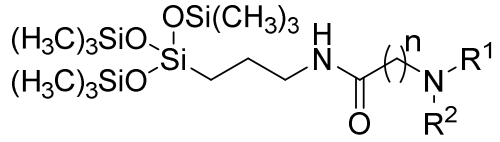
CLAIMS

1. A formulation for cleaning, comprising: at least one surfactant of Formula I,



Formula I

wherein R^1 and R^2 may be the same or different, and comprise at least one group selected from the group consisting of C_1-C_6 alkyl, optionally the C_1-C_6 alkyl may include one or more of oxygen, nitrogen, or sulfur atoms or groups that include at least one of these atoms, and the alkyl chain may be optionally substituted with one or more substituents selected from the group consisting of hydroxyl, amino, amido, sulfonyl, sulfonate, carbonyl, carboxyl, and carboxylate;

n is an integer from 1 to 12;

the terminal nitrogen is optionally further substituted with R^3, wherein R^3 is selected from the group consisting of hydrogen, oxygen, hydroxyl, and C_1-C_6 alkyl;

an optional counterion associated with the compound which, if present, is selected from the group consisting of chloride, bromide, and iodide;

at least one detergent or at least one soap; and

at least one enzyme.

2. The formulation according to claim 1, wherein the at least one detergent or soap is selected from the group consisting of: anionic detergents, cationic detergents, non-ionic detergents, and zwitterionic detergents.

3. The formulation according to claim 1 or claim 2, wherein the soap is of the general formula:

$$(RCO_2^-)_n\ M^{n+}$$

wherein R includes an alkyl group, M is a metal, and $^{n+}$ is either +1 or +2.

4. The formulation of any one of claims 1 to 3, further comprising: at least one builder, optionally wherein the at least one builder is at least one compound selected from the group consisting of: tripolyphosphates, nitriloacetic acid salts, zeolites, calcite/carbonate, citrate or polymers, sodium, pyrophosphate, orthophosphate, sodium aluminosilicate, inorganic salts of alkaline agents, inorganic salts of alkali metals, sulphates, silicates, and metasilicates.

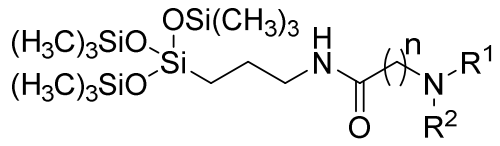
5. The formulation according to any one of claims 1 to 4, further comprising: at least one bleach, optionally wherein the at least one bleach at is at least one compound selected from the group consisting of: metal borates, persalts, peroxyacids, percarbonates, perphophates, persilicates, persulfates, sodium hypochlorite, chlorine dioxide, hydrogen peroxide, sodium percarbonate, sodium perborate, peroxoacetic acid, benzol peroxide, potassium persulfate, potassium permanganate, sodium dithionite.

6. The formulation according to any one of claims 1 to 5, where the at least one enzyme is selected from the group consisting of: proteases, amylases, cellulases, oxidases, mannanases, peroxidases and lipases.

7. The formulation according to any one of claims 1 to 6, further comprising at least one polymer, optionally wherein the at least one polymer is at least one compound selected from the group consisting of: polymers of methacrylamide; polymers of ethylenically unsaturated monomer: N, N-dialkylaminoalkyl methacrylate, N, N-di alkylaminoalkyl acrylate, N, N-dialkylaminoalkyl acrylamide, N, N – dialkylaminoalkylmethacrylamide, methacylamidoalkyl trialkylammonium salts, acrylamidoalkylltrialkylamminium salts, vinylamine, vinyl imidazole, quaternized vinyl imidazole and diallyl dialkyl ammonium salts, polymers of: diallyl dimethyl ammonium salt, N,N-dimethyl aminoethyl acrylate, N,N-dimethyl amino ethyl methacrylate, [2-(methacryloylamino) ethyl] trimethylammonium salt, N,N-dimethylaminopropyl acrylamide, N,N-

dimethylaminopropyl methacrylamide, acrylamidopropyl trimethyl ammonium salts, methacrylamidopropyl trimethylammonium salts, and quaternized vinylimidazole.

