2\text{-}O]_y\text{-}[\text{-}CH_2\text{-}CH_2\text{-}O]_z\text{-}H$$

with y = 3 to 10 and x and z = 1 to 8, whereby y+x+z is from 5 to 18, polyethyleneglycol-co-polypropylene glycol, ethoxylated iso-$C_{13}H_{27}$-alcohols, polyethylene glycol with 4 to 50 ethyleneglycol units, polypropylene glycol with 4 to 30 propyleneglycol units, polyethylene glycol monomethyl, dimethyl, monoethyl and diethyl ether with 4 to 50 ethyleneglycol units, polypropylene glycol monomethyl, dimethyl, monoethyl and diethyl ether with 4 to 50 propyleneglycol units.

15. The process according to one of claims 1 to 14 comprising a further step C) wherein the elastomeric ethylene/α-olefin copolymer particles contained in the aqueous slurry obtained according to step A) are separated to obtain isolated elastomeric ethylene/α-olefin copolymer particles.

16. The process according to one of claims 1 to 15 comprising a further step C) wherein the elastomeric ethylene/α-olefin copolymer particles contained in the aqueous slurry obtained according to step B) are separated to obtain isolated elastomer particles and a further step D) wherein the isolated elastomer particles are dried, preferably to a residual content of volatiles of 7,000 or less.

17. The process according to one of claims 1 to 17 comprising as a further step shaping of the elastomeric ethylene/α-olefin copolymer particles to obtain reshaped elastomer particles or shaped articles.