Claims:

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

   A) contacting an organic medium comprising

      i) at least one halogenated elastomer and

      ii) an organic diluent

      with an aqueous medium comprising at least one LCST compound having a cloud point of 0 to 100°C, preferably 5 to 100°C, more preferably 15 to 80°C and even more preferably 20 to 70°C and

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

2. The process according to claim 1, wherein LCST compounds are those having a cloud point of 0 to 100°C, preferably 5 to 100°C, more preferably 15 to 80°C and even more preferably 20 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 1g 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 1g per 100 ml of distilled water to 0.2 g per 100 ml of distilled water.

3. The process according to claim 1, wherein LCST compounds are those having a cloud point of 0 to 100°C, preferably 5 to 100°C, more preferably 15 to 80°C and even more preferably 20 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 E

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

4. The process according to claim 1, wherein LCST compounds are those having a cloud point of 0 to 100°C, preferably 5 to 100°C, more preferably 15 to 80°C and even more preferably 20 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 A wherein the amount of compound tested is reduced from 1g per 100 ml of distilled water to 0.05 g per 100 ml of distilled water.

5. The process according to one of claims 1 to 4, wherein the aqueous medium further contains non-LCST compounds, whereby the non-LCST compounds are

- selected from the group consisting of ionic or non-ionic surfactants, emulsifiers, and antiagglomerants or are in another embodiment
- salts of (mono- or multivalent) metal ions or are in another embodiment
- carboxylic acid salts of multivalent metal ions or are in another embodiment
- stearates or palmitates of mono- or multivalent metal ions.

preferably with respect to the amount of halogenated elastomer present in the organic medium.

6. The process according to one of claims 1 to 5, wherein the aqueous medium comprises 20,000 ppm or less, preferably 10,000 ppm or less, more preferably 8,000 ppm or less, even more preferably 5,000 ppm or less and yet even more preferably 2,000 ppm or less and in another yet even more preferred embodiment 1,000 ppm or less of non-LCST compounds, whereby the non-LCST compounds are selected from the five groups described in claim 5, preferably with respect to the amount of elastomer present in the organic medium.

7. The process according to one of claims 1 to 6, wherein the aqueous medium comprises 500 ppm or less, preferably 100 ppm or less, more preferably 50 ppm or less, even more preferably 30 ppm or less and yet even more

preferably 10 ppm or less and in another yet even more preferred embodiment 1,000 ppm or less of non-LCST compounds, whereby the non-LCST compounds are selected from the five group described in claim 5, preferably with respect to the amount of elastomer present in the organic medium.

8. The process according to one of claims 1 to 7, wherein the aqueous medium comprises of from 0 to 5,000 ppm, preferably of from 0 to 2,000 ppm, more preferably of from 10 to 1,000 ppm, even more preferably of from 50 to 800 ppm and yet even more preferably of from 100 to 600 ppm of salts of mono or multivalent metal ions calculated on their metal content and with respect to the amount of halogenated elastomer present in the organic medium.

9. The process according to one of claims 1 to 8, wherein the aqueous medium comprises of from 0 to 5,000 ppm, preferably of from 0 to 2,000 ppm, more preferably of from 10 to 1,000 ppm, even more preferably of from 50 to 800 ppm and yet even more preferably of from 100 to 600 ppm of salts of multivalent metal ions calculated on their metal content and with respect to the amount of halogenated elastomer present in the organic medium.

10. The process according to one of claims 1 to 9, wherein the weight ratio of salts of stearates, palmitates and oleates of mono- and multivalent metal ionsto the LCST compounds is of from 1:2 to 1:100, preferably 1:2 to 1:10 and more preferably of from 1:5 to 1:10 in the aqueous medium.

11. The process according to one of claims 1 to 10, wherein the aqueous medium comprises 550 ppm or less, preferably 400 ppm or less, more preferably 300 ppm or less, even more preferably 250 ppm or less and yet even more preferably 150 ppm or less and in another yet even more preferred embodiment 100 ppm or less of salts of metal ions calculated on their metal content and with respect to the amount of halogenated elastomer present in the organic medium.

12. The process according to one of claims 1 to 11, wherein the aqueous medium comprises 550 ppm or less, preferably 400 ppm or less, more preferably 300 ppm or less, even more preferably 250 ppm or less and yet even more preferably 150 ppm or less and in another yet even more preferred embodiment 100 ppm or less of salts of multivalent metal ions calculated on their metal content and with respect to the amount of halogenated elastomer present in the organic medium.

