

What is claimed is:

1. An ultraviolet radiation-curable composition comprising a polyester having at least one pendant ultraviolet radiation-curable moiety covalently bonded to the polyester, wherein the polyester does not contain any free-radically polymerizable activated C=C groups.
2. The composition of claim 1, wherein the composition is made from reacting (i) at least one modified epoxidized plant oil that contains the covalently bonded ultraviolet radiation-curable moiety with (ii) at least one dicarboxylic acid, at least one polycarboxylic acid, or a mixture thereof.
3. The composition of claim 1, wherein the at least one modified epoxidized plant oil (i) is made from reacting (a) at least one epoxidized plant oil with (b) a compound that contains at least one -COOH group and at least one UV-active moiety, wherein the UV-active moiety is benzophenone or thioxanthone; a compound that contains at least one -OH group and at least one UV-active moiety, wherein the UV-active moiety is benzophenone, thioxanthone or acetophenone; phenylglyoxylic acid; or a mixture thereof.
4. The composition of claim 3, wherein the compound (b) is a -COOH-containing benzophenone or a -COOH-containing thioxanthone.
5. The composition of claim 3, wherein the compound (b) is 2-benzoylbenzoic acid, 4-benzoylbenzoic acid or 2-(4-benzoylphenoxy)acetic acid.
6. The composition of claim 3, wherein the compound (b) is thioxanthone-2-carboxylic acid or thioxanthone-4-carboxylic acid.
7. The composition of claim 3, wherein the compound (b) is phenylglyoxylic acid.
8. The composition of claim 3, wherein the compound (b) is a -OH-containing benzophenone, a -OH-containing thioxanthone, or a -OH-containing acetophenone.
9. The composition of claim 3, wherein the compound (b) is 4-hydroxybenzophenone or 3-hydroxybenzophenone.
10. The composition of claim 3, wherein the compound (b) is 2-hydroxythioxanthen-9-one.

11. The composition of claim 3, wherein the compound (b) is 4'-hydroxyacetophenone or 3'-hydroxyacetophenone.

5 12. The composition of claim 3, wherein component (a) is monocarboxylic acid-modified epoxidized soybean oil.

13. The composition of claim 12, wherein the monocarboxylic acid modifier is formic acid, acetic acid, propionic acid, butyric acid, valeric acid, caproic acid, enanthic acid, caprylic acid, pelargonic acid, capric acid, undecylic acid, lauric acid, tridecylic acid, myristic acid, pentadecylic acid, palmitic acid, margaric acid, stearic acid, nonadecylic acid, arachidic acid, heneicosylic acid, behenic acid, tricosylic acid, and lignoceric acid, naphthalene acid, oleic acid, linoleic acid, myristoleic acid, palmitoleic acid, sapienic acid, elaidic acid, vaccenic acid, linoelaidic acid, linolenic acid, arachidonic acid, eicosapentaenoic acid, erucic acid, docosahexanoic acid, abietic acid or tall oil rosin that contains abietic acid, benzoic acid, phenylacetic acid, 1-naphthaleneacetic acid, 2-naphthaleneacetic acid, 1-naphthoic acid, 2-naphthoic acid, 2-furoic acid, 3-methylpyridine-2-carboxylic acid, 1-methylpyrrole-2-carboxylic acid, pyrimidine-2-carboxylic acid, or an anhydride thereof, or a mixture thereof.

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14. The composition of claim 1, wherein the epoxidized plant oil is epoxidized soybean oil.

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15. The composition of claim 2, wherein component (ii) is malonic acid, succinic acid, glutaric acid, adipic acid, pimelic acid, suberic acid, azelaic acid, sebacic acid, and brassylic acid, phthalic acid, isophthalic acid, terephthalic acid, dimer acid, trimer acid, or an anhydride thereof, or a mixture thereof.

25 16. The composition of claim 2, wherein component (ii) includes a dimer acid.

