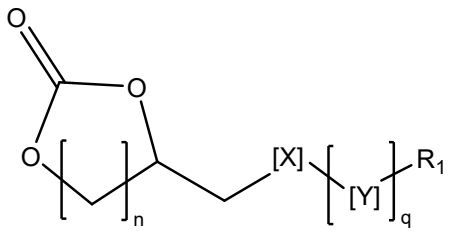
Claims

1. A composition comprising solid particles of an oxide of an element selected from the group consisting of Si, Ti, Fe, Zn and Al, wherein the solid particles each have a surface functionalized with at least one terminal cyclocarbonate group attached to the surface via a linker, wherein the at least one terminal cyclocarbonate group and the linker has the structure set forth in formula (I):



wherein:

n=1 or 2;

[X] is an element selected from the group consisting of O, N and C;

[Y] represents an alkylene group carrying 1-20 C atoms, that can be linear, branched, or cyclic, or connected to a carbonyl or an ether group;

q = 0 or 1;

R_1 is a coupling reactive group serving as a linker selected from silanes, siloxanes, phosphates or carboxylates,

wherein the composition is formulated as a consumer product.

2. The composition of claim 1, wherein n=1, [X] is O, [Y] is propylene, q=1, and R_1 is tri(m)ethoxysilane.

3. The composition according to any of the previous claims, wherein the particle is chosen from the group of silica particles.

4. The composition according to any of the previous claims, wherein the at least one structure set forth in formula (I) is a single structure.

5. The composition according to any of the previous claims, further comprising at least one ingredient selected from the group consisting of a carrier, a perfumery ingredient, a perfumery adjuvant and a mixture thereof.

6. The composition according to any of the previous claims, further comprising a malodor counteracting composition.

7. The composition of claim 6, wherein the malodor counteracting composition comprises at least one ingredient selected from a Group (I) of compounds, at least one ingredient selected from a Group (II) of compounds, and at least one ingredient selected from a Group (III) of compounds, wherein the Groups (I) to (III) compounds are defined as follows:

a) Group (I): aldehydes of formula R^1CHO, wherein R^1 is an aliphatic linear or branched, saturated or unsaturated carbon chain containing from 1 to 12 carbon atoms;

b) Group (II): ketones of formula R^2COR^3, wherein R^2 is an ethyl or methyl group and R^3 is an aliphatic linear or branched, saturated or unsaturated carbon chain containing from 1 to 12 carbon atoms;

c) Group (III): primary alcohols of formula R^4CH_2OH, wherein R^4 is an aliphatic linear or branched, saturated or unsaturated carbon chain containing 1 to 12 carbon atoms, optionally substituted with an aromatic moiety.

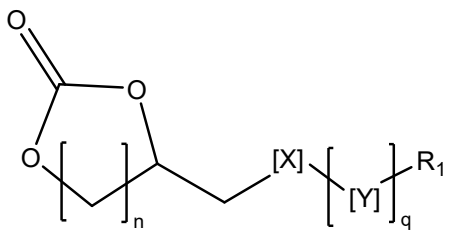
8. The composition according to any of the previous claims, wherein the solid particles of an oxide of an element selected from the group consisting of Si, Ti, Fe, Zn and Al, wherein the solid particles each have a surface functionalized with at least one terminal cyclocarbonate group attached to the surface via a linker, wherein the at least one terminal cyclocarbonate group and the linker has the structure set forth in formula (I) are present in an amount comprised between 0.1 % and 50 % by weight, relative to the total weight of the composition and at least one solid carrier.

9. The composition of claim 8, wherein the solid carrier is an absorbent material obtained from the processed corncob.

10. The composition according to any of the previous claims, wherein the composition is further formulated as a fabric care product, a body-care product, a skin-care product, an air care product, a pet care product or a home care product.

11. The composition according to any of the previous claims, wherein the composition is further formulated as a fabric softener, a fabric refresher, an ironing water, an air freshener, a “ready to use” powdered air freshener, a shampoo, a coloring preparation, a hair spray, or a cat litter.

12. A method to neutralize malodors produced from ammonia, primary amines and/or secondary amines, comprising, dispensing into a closed space in need thereof, or applying to a surface in need thereof, an effective amount of a composition comprising solid particles of an oxide of an element selected from the group consisting of Si, Ti, Fe, Zn and Al, wherein the solid particles each have a surface functionalized with at least one terminal cyclocarbonate group attached to the surface via a linker, wherein the at least one terminal cyclocarbonate group and the linker has the structure set forth in formula (I):



wherein:

n=1 or 2;

[X] is an element selected from the group consisting of O, N and C;

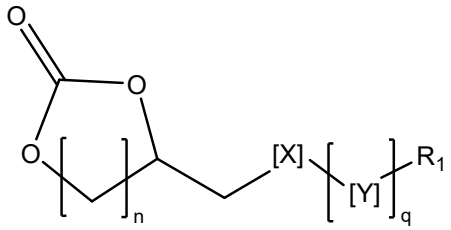
[Y] represents an alkylene group carrying 1-20 C atoms, that can be linear, branched, or cyclic, or connected to a carbonyl or an ether group;

q = 0 or 1;

R_1 is a coupling reactive group serving as a linker selected from silanes, siloxanes, phosphates or carboxylates.

13. Use of a composition to neutralize malodors from ammonia, primary amines and/or secondary amines, comprising, dispensing into a closed space in need thereof, or applying to a surface in need thereof, in an effective amount of the composition, wherein the composition comprises solid particles of an oxide of an element selected from the group consisting of Si, Ti, Fe, Zn and Al, wherein

the solid particles each have a surface functionalized with at least one terminal cyclocarbonate group attached to the surface via a linker, wherein the at least one terminal cyclocarbonate group and the linker has the structure set forth in formula (I):



wherein:

n=1 or 2;

[X] is an element selected from the group consisting of O, N and C;

[Y] represents an alkylene group carrying 1-20 C atoms, that can be linear, branched, or cyclic, or connected to a carbonyl or an ether group;

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