13. The process according to one of claims 1 to 12, wherein the aqueous medium comprises 8,000 ppm or less, preferably 5,000 ppm or less, more preferably 2,000 ppm or less, yet even more preferably 1,000 ppm or less, in another embodiment preferably 500 ppm or less, more preferably 100 ppm or less and even more preferably 15 ppm or less and yet even more preferably no or from 1 ppm to 10 ppm of non-ionic surfactants being non-LCST compounds with respect to the amount of halogenated elastomer present in the organic medium.

14. The process according to one of claims 1 to 13, wherein the aqueous medium comprises 70 ppm or less, preferably 50 ppm or less, more preferably 30 ppm or less and even more preferably 20 ppm or less and yet even more preferably 10 ppm or less of salts of multivalent metal ions calculated on their metal content and with respect to the amount of halogenated elastomer present in the organic medium.

15. The process according to one of claims 1 to 14, wherein the aqueous medium comprises 25 ppm or less, preferably 10 ppm or less, more preferably 8 ppm or less and even more preferably 7 ppm or less and yet even more preferably 5 ppm or less of salts of multivalent metal ions calculated on their metal content and with respect to the amount of halogenated elastomer present in the organic medium.

16. The process according to one of claims 1 to 15, wherein the aqueous medium comprises 550 ppm or less, preferably 400 ppm or less, more preferably 300 ppm or less, even more preferably 250 ppm or less and yet even more preferably 150 ppm or less and in another yet even more preferred embodiment 100 ppm or less of carboxylic acid salts of multivalent metal ions calculated on their metal content and with respect to the amount of halogenated elastomer present in the organic medium, whereby the carboxylic acids are selected from those having 6 to 30 carbon atoms, preferably 8 to 24 carbon atoms, more preferably 12 to 18 carbon atoms.

17. The process according to one of claims 1 to 16, wherein the aqueous medium comprises 70 ppm or less, preferably 50 ppm or less, more preferably 30 ppm or less and even more preferably 20 ppm or less and yet even more preferably 10 ppm or less of carboxylic acid salts of multivalent metal ions calculated on their metal content and with respect to the amount of halogenated elastomer

present in the organic medium, whereby the carboxylic acids are selected from those having 6 to 30 carbon atoms, preferably 8 to 24 carbon atoms, more preferably 12 to 18 carbon atoms.

18. The process according to one of claims 1 to 17, wherein the aqueous medium comprises 25 ppm or less, preferably 10 ppm or less, more preferably 8 ppm or less and even more preferably 7 ppm or less and yet even more preferably 5 ppm or less of carboxylic acid salts of multivalent metal ions calculated on their metal content and with respect to the amount of halogenated elastomer present in the organic medium, whereby the carboxylic acids are selected from those having 6 to 30 carbon atoms, preferably 8 to 24 carbon atoms, more preferably 12 to 18 carbon atoms.

19. The process according to one of claims 1 to 18, wherein the aqueous medium one embodiment the aqueous medium is free of carboxylic acid salts of multivalent metal ions whereby the carboxylic acids are selected from those having 6 to 30 carbon atoms, preferably 8 to 24 carbon atoms, more preferably 12 to 18 carbon atoms.

20. The process according to one of claims 1 to 19, wherein the aqueous medium comprises 100 ppm or less, preferably 50 ppm or less, more preferably 20 ppm or less and even more preferably 15 ppm or less and yet even more preferably 10 ppm or less of salts of monovalent metal ions calculated on their metal content and with respect to the amount of halogenated elastomer present in the organic medium.

21. The process according to one of claims 1 to 20, wherein the aqueous medium comprises additionally 100 ppm or less, preferably 50 ppm or less, more preferably 30 ppm or less, even more preferably 20 ppm or less and yet even more preferably 10 ppm or less and in another yet even more preferred embodiment 5 ppm or less of carboxylic acid salts of monovalent metal ions such as sodium stearate, sodium palmitate and sodium oleate and potassium stearate, potassium palmitate and potassium oleate calculated on their metal content and with respect to the amount of halogenated elastomer present in the organic medium, whereby the carboxylic acids are selected from those having 6 to 30 carbon atoms, preferably 8 to 24 carbon atoms, more preferably 12 to 18 carbon atoms.

