CLAIMS

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

A) contacting an organic medium comprising

i) at least one elastomer, and

ii) an organic diluent

with an aqueous medium comprising at least one lower critical solution temperature (LCST) compound having a cloud point of 0 to 100°C; and

B) removing at least partially the organic diluent to obtain an aqueous slurry comprising elastomer particles.

2. The process according to claim 1, wherein the LCST compounds are those having a cloud point of 15 to 80°C determined by at least one of the following methods:

DIN EN 1890 of September 2006, method A

DIN EN 1890 of September 2006, method C

DIN EN 1890 of September 2006, method E

DIN EN 1890 of September 2006, method A wherein the amount of compound tested is reduced from 1 g per 100 ml of distilled water to 0.05 g per 100 ml of distilled water

DIN EN 1890 of September 2006, method A wherein the amount of compound tested is reduced from 1 g per 100 ml of distilled water to 0.2 g per 100 ml of distilled water.

3. The process according to claim 1, wherein the elastomers include butyl rubbers and halogenated butyl rubbers, polyisobutylene, ethylene propylene diene M-class rubbers (EPDM), nitrile butadiene rubbers (NBR), hydrogenated nitrile butadiene rubbers (HNBR) and styrene-butadiene rubbers (SBR).

4. The process according to claim 1, wherein the organic medium is obtained from a polymerization reaction or a post-polymerization reaction.

5. The process according to claim 1, wherein the aqueous medium comprises 0 to 5,000 ppm of salts of mono or multivalent metal ions calculated on their metal

content and with respect to the amount of elastomer present in the organic medium.

6. The process according to claim 1, wherein the aqueous phase comprises 1 to 2,000 ppm of antioxidants calculated with respect to the amount of elastomer present in the organic medium.

7. The process according to claim 1, wherein the weight average molecular weight of the elastomer is 10 to 2,000 kg/mol.

8. The process according to claim 1, wherein a polydispersity of the elastomers is 1.5 to 4.5 as measured by the ratio of weight average molecular weight to number average molecular weight as determined by gel permeation chromatography.

9. The process according to claim 1, wherein the elastomer has a Mooney viscosity of at least 10 (ML 1+8 at 125°C, ASTM D 1646).

10. The process according to claim 1, wherein the organic medium is obtained by a process comprising polymerizing at least one polymerizable monomer in the presence of an organic diluent and an initiator system or catalyst to form an organic medium comprising the elastomer, the organic diluent and optionally residual monomers.

11. The process according to claim 1, wherein the organic medium is obtained by a process comprising polymerizing monomers comprising at least one isoolefin monomer and at least one multiolefin monomer in the presence of an organic diluent and an initiator system to form an organic medium comprising the elastomer, the organic diluent, and optionally residual monomers.

12. The process according to claim 11, wherein the at least one isoolefin is selected from the group consisting of isoolefin monomers having 4 to 16 carbon atoms.

13. The process according to claim 11, wherein the at least one multiolefin is selected from the group consisting of isoprene, butadiene, 2-methylbutadiene, 2,4-dimethylbutadiene, piperyline, 3-methyl-1,3-pentadiene, 2,4-hexadiene, 2-

neopentylbutadiene, 2-methyl-1,5-hexadiene, 2,5-dimethyl-2,4-hexadiene, 2-methyl-1,4-pentadiene, 4-butyl-1,3-pentadiene, 2,3-dimethyl-1,3-pentadiene, 2,3-dibutyl-1,3-pentadiene, 2-ethyl-1,3-pentadiene, 2-ethyl-1,3-butadiene, 2-methyl-1,6-heptadiene, cyclopentadiene, methylcyclopentadiene, cyclohexadiene and 1-vinyl-cyclohexadiene.

14. The process according to claim 11, wherein the polymerization is carried out either as slurry polymerization or solution polymerization.

15. The process according to claim 11, wherein the polymerization is carried out batchwise or continuously.

16. The process according to claim 1, 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) glycopolymers, 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, polyethyleneglycols, preferably those with 2 to 6 ethylene glycol units and 2 to 6 polypropylene units, compounds of formula (I)

(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, with 2 to 8 ethylene glycol units and 2 to 8 polypropylene units,
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.

17. The process according to claim 1, wherein the amount of the at least one LCST compound present in the aquous medium is 1 to 20,000 ppm with respect to the amount of elastomer present in the organic medium; and the LCST compounds exhibit a molecular weight of at least 1,500 g/mol.

18. The process according to claim 17, wherein the LCST compounds exhibit a molecular weight of at least 4,000 g/mol and have a cloud point of 20 to 70°C.

19. The process according to claim 1, further comprising C) separating the elastomer particles contained in the aqueous slurry obtained according to step B) to isolate the elastomer particles.

20. The process according to claim 19, further comprising drying the isolated elastomer particles.

21. An aqueous slurry obtained by the process according to claim 1.

22. An elastomer composition comprising:
- I) 96.0 wt. % or more of an elastomer;
- II) 0 to 3.0 wt. % of salts of mono- or multivalent metal ions; and
- III) 1 ppm to 5,000 ppm of at least one LCST compound.

23. The elastomer composition of claim 22, wherein the composition comprises:
- I) 100 parts by weight of the elastomer;
- II) 0.0001 to 0.5 parts by weight of the least one LCST compound;
- III) no or from 0.0001 to 3.0 parts by weight of salts of mono- or multivalent metal ions;
- IV) no or 0.005 to 0.3 parts by weight of antioxidants; and
- V) 0.005 to 1.5 parts by weight of volatiles having a boiling point at standard pressure of 200°C or less.

24. The process according to claim 20, further comprising:
drying the elastomer particles to a residual content of volatiles of 7,000 or less; and
shaping of the dried elastomer particles to obtain reshaped elastomer particles.