17. The composition of claim 1, wherein ultraviolet radiation-curable moiety is benzophenone, thioxanthone or acetophenone.

30 18. The composition of claim 2, wherein component (ii) comprises a polyamide capped with a -COOH group at chain ends of the polyamide.

19. The composition of claim 18, wherein the -COOH-capped polyamide is made from polymerizing at least one dicarboxylic acid or polycarboxylic acid with at least one diamine or at least one

polyamine under a reaction condition that the molar ratio of the -COOH groups of the dicarboxylic acid or polycarboxylic acid to the amine groups of the diamine or polyamine is greater than 1.0.

20. A pressure sensitive adhesive composition made by ultraviolet radiation curing of the
5 composition of claim 1.

21. A pressure sensitive adhesive construct comprising:
(A) a backing substrate; and
(B) the pressure sensitive adhesive composition of claim 20 disposed on the backing substrate.

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22. A method comprising:

reacting (a) at least one epoxidized plant oil with (b) a compound that contains at least one -COOH group and at least one UV-active moiety, wherein the UV-active moiety is benzophenone or thioxanthone; a compound that contains at least one -OH group and at least one UV-active moiety, wherein the UV-active
15 moiety is benzophenone, thioxanthone or acetophenone; phenylglyoxylic acid; or a mixture thereof, resulting in covalently bonding the at least one UV-active moiety to the epoxidized plant oil; and

reacting the resulting modified epoxidized plant oil that contains the at least one covalently bonded UV-active moiety with (c) at least one dicarboxylic acid, at least one polycarboxylic acid, or a mixture thereof, to form a resin.

20 23. The method of claim 22, wherein the resulting modified epoxidized plant oil has an average of from 0.01 mole to 1.8 moles of UV-active moiety per mole of plant oil molecule.

24. The method of claim 22, further comprising subjecting the resulting resin to ultraviolet radiation to form a crosslinked polymer.

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25. The method of claim 22, further comprising modifying the at least one epoxidized plant oil with at least one monocarboxylic acid.

26. The method of claim 25, wherein the modifying of the at least one epoxidized plant oil comprises mixing together the at least one monocarboxylic acid, the at least one epoxidized plant oil (a), and compound (b).

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27. The method of claim 22, comprising:

forming a mixture of the modified epoxidized plant oil that contains the at least one covalently bonded UV-active moiety and a monocarboxylic acid-modified epoxidized plant oil that does not contain a UV-active moiety; and

5 reacting the resulting mixture with the at least one dicarboxylic acid, at least one polycarboxylic acid, or a mixture thereof.

28. The method of claim 24, wherein exclusion of oxygen is not necessary during subjecting the resulting resin to ultraviolet radiation.

10 29. The method of claim 22, wherein the at least one epoxidized plant oil is epoxidized soybean oil.

30. The method of claim 22, wherein component (c) is malonic acid, succinic acid, glutaric acid, adipic acid, pimelic acid, suberic acid, azelaic acid, sebacic acid, and brassylic acid, phthalic acid,
15 isophthalic acid, terephthalic acid, dimer acid, trimer acid, or an anhydride thereof, or a mixture thereof.

31. A method comprising:

reacting at least one dicarboxylic acid, at least one polycarboxylic acid, or a mixture thereof with (i)
at least one epoxidized plant oil or a monocarboxylic acid-modified epoxidized plant oil under reaction
20 condition that the molar ratio of -COOH groups of the at least one dicarboxylic acid, at least one polycarboxylic acid, or a mixture thereof to the epoxy groups of the at least one epoxidized plant oil or a monocarboxylic acid-modified epoxidized plant oil is greater than 1.0 to form a polyester that is capped with -COOH groups at chain ends; and

25 reacting the resulting polyester with a modified epoxidized plant oil that contains at least one covalently bonded UV-active moiety.

32. A method of making a construct comprising:

applying the composition of claim 1 to a backing substrate; and

30 subjecting the composition to ultraviolet radiation to form a pressure sensitive adhesive from the composition.