22. The process according to one of claims 1 to 21, wherein the aqueous medium is free of carboxylic acid salts of monovalent metal ions whereby the carboxylic acids are selected from those having 6 to 30 carbon atoms, preferably 8 to 24 carbon atoms, more preferably 12 to 18 carbon atoms.

23. The process according to one of claims 16 to 22, wherein the carboxylic acids are selected from monocarboxylic acids, preferably saturated monocarboxylic acids, more preferably palmitic or stearic acid.

24. The process according to one of claims 1 to 23, wherein the aqueous medium comprises of from 0 to 5,000 ppm, preferably of from 0 to 2,000 ppm, more preferably of from 10 to 1,000 ppm, even more preferably of from 50 to 800 ppm and yet even more preferably of from 100 to 600 ppm of

- carbonates of multivalent metal ions calculated on their metal content and with respect to the amount of halogenated elastomer present in the organic medium.

25. The process according to one of claims 1 to 24, wherein the aqueous medium comprises 550 ppm or less, preferably 400 ppm or less, more preferably 300 ppm or less, even more preferably 250 ppm or less and yet even more preferably 150 ppm or less and in another yet even more preferred embodiment 100 ppm or less of

- carbonates of multivalent metal ions calculated on their metal content and with respect to the amount of halogenated elastomer present in the organic medium.

26. The process according to one of claims 1 to 25, wherein the aqueous medium comprises 70 ppm or less, preferably 50 ppm or less, more preferably 30 ppm or less and even more preferably 20 ppm or less and yet even more preferably 10 ppm or less of

- carbonates of multivalent metal ions calculated on their metal content and with respect to the amount of halogenated elastomer present in the organic medium.

27. The process according to one of claims 1 to 26, wherein the aqueous medium comprises 500 ppm or less, preferably 200 ppm or less, more preferably 100 ppm or less, even more preferably 50 ppm or less and yet even more preferably 20 ppm or less and in another yet even more preferred embodiment

no layered minerals such as talcum calculated with respect to the amount of halogenated elastomer present in the organic medium.

28. The process according to one of claims 1 to 27, wherein the aqueous medium comprises 500 ppm or less, preferably 200 ppm or less, more preferably 100 ppm or less, even more preferably 20 ppm or less and yet even more preferably 10 ppm or less and in another yet even more preferred embodiment 5 ppm or less and yet even more preferably no dispersants, emulsifiers or anti-agglomerants other than LCST compounds.

29. The process according to one of claims 1 to 28, wherein halogenated elastomer particles are discrete particles of any form and consistency, which in a preferred embodiment have a particle size of between 0.05 mm and 25 mm, more preferably between 0.1 and 20 mm.

30. The process according to one of claims 1 to 29, wherein halogenated elastomer particles have a weight average particle size of from 0.3 to 10.0 mm.

31. The process according to one of claims 1 to 30, wherein the aqueous medium comprises of from 1 to 2,000 ppm of antioxidants, preferably of from 50 to 1,000 ppm more preferably of from 80 to 500 ppm calculated with respect to the amount of halogenated elastomer present in the organic medium.

32. The process according to one of claims 1 to 31, wherein the weight average molecular weight of the halogenated elastomer is in the range of from 10 to 2,000 kg/mol, preferably in the range of from 20 to 1,000 kg/mol, more preferably in the range of from 50 to 1,000 kg/mol, even more preferably in the range of from 200 to 800 kg/mol, yet more preferably in the range of from 375 to 550 kg/mol, and most preferably in the range of from 400 to 500 kg/mol.

33. The process according to one of claims 1 to 32, wherein the halogenated elastomer has a polydispersity in the range of 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.

34. The process according to one of claims 1 to 33, wherein the halogenated elastomer has a Mooney viscosity of at least 10 (ML 1 + 8 at 125℃, ASTM D 1646), preferably of from 10 to 80, more preferably of from 20 to 80 and even more preferably of from 25 to 60 (ML 1 + 8 at 125℃ , ASTM D 1646).

35. The process according to one of claims 1 to 34, wherein the organic medium is obtained by a process comprising at least the step of:

i) halogenating an elastomer using a halogenating agent in a organic diluent to obtain an organic medium comprising the halogenated elastomer and the organic diluent and optionally

ii) washing the organic medium comprising the halogenated elastomer with a basic aqueous phase and separating the resulting aqueous phase from the organic medium.

