## Claims

1. A composition comprising:

(i) a hyperbranched polymer having peripheral reactive groups comprising epoxy functional groups and hydroxyl functional groups; and

(ii) a compound having one or more hydrophilic functional groups,

wherein the amount of epoxy functional groups relative to the total number of peripheral reactive groups does not render the hyperbranched polymer from being indispersible in an aqueous solvent, and wherein the weight ratio of the hyperbranched polymer to the hydrophilic compound is in a range of from 1:10 to 10:1.

2. The composition of claim 1, wherein the epoxy functional groups are present in a range of from 2.5% to 20% of the total number of peripheral reactive groups of the hyperbranched polymer.

3. The composition of claim 2, wherein the epoxy functional groups are present in a number not greater than 10% of the total number of peripheral reactive groups of the hyperbranched polymer.

~~4. The composition of any one of the preceding claims, wherein said hydrophilic compound is present in an amount sufficient to disperse said hyperbranched polymer in the aqueous solvent.~~

~~5. The composition of any one of the preceding claims, wherein the weight ratio of the hyperbranched polymer to the hydrophilic compound is in a range of from 1:10 to 10:1.~~

~~6.~~4. The composition of any one of the preceding claims, wherein the weight ratio of the hyperbranched

polymer to the hydrophilic compound is in a range of from 1:9 to 4:1.

~~7.~~5. The composition of any one of the preceding claims, wherein the ratio of the number of hydroxyl functional groups to epoxy functional groups is in a range of from 100:1 to 5:1.

~~8.~~6. The composition of any one of the preceding claims, wherein the epoxy functional group is covalently bonded to a peripheral hydroxyl functional group of the hyperbranched polymer by a cross-linker compound.

~~9.~~7. The composition of claim ~~8~~6, wherein the cross-linker compound is selected from the group consisting of: diisocyanates, triisocyanates, polyisocyanates, isocyanurates and mixtures thereof.

~~10.~~8. The composition of claim ~~9~~7, wherein the cross-linker compound is selected from the group consisting of: diphenylmethane 4,4'-diisocyanate; methylenebis-4,4'-isocyanatocyclohexane; 1,6-hexamethylene diisocyanate (HDI); 1,4-cyclohexane diisocyanate; p-phenylene diisocyanate; triphenylmethane-4,4',4'',-triisocyanate; methylene diphenyl diisocyanate (MDI); toluene diisocyanate (TDI); tetramethylxylene diisocyanate; isophorone diisocyanate (IPDI); and mixtures thereof.

~~11.~~9. The composition of any one of the preceding claims, wherein the hydrophilic functional groups of the hydrophilic compound are selected from the group consisting of: hydroxyl groups, halogen groups, carbonyl groups, carboxyl groups and mixtures thereof.

~~12.~~10. The composition of any one of the preceding claims, wherein the hydrophilic compound is cyclohexanedimethanol.

~~13.~~11. The composition of any one of the preceding claims, wherein the aqueous solvent is water.

~~14.~~12. The composition of any one of the preceding claims, wherein the hyperbranched polymer has a theoretical number of 16 to 128 peripheral reactive groups per molecule of hyperbranched polymer.

~~15.~~13. The composition of any one of the preceding claims, further comprising one or more surfactants.

~~16.~~14. A method of preparing a composition, comprising:

(a) reacting a cross-linker compound comprising at least two cross-linkable peripheral groups with an epoxy compound comprising at least one peripheral epoxy functional group and at least one cross-linkable peripheral group to form a precursor compound having at least one unreacted cross-linkable peripheral group and at least one peripheral epoxy functional group;

(b) mixing a hyperbranched polymer having peripheral reactive hydroxyl groups with a compound having one or more hydrophilic functional groups, wherein the weight ratio of the hyperbranched polymer to the hydrophilic compound is in a range of from 1:10 to 10:1;

(c) reacting the precursor compound with at least one peripheral reactive hydroxyl group of the hyperbranched polymer to form a hyperbranched polymer having peripheral reactive groups comprising epoxy functional groups and hydroxyl functional groups,

wherein the amount of epoxy functional groups relative to the total number of peripheral reactive

groups does not render the hyperbranched polymer from being indispersible in an aqueous solvent.