8. A dry cleaning formulation, comprising: at least one surfactant of Formula I,



Formula I

wherein R^1 and R^2 may be the same or different, and comprise at least one group selected from the group consisting of C_1-C_6 alkyl, optionally the C_1-C_6 alkyl may include one or more of oxygen, nitrogen, or sulfur atoms or groups that include at least one of these atoms, and the alkyl chain may be optionally substituted with one or more substituents selected from the group consisting of hydroxyl, amino, amido, sulfonyl, sulfonate, carbonyl, carboxyl, and carboxylate;

n is an integer from 1 to 12;

the terminal nitrogen is optionally further substituted with R^3, wherein R^3 is selected from the group consisting of hydrogen, oxygen, hydroxyl, and C_1-C_6 alkyl;

an optional counterion associated with the compound which, if present, is selected from the group consisting of chloride, bromide, and iodide;

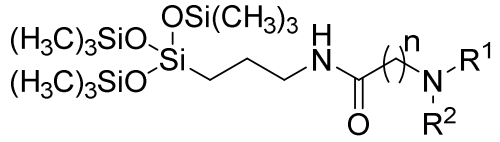
at least one solvent.

9. The dry cleaning formulation according to claim 8, wherein the at least one solvent is at least one compound selected from the group consisting of: perchloroethylene, hydrocarbons, trichloroethylene, decamethylcyclopentasiloxane, dibutoxymethane, n-propyl bromide.

10. The dry cleaning formulation, according to claim 8 or claim 9, further comprising at least one co-solvent, optionally wherein the at least one co-solvent is at least one compound selected from the group consisting of: alcohols, ethers, glycol ethers, alkanes, alkenes, linear and cyclic amides,

perfluorinated tertiary amines, perfluoroethers, cycloalkanes, esters, ketones, aromatics, methanol, ethanol, isopropanol, t-butyl alcohol, trifluoroethanol, pentafluoropropanol, hexafluoro-2-propanol, methyl t-butyl ether, methyl t-amyl ether, propylene glycol n-propyl ether, propylene glycol n-butyl ether, dipropylene glycol n-butyl ether, propylene glycol methyl ether, ethylene glycol monobutyl ether, trans-1,2-dichloroethylene, decalin, methyl decanoate, t-butyl acetate, ethyl acetate, glycol methyl ether acetate, ethyl lactate, diethyl phthalate, 2-butanone, N-alkyl pyrrolidone (such as N-methyl pyrrolidone, N-ethyl pyrrolidone), methyl isobutyl ketone, naphthalene, toluene, trifluorotoluene, perfluorohexane, perfluoroheptane, perfluorooctane, perfluorotributylamine, perfluoro-2-butyloxacyclopentane.

11. Use of a formulation as a cleaning composition, the formulation comprising: at least one surfactant of Formula I,



Formula I

wherein R^1 and R^2 may be the same or different, and comprise at least one group selected from the group consisting of C_1-C_6 alkyl, optionally the C_1-C_6 alkyl may include one or more of oxygen, nitrogen, or sulfur atoms or groups that include at least one of these atoms, and the alkyl chain may be optionally substituted with one or more substituents selected from the group consisting of hydroxyl, amino, amido, sulfonyl, sulfonate, carbonyl, carboxyl, and carboxylate;

n is an integer from 1 to 12;

the terminal nitrogen is optionally further substituted with R^3, wherein R^3 is selected from the group consisting of hydrogen, oxygen, hydroxyl, and C_1-C_6 alkyl;

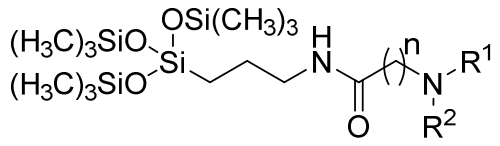
an optional counterion associated with the compound which, if present, is selected from the group consisting of chloride, bromide, and iodide;

at least one detergent or at least one soap; and

at least one enzyme.

12. The use according to claim 11, wherein the formulation is as defined in any one of claims 2 to 7.

13. Use of a formulation as a dry cleaning composition, the formulation comprising:
at least one surfactant of Formula I,



Formula I

wherein R^1 and R^2 may be the same or different, and comprise at least one group selected from the group consisting of C_1-C_6 alkyl, optionally the C_1-C_6 alkyl may include one or more of oxygen, nitrogen, or sulfur atoms or groups that include at least one of these atoms, and the alkyl chain may be optionally substituted with one or more substituents selected from the group consisting of hydroxyl, amino, amido, sulfonyl, sulfonate, carbonyl, carboxyl, and carboxylate;

n is an integer from 1 to 12;

the terminal nitrogen is optionally further substituted with R^3, wherein R^3 is selected from the group consisting of hydrogen, oxygen, hydroxyl, and C_1-C_6 alkyl;

an optional counterion associated with the compound which, if present, is selected from the group consisting of chloride, bromide, and iodide;

at least one solvent.

14. The use according to claim 13, wherein the formulation is as defined in any one of claims 9 or 10.

15. The formulation of any one of claims 1 to 10 or the use of any one of claims 11 to 14, wherein n is 5.