36. The process according to one of claims 1 to 35, wherein the halogenated elastomer is obtained by halogenating an elastomer comprising repeating units derived from at least one isoolefin and repeating units of at least one multiolefin.

37. The process according to one of claim 36, wherein the at least one isoolefin is selected from the the group consisting of isoolefin monomers having from 4 to 16 carbon atoms, preferably 4 to 7 carbon atoms, more preferably isobutene, 2-methyl-1-butene, 3-methyl-1-butene, 2-methyl-2-butene.

38. The process according to claim 37, wherein the isoolefin is isobutene.

39. The process according to one of claims 37 to 38, wherein the at least one multiolefin is selected from the 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.

40. The process according to one of claims 37 to 39, wherein the multiolefin is isoprene.

41. The process according to one of claims 37 to 40, wherein the monomers are isobutylene and isoprene.

42. The process according to one of claims 37 to 41, wherein at least one further monomers is selected from the group consisting of β-pinene, styrene, divinylbenzene, diisopropenylbenzene o-, m- and p-alkylstyrenes such as o-, m- and p-methyl-styrene.

43. The process according to one of claims 37 to 42, wherein the multiolefin content of elastomers is 0.1 mol-% or more, preferably of from 0.1 mol-% to 15 mol-%, in another embodiment 0.5 mol-% or more, preferably of from 0.5 mol-% to 10 mol-%, in another embodiment 0.7 mol-% or more, preferably of from 0.7 to 8.5 mol-% in particular of from 0.8 to 1.5 or from 1.5 to 2.5 mol-% or of from 2.5 to 4.5 mol-% or from 4.5 to 8.5 mol-%, particularly where isobutene and isoprene are employed.

44. The process according to one of claims 37 to 43, wherein the amount of halogenating agent is in the range of from about 0.1 to about 20 %, preferably in the range of 0.1 to 8%, even more preferably from about 0.5% to about 4%, yet even more preferably from about 0.8% to about 3%, even still more preferably from about 1.5% to about 2.5% and most preferably even more preferably from 1.5 to 2.5% by weight of the elastomer employed.

45. The process according to one of claims 37 to 44, wherein the quantity of halogenating agent is 0.2 to 1.2 times the molar quantity of double bonds contained in the elastomer, preferably 0.8 to 1.2 times the molar quantity.

46. The process according to one of claims 37 to 45, wherein the halogenating agent comprises elemental bromine (Br_2),elemental chlorine (Cl_2) interhalogens such as bromine chloride (BrCl) and/or organo-halide precursors thereto, for example dibromo-dimethyl hydantoin, N-bromosuccinimide, elemental bromine and elemental chlorine being preferred.

47. The process according to one of claims 37 to 46, wherein the halogenation is operated at a temperature of from 10℃ to 90℃, pre ferably from 20℃ to 80℃.

48. The process according to one of claims 37 to 47, wherein the organic diluent include hydrocarbons, preferably alkanes which in a further preferred embodiment include propane, isobutane, pentane, methycyclopentane, isohexane, 2-methylpentane, 3-methylpentane, 2-methylbutane, 2,2-dimethylbutane, 2,3-dimethylbutane, 2-methylhexane, 3-methylhexane, 3-ethylpentane, 2,2-dimethylpentane, 2,3-dimethylpentane, 2,4-dimethylpentane, 3,3-dimethyl pentane, 2-methylheptane, 3-ethylhexane, 2,5-dimethylhexane, 2,2,4,-trimethylpentane, octane, heptane, butane, ethane, methane, nonane, decane, dodecane, undecane, hexane, methyl cyclohexane, cyclopropane, cyclobutane, cyclopentane, methylcyclopentane, 1,1-dimethylcycopentane, cis-1,2-dimethylcyclopentane, trans-1,2-dimethylcyclopentane, trans-1,3-dimethyl-

cyclopentane, ethylcyclopentane, cyclohexane, methylcyclohexane or hydrochlorocarbons, preferably halogenated alkanes such as dichloromethane or mixtures of hydrochlorocarbons and hydrocarbons.

49. The process according to one of claims 37 to 48, wherein the concentration of halogenated elastomer within the organic medium is for example of from 0.5 to 40 wt.-%, preferably of from 1 to 30 wt.-%, more preferably of from 5 to 25 wt.-%.

50. The process according to one of claims 1 to 49, wherein the temperature in step A) is from 10 to 100℃, preferably from 50 to 100℃, more preferably from 60 to 95℃ and even more preferably from 75 to 95℃ .

