We Claims

1. A process for polymerizing fluoromonomer to fluoropolymer and/or fluoroelastomer in an aqueous dispersion medium in presence of a surfactant;

   wherein the fluoromonomer consists of tetrafluoroethylene, hexafluoropropylene, chlorotrifluoroethylene, vinylidene fluoride, vinyl fluoride or combinations thereof;

   wherein the surfactant is a non fluorinated, hydrocarbon containing sulfonate type surfactant represented by formula (1)

   $$R_l - [Ar_2X] - (SO_3^-M^+)_m \qquad (1)$$

   with:

   R being an alkyl group consisting of a number of 2 to 20 carbon atoms;

   l being no. of alkyl groups which varies from an integer from 1 to 2;

   Ar being an aryl group;

   X being a bridging between aryl groups Ar, wherein the bridging is CH_2 or linkage by either an ether or an amine function or $N(C_2H_4)_2(C_2H_5)$ or carbonyl group (C=O);

   M^+ being a monovalent cation consisting of hydrogen, an alkali metal, NH_4^+ or combinations thereof; and

   m being an integer ranging from 1 to 2.

2. A process as claimed in claim 1, wherein the non-fluorinated, hydrocarbon containing, sulfonate type surfactant consists of 18 to 33 carbon atoms.

3. A process as claimed in in any of the claims 1 to 2, wherein the fluoropolymer and/or fluoroelastomer has a molecular weight ranging from 1×10^3 to 9×10^8 g/mol.

4. A process as claimed in in any of the claims 1 to 3, wherein the process is devoid of passivating the surfactant.

5. A process for preparing a fluoropolymer and/or fluoroelastomer in an aqueous dispersion medium as claimed in claim 1 to 4, comprising of:

(a) forming an aqueous solution comprising surfactant in a polymerization reactor;

(b) pressurizing the polymerization reactor with fluoromonomers to form an aqueous dispersion

(c) initiating a polymerization reaction of the fluoromonomers by adding an initiator into the polymerization reactor;

(d) propagation of polymerization reaction for growing of chain length of the fluoropolymer and/or fluoroelastomer; and

(e) termination of the polymerization reaction after consumption of desired quantity of fluoromonomers.

6. The process as claimed in claim 5, wherein the surfactant is added in one shot into the polymerization reactor

7. A process as claimed in claim 5, wherein the surfactant is metered into the polymerization reactor during the polymerization reaction at a pre-determined rate.

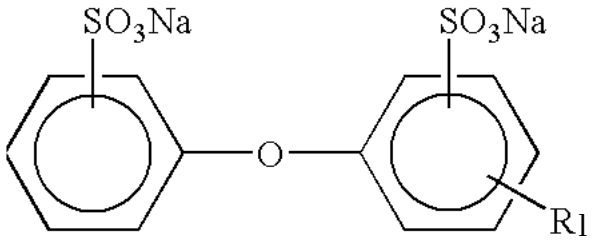
8. The process as claimed in claim 7, wherein the surfactant is metered at a rate of 0.008 g/(L*h) to 0.6 g/(L*h).

9. The process as claimed in any of the claims 5 to 8, wherein the initiator for initiating the polymerization reaction is selected from Disuccinic Acid Peroxide (DSAP), Ammonium Persulfate (APS), redox initiators and combinations thereof.

10. The process as claimed in any of the claims 1 to 9, wherein the surfactant is added in a concentration ranging between 40 and 3900 ppm based on weight of the aqueous dispersion.

11. The process as claimed in any of the claims 1 to 10, wherein the aqueous dispersion contains a solid content ranging from 10 to 65% after completion of the process and wherein aqueous dispersion comprises a stabilizing agent, in particular paraffin wax.

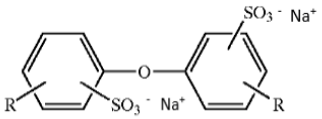
12. The process as claimed in any of the claims 1 to 11, wherein the surfactant is represented by formula (2):



Formula (2)

wherein R is an alkyl group consisting of a number of 2 to 20 carbon atoms ; l being no. of alkyl groups which varies from an integer from 1 to 2;

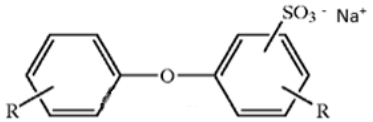
13. The process as claimed in any of the claims 1 to 11, wherein the surfactant is represented by formula (4):



Formula (4)

Wherein R being an alkyl group consisting of a number of 2 to 20 carbon atoms.

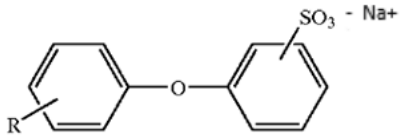
14. The process as claimed in any of the claims 1 to 11, wherein the surfactant is represented by formula (5):



Formula (5)

Wherein R being an alkyl group consisting of a number of 2 to 20 carbon atoms.

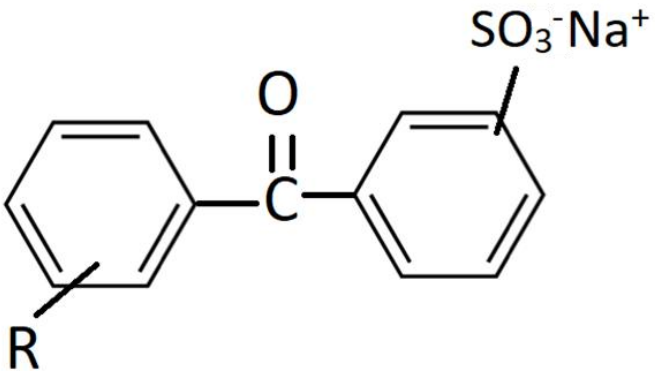
15. The process as claimed in any of the claims 1 to 11, wherein the surfactant is represented by formula (6):



Formula (6)

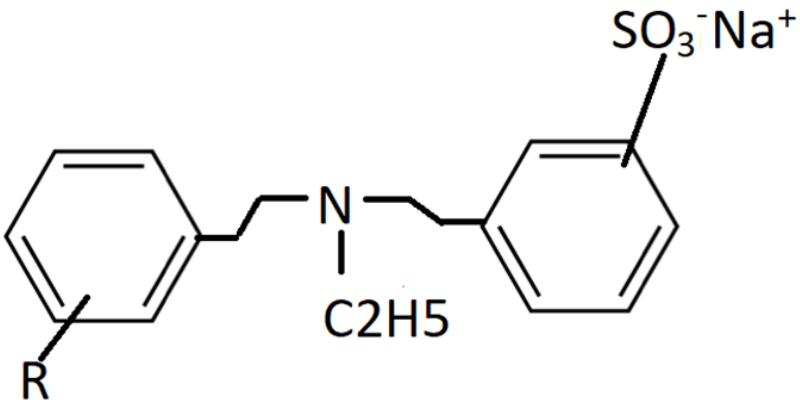
Wherein R being an alkyl group consisting of a number of 2 to 20 carbon atoms.

16. The process as claimed in any of the claims 1 to 11, wherein the surfactant is represented by formula (7):



Wherein R being an alkyl group consisting of a number of 2 to 20 carbon atoms.

17. The process as claimed in any of the claims 1 to 11, wherein the surfactant is represented by formula (8)



Formula (8)

Wherein R being an alkyl group consisting of a number of 2 to 20 carbon atoms.