~~17.~~15. The method of claim ~~16~~14, wherein the reacting step (c) is undertaken at stoichiometric conditions selected to render the hyperbranched polymer having peripheral reactive groups comprising epoxy functional groups and hydroxyl functional groups dispersible in the aqueous solvent.

~~18.~~16. The method of claim ~~17~~15, wherein the number of peripheral epoxy functional groups of the precursor compound is selected to be in a range of from 2.5% to 20% of the total number of peripheral reactive groups of the hyperbranched polymer.

~~19.~~17. The method of any one of claims ~~17~~14-~~18~~16, wherein the mixing step (b) is undertaken at conditions selected to disperse the hyperbranched polymer in the hydrophilic compound.

~~20.~~18. The method of claim ~~19~~17, wherein the mixing step (b) is undertaken at a temperature from 120°C to 150°C.

~~21. The method of any one of claims 19-20, wherein the weight ratio of the hyperbranched polymer to the hydrophilic compound in mixing step (b) is selected to be in a range of from 1:10 to 10:1.~~

~~22.~~19. The method of any one of claims ~~16~~14-~~21~~18, wherein the hyperbranched polymer in mixing step (b) is an unmodified hydroxyl functional hyperbranched polymer.

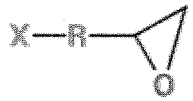
~~23.~~20. The method of claim ~~22~~19, wherein the number of peripheral epoxy functional groups of the precursor compound is selected to form a hyperbranched polymer

having peripheral reactive groups comprising hydroxyl functional groups and epoxy functional groups in a ratio of from 100:1 to 5:1.

~~24.~~21. The method of any one of claims ~~16~~14-~~23~~20, wherein the cross-linker compound is selected from the group consisting of: diisocyanates, triisocyanates, polyisocyanates, isocyanurates and mixtures thereof.

~~25.~~22. The method of claim ~~24~~21, wherein the cross-linker compound is selected from the group consisting of: diphenylmethane 4,4'-diisocyanate; methylenebis-4,4'-isocyanatocyclohexane; 1,6-hexamethylene diisocyanate (HDI); 1,4-cyclohexane diisocyanate; p-phenylene diisocyanate; triphenylmethane-4,4',4'',-triisocyanate; methylene diphenyl diisocyanate (MDI); toluene diisocyanate (TDI); tetramethylxylene diisocyanate; isophorone diisocyanate (IPDI); and mixtures thereof.

~~26.~~23. The method of any one of claims ~~16~~14-~~25~~22, wherein the epoxy compound has the following structure:




, wherein X is selected from the group consisting of -SH and -OH; and R is independently selected from the group consisting of: optionally substituted $C_1$-$C_6$ alkyl, $C_1$-$C_6$ heteroalkyl, carbocycle, aryl or heteroaryl.

~~27.~~24. The method of claim ~~26~~23, wherein the epoxy compound is glycidol.

~~28.~~25. The method of any one of claims ~~16~~14-~~27~~24, wherein the at least one unreacted cross-linkable peripheral group of the precursor compound is an isocyanate group.

~~29.~~26. The method of any one of claims ~~16~~14-~~28~~25, wherein the hydrophilic compound is cyclohexanedimethanol.

~~30.~~27. The method of any one of claims ~~16~~14-~~28~~26, wherein the reacting step (a) is undertaken at a temperature from 10°C to 40°C.

~~31.~~28. The method of any one of claims ~~16~~14-~~30~~27, wherein the reacting step (c) is undertaken in the presence of water.

~~32.~~29. The method of any one of claims ~~16~~14-~~31~~28, wherein reacting step (c) is undertaken in the presence of one or more surfactants.

~~33.~~30. The composition of any one of claims 1-~~15~~13, for use in the preparation of a single component coating composition.

~~34.~~31. An aqueous-dispersible single component coating composition comprising: the composition of any one of claims 1-~~15~~13; and one or more cross-linkers.

~~35.~~32. The coating composition of claim ~~34~~31, wherein the cross-linker is melamine formaldehyde resins.