51. The process according to one of claims 1 to 50, 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, polyethyleneglycol-co-polypropylene glycols, 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, polyethyleneglycol-co-polypropylene glycol, preferably those with 2 to 8 ethylene glycol units and 2 to 8 polypropylene units, ethoxylated iso-$C_{13}H_{27}$-alcohols, preferably with an ethoxylation degree of 4 to 8, polyethylene glycol with 4 to 50, preferably 4 to 20 ethyleneglycol units, polypropylene glycol with 4 to 30, preferably 4 to 15 propyleneglycol units, polyethylene glycol monomethyl, dimethyl, monoethyl and diethyl ether with 4 to 50, preferably 4 to 20 ethyleneglycol units, polypropylene glycol monomethyl, dimethyl, monoethyl and diethyl ether with 4 to 50, preferably 4 to 20 propyleneglycol units, or in another embodiment additionally also hydroxyethyl cellulose, whereby methyl

cellulose, hydroxypropyl cellulose, hydroxyethyl methylcellulose and hydroxypropyl methylcellulose are preferred.

52. The process according to one of claims 1 to 51, wherein the amount of LCST compound(s) present in the aquous medium employed in step A) is of from 1 to 20,000 ppm, preferably 3 to 10,000 ppm, more preferably 5 to 5,000 ppm and even more preferably 10 to 5,000 ppm with respect to the amount of halogenated elastomer present in the organic medium.

53. The process according to one of claims 1 to 52, wherein the amount of LCST compound(s) present in the aquous medium employed in step A) is of from 1 to 5,000 ppm, preferably 3 to 1,000 ppm, more preferably 5 to 500 ppm and even more preferably 5 to 100 ppm with respect to the amount of halogenated elastomer present in the organic medium.

54. The process according to one of claims 1 to 53, wherein the LCST compounds exhibit a molecular weight of at least 1,500 g/mol, preferably at least 2,500 g/mol and more preferably at least 4,000 g/mol.

55. The process according to one of claims 1 to 54, comprising a further step C) wherein the halogenated elastomer particles contained in the aqueous slurry obtained according to step B) are separated to obtain isolated halogenated elastomer particles.

56. The process according to one of claims 1 to 55, comprising further step C) wherein the halogenated elastomer particles contained in the aqueous slurry obtained according to step B) are separated to obtain isolated halogenated elastomer particles and further step e) wherein the (isolated) halogenated elastomer particles are dried, preferably to a residual content of volatiles of 7,000 or less, preferably 5,000 or less, even more preferably 4,000 or less and in onother embodiment 2,000 ppm or less, preferably 1,000 ppm or less.

57. The process according to one of claims 1 to 56, comprising as a further step D) shaping of the halogenated elastomer particles to obtain halogenated elastomer products such as pellets or shaped articles such as bales.

58. Aqueous slurry obtainable according to a process according to claims 1 to 54.

59. Halogenated elastomer particles obtainable according to a process according to claims 55 or 56.

60. Halogenated elastomer products obtainable according to a process according to claim 57.

61. Halogenated elastomer products or halogenated elastomer particles comprising

I) 96.0 wt.-% or more, preferably 97.0 wt.-% or more, more preferably, 98.0 wt.-% or more even more preferably 99.0 wt.-% or more, yet even more preferably 99.2 wt.-% or more and in another embodiment 99.5 wt.-% or more of a halogenated elastomer

II) 0 to 3.0 wt.-%, preferably 0 to 2.5 wt.-%, more preferably 0 to 1.0 wt.-% and more preferably 0 to 0,40 wt.-% of salts of mono- or multivalent metal ions, prefably stearates and palmitates of multivalent metal ions and

III) 1 ppm to 5,000 ppm, preferably from 1 ppm to 2,000 ppm and in a more preferred embodiment from 5 to 1,000 ppm or from 5 to 500 ppm of at least one LCST compound.

62. Halogenated elastomer products or halogenated elastomer particles comprising

I) 100 parts by weight of a halogenated elastomer (phr)

II) 0.0001 to 0.5, preferably 0.0001 to 0.2, more preferably 0.0005 to 0.1, even more preferably 0.0005 to 0.05 parts by weight (phr) of a least one LCST compound and

III) no or from 0.0001 to 3.0, preferably no or from 0.0001 to 2.0, more preferably no or from 0.0001 to 1.0, even more preferably no or from 0.0001 to 0.5, yet even more preferably no or from 0.0001 to 0.3, and most preferably no or from 0.0001 to 0.2 parts by weight (phr) of salts of mono- or multivalent metal ions, prefably stearates and palmitates of mono- or multivalent metal ions, preferably comprising calcium stearate, calcium palmitate, zinc stearate or zinc palmitate and

IV) no or from 0.005 to 0.3, preferably 0.05 to 0.1, more preferably from 0.008 to 0.05 and yet more preferably from 0.03 to 0.07 parts by weight (phr) of antioxidants

V) from 0.005 to 1.5, preferably 0.05 to 1.0, more preferably 0.005 to 0.5, even more preferably from 0.01 to 0.3 and yet more preferably from

0.05 to 0.2 parts by weight of volatiles having a boiling point at standard pressure of 200℃ or less.

63. Halogenated elastomer products or halogenated elastomer particles according to claim 62 wherein the components I) to V) add up to 100.00501 to 104.100000 parts by weight, preferably from 100.01 to 103.00 parts by weight, more preferably from 100.10 to 101.50 parts by weight, even more preferably from 100.10 to 100.80 parts by weight and together represent 99.50 to 100.00 wt.-% or, in another embodiment, 99.80 to 100.00 wt.-%, preferably 99.90 to 100.00 wt.-%, more preferably 99.95 to 100.00 wt.-% and yet even more preferably 99.97 to 100.00 wt.-% of the total weight of the halogenated elastomer particles or halogenated elastomer product.

64. Halogenated elastomer products or halogenated elastomer particles according to claim 62 further comprising

VI) from 0.05 to 2.5, preferably from 0.20 to 1.50, more preferably from 0.50 to 1.50 parts by weight and even more preferably 0.75 to 1.50 parts by weight of stabilizers, preferably epoxidized compounds, preferably epoxidized unsaturated oils such as epoxidized linseed oil or epoxidized soybean oil, whereby the latter is preferred.

65. Halogenated elastomer products or halogenated elastomer particles according to claim 64, wherein the components I) to VI) add up to 100.05501 to 106.600000 parts by weight, preferably from 100.21 to 104.50 parts by weight, more preferably from 100.60 to 103.00 parts by weight, even more preferably from 100.85 to 102.30 parts by weightand together represent 99.50 to 100.00 wt.-% or, in another embodiment, 99.80 to 100.00 wt.-%, preferably 99.90 to 100.00 wt.-%, more preferably 99.95 to 100.00 wt.-% and yet even more preferably 99.97 to 100.00 wt.-% of the total weight of the halogenated elastomer particles or halogenated elastomer product.

66. Halogenated elastomer products or halogenated elastomer particles according to claims 59 to 65 having an ash content measured according to ASTM D5667 of 0.25 wt.-% or less, preferably 0.15 wt.-% or less, more preferably 0.10 wt.-% or less and even more preferably 0.05 wt.-% or less.

67. Halogenated elastomer products or halogenated elastomer particles according to one of claims 59 to 66, whereby the halogenated elastomers comprise repeating units derived from at least one isoolefin and at least one multiolefin.

68. Halogenated elastomer products or halogenated elastomer particles according to one of claims 59 to 67, whereby the halogenated elastomers comprise repeating units derived from at least one isoolefin and at least one multiolefin whereby the repeating units derived from the multiolefin are at least partially halogenated.

69. Halogenated elastomer products or halogenated elastomer particles according to one of claims 59 to 68, whereby the halogenated elastomers consist of repeating units derived from isobutylene and isoprene whereby the repeating units derived from isoprene are at least partially halogenated.

70. Halogenated elastomer products or halogenated elastomer particles according to one of claims 59 to 69, whereby the halogenated elastomers have a multiolefin content of 0.1 mol-% or more, preferably of from 0.1 mol-% to 15 mol-%, in another embodiment 0.5 mol-% or more, preferably of from 0.5 mol-% to 10 mol-%, in another embodiment 0.7 mol-% or more, preferably of from 0.7 to 8.5 mol-% in particular of from 0.8 to 1.5 or from 1.5 to 2.5 mol-% or of from 2.5 to 4.5 mol-% or from 4.5 to 8.5 mol-%, particularly where isobutene and isoprene are employed.

71. Halogenated elastomer products or halogenated elastomer particles according to one of claims 59 to 70, wherein the weight average molecular weight of the halogenated elastomer is in the range of from 10 to 2,000 kg/mol, preferably in the range of from 20 to 1,000 kg/mol, more preferably in the range of from 50 to 1,000 kg/mol, even more preferably in the range of from 200 to 800 kg/mol, yet more preferably in the range of from 375 to 550 kg/mol, and most preferably in the range of from 400 to 500 kg/mol.

72. Halogenated elastomer products or halogenated elastomer particles according to one of claims 59 to 71, wherein the polydispersity of the halogenated elastomers is in the range of 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.

73. Halogenated elastomer products or halogenated elastomer particles according to one of claims 59 to 72, wherein the halogenated elastomer has a Mooney viscosity of at least 10 (ML 1 + 8 at 125°C, ASTM D 1646), preferably of from 10 to 80, more preferably of from 20 to 80 and even more preferably of from 25 to 60 (ML 1 + 8 at 125°C, ASTM D 1646).

74. Halogenated elastomer particles or the halogenated elastomer products comprising

I) 96.0 wt.-% or more, preferably 97.0 wt.-% or more, more preferably, 98.0 wt.-% or more even more preferably 99.0 wt.-% or more, yet even more preferably 99.2 wt.-% or more and in another embodiment 99.5 wt.-% or more of a halogenated elastomer and

II) 1 ppm to 5,000 ppm, preferably from 1 ppm to 2,000 ppm and in a more preferred embodiment from 5 to 1,000 ppm or from 5 to 500 ppm of at least one LCST compound,

whereby the halogenated elastomer particles or the halogenated elastomer products further have an ash content measured according to ASTM D5667 of 0.25 wt.-% or less, preferably 0.15 wt.-% or less, more preferably 0.10 wt.-% or less and even more preferably 0.05 wt.-% or less.

75. Halogenated elastomer particles or the halogenated elastomer products comprising

I) 100 parts by weight of a halogenated elastomer (phr)

II) 0.0001 to 0.5, preferably 0.0001 to 0.2, more preferably 0.0005 to 0.1, even more preferably 0.0005 to 0.05 parts by weight (phr) of a least one LCST compound and

III) no or from 0.005 to 0.3, preferably 0.005 to 0.1, more preferably from 0.008 to 0.05, even more preferably from 0.03 to 0.07 parts by weight (phr) of antioxidants

IV) from 0.005 to 1.5, preferably 0.05 to 1.0, more preferably 0.005 to 0.5, even more preferably from 0.01 to 0.3 and yet more preferably from

0.05 to 0.2 parts by weight (phr) of volatiles having a boiling point at standard pressure of 200℃ or less

whereby the halogenated elastomer particles or halogenated elastomer products further have an ash content measured according to ASTM D5667 of 0.25 wt.-% or less, preferably 0.15 wt.-% or less, more preferably 0.10 wt.-% or less and even more preferably 0.05 wt.-% or less.

76. Halogenated elastomer particles or halogenated elastomer products according to claim 75 further comprising

V) from 0.05 to 2.5, preferably from 0.20 to 1.50, more preferably from 0.50 to 1.50 parts by weight and even more preferably 0.75 to 1.50 parts by weight of stabilizers, preferably epoxidized compounds, preferably epoxidized unsaturated oils such as epoxidized linseed oil or epoxidized soybean oil, whereby the latter is preferred.

77. Halogenated elastomer particles or halogenated elastomer products according to claim 75 whereby components I) to IV) add up to 100.00501 to 102.300000 parts by weight and together represent 99.00 to 100.00 wt.-% or, in another embodiment, 99.50 to 100.00 wt.-%, preferably 99.70 to 100.00 wt.-% of the total weight of the halogenated elastomer particles or halogenated elastomer product.

78. Halogenated elastomer particles or halogenated elastomer products according to claim 76 whereby components I) to V) add up to 100.05501 to 105.800000 parts by weight and together represent 99.00 to 100.00 wt.-% or, in another embodiment, 99.50 to 100.00 wt.-%, preferably 99.70 to 100.00 wt.-% of the total weight of the halogenated elastomer particles or halogenated elastomer product.

79. Halogenated elastomer products according to one of claims 59 to 78, whereby they are or form a pellet or a shaped article, preferably a bale.

80. Shaped article, in particular a pellet or bale obtainable by shaping halogenated elastomer products or halogenated elastomer particles according to one of claims 59 to 79.

81. Blends or compounds obtainable by blending or compounding the halogenated elastomer particles or halogenated elastomer products according to claims 59 to 79.

82. Blends or compounds comprising halogenated elastomer products or halogenated elastomer particles according to claim 59 to 79, whereby the blends comprise a ratio of halogenated elastomer to carboxylic acid salts of mono- and multivalent metal ions of at least 250:1, preferably at least 500:1, more preferably at least 1000:1 any yet even more preferably at least 2000:1.

83. Use of the halogenated elastomer particles or halogenated elastomer products according to claims 59 to 80 or the blends and compounds of claims 81 and 82 for innerliners, bladders, tubes, air cushions, pneumatic springs, air bellows, accumulator bags, hoses, conveyor belts and pharmaceutical closures, automobile suspension bumpers, auto exhaust hangers, body mounts, shoe soles, tire sidewalls and tread compounds, belts, hoses, shoe soles, gaskets, o-rings, wires/cables, membranes, rollers, bladders (e.g. curing bladders), inner liners of tires, tire treads, shock absorbers, machinery mountings, balloons, balls, golf balls, protective clothing, medical tubing, storage tank linings, electrical insulation, bearings, pharmaceutical stoppers, adhesives, a container, such as a bottle, tote, storage tank, a container closure or lid; a seal or sealant, such as a gasket or caulking; a material handling apparatus, such as an auger or conveyor belt; a cooling tower; a metal working apparatus, or any apparatus in contact with metal working fluids; an engine component, such as fuel lines, fuel filters, fuel storage tanks, gaskets, seals, etc.; a membrane, for fluid filtration or tank sealing, appliances, baby products, bathroom fixtures, bathroom safety, flooring, food storage, garden, kitchen fixtures, kitchen products, office products, pet products, sealants and grouts, spas, water filtration and storage, equipment, food preparation surfaces and equipments, shopping carts, surface applications, storage containers, footwear, protective wear, sporting gear, carts, dental equipment, door knobs, clothing, telephones, toys, catheterized fluids in hospitals, surfaces of vessels and pipes, coatings, food processing, biomedical devices, filters, additives, computers, ship hulls, shower walls, tubing, pacemakers, implants, wound dressing, medical textiles, ice machines, water coolers, fruit juice dispensers, soft drink machines, piping,

storage vessels, metering systems, valves, fittings, attachments, filter housings, linings, and barrier coatings.

84. Innerliners, bladders, tubes, air cushions, pneumatic springs, air bellows, accumulator bags, hoses, conveyor belts and pharmaceutical closures, automobile suspension bumpers, auto exhaust hangers, body mounts, shoe soles, tire sidewalls and tread compounds, belts, hoses, shoe soles, gaskets, o-rings, wires/cables, membranes, rollers, bladders (e.g. curing bladders), inner liners of tires, tire treads, shock absorbers, machinery mountings, balloons, balls, golf balls, protective clothing, medical tubing, storage tank linings, electrical insulation, bearings, pharmaceutical stoppers, adhesives, a container, such as a bottle, tote, storage tank, a container closure or lid; a seal or sealant, such as a gasket or caulking; a material handling apparatus, such as an auger or conveyor belt; a cooling tower; power belts, a metal working apparatus, or any apparatus in contact with metal working fluids; an engine component, such as fuel lines, fuel filters, fuel storage tanks, gaskets, seals, etc.; a membrane, for fluid filtration or tank sealing, appliances, baby products, bathroom fixtures, bathroom safety, flooring, food storage, garden, kitchen fixtures, kitchen products, office products, pet products, sealants and grouts, spas, water filtration and storage, equipment, food preparation surfaces and equipments, shopping carts, surface applications, storage containers, footwear, protective wear, sporting gear, carts, dental equipment, door knobs, clothing, telephones, toys, catheterized fluids in hospitals, surfaces of vessels and pipes, coatings, food processing, biomedical devices, filters, additives, computers, ship hulls, shower walls, tubing, pacemakers, implants, wound dressing, medical textiles, ice machines, water coolers, fruit juice dispensers, soft drink machines, piping, storage vessels, metering systems, valves, fittings, attachments, filter housings, linings, and barrier coatings made from or comprising halogenated elastomer particles or halogenated elastomer products according to claims 59 to 80 or the blends and compounds of claims 81 and 82.

85. Use of sulfur-based curing system, resin cure systems and peroxide based curing systems for curing blends or compounds according to claims 81 and 82.