WHAT IS CLAIMED IS:

Claim 1. A stable, low-viscosity hybrid polymer polyol comprising the free-radical polymerization product of:

(A) a base polyol component comprising:

(1) from 1 to 100% by weight of a polymer modified polyol selected from the group consisting of:

(a) one or more dispersions of a polyurea and/or polyhydrazodicarbonamide in a hydroxyl group containing compound,

and

(b) one or more polyisocyanate polyaddition polyols;

and

(2) from 0 to 99% by weight of a polyol having a functionality of from 2 to 6, and an OH number of from 20 to 500;

wherein the sum of the %'s by weight of (A)(1) and (A)(2) totals 100% by weight of component (A);

(B) optionally, a preformed stabilizer;

and

(C) one or more ethylenically unsaturated monomers;

in the presence of:

(D) a free-radical polymerization initiator;

and

(E) optionally, a polymer control agent;

wherein the solids content of the hybrid polymer polyol ranges from 20 to 70% by weight, and comprises (i) from 1% to 60% by weight of polyureas and/or polyhydrazodicarbonamides or polyisocyanate polyaddition products, and (ii) from 40% to 99% by weight of graft copolymers comprising the ethylenically unsaturated monomers, with the sum of the %'s by weight of (i) and (ii) totaling 100% by weight of the solids in the hybrid polymer polyol.

Claim 2. The stable, low-viscosity hybrid polymer polyol of Claim 1, wherein (A) said base polyol component comprises:

(1) from 2 to 80% by weight of a polymer modified polyol selected from the group consisting of:

(a) one or more dispersions of a polyurea and/or polyhydrazodicarbonamide in a hydroxyl group containing compound,

and

(b) one or more polyisocyanate polyaddition polyols;

and

(2) from 20 to 98% by weight of a polyol having a functionality of from 2 to 4 and an OH number of from 25 to 300;

wherein the sum of the %'s by weight of (A)(1) and (A)(2) totals 100% by weight of component (A).

Claim 3. The stable, low-viscosity hybrid polymer polyol of Claim 1, wherein (A)(1)(a) said one or more dispersions of a polyurea and/or polyhydrazodicarbonamide is the reaction product of (i) at least one organic polyisocyanate, with (ii) one or more amine functional compounds selected from the group consisting of primary and/or second amino-group containing di- and/or polyamines, hydrazines, hydrazides and mixtures thereof, in (iii) a hydroxyl group containing compound.

Claim 4. The stable, low-viscosity hybrid polymer polyol of Claim 3, in which (i) said organic polyisocyanate is toluene diisocyanate, (ii) said amine functional compound is hydrazine hydrate, and (iii) said hydroxyl group containing compound is a polyether polyol having a functionality of about 3 and an OH number of about 35, wherein the resultant polyhydrazodicarbonamide polyol has a functionality of about 3 and an OH number of about 28.

Claim 5. The stable, low-viscosity hybrid polymer polyol of Claim 1, wherein (C) said one or more ethylenically unsaturated monomers comprise styrene, acrylonitrile or mixtures thereof.

Claim 6. The stable, low-viscosity hybrid polymer polyol of Claim 5, wherein C) said ethylenically unsaturated monomers comprise a mixture of styrene and acrylonitrile in a weight ratio of about 80:20 to 20:80.

Claim 7. The stable, low-viscosity hybrid polymer polyol of Claim 1, wherein the solids content of the hybrid polymer polyol ranges from 25 to 65% by weight, and comprises (i) from 3 to 55% by weight of polyureas and/or polyhydrazodicarbonamides or polyisocyanate polyaddition products, and (ii) from 45% to 97% by weight of graft copolymers comprising the ethylenically unsaturated monomers, with the sum of the %'s by weight of (i) and (ii) totaling 100% by weight of the solids in the hybrid polymer polyol.

Claim 8. The stable, low-viscosity hybrid polymer polyol of Claim 1, which additionally comprises a chain transfer agent.

Claim 9. A process for the preparation of a stable, low-viscosity hybrid polymer polyol comprising

(I) free-radically polymerizing:

(A) a base polyol component comprising:

(1) from 1 to 100% by weight of a polymer modified polyol selected from the group consisting of:

(a) one or more dispersions of a polyurea and/or polyhydrazodicarbonamide in a hydroxyl group containing compound

and

(b) one or more polyisocyanate polyaddition polyols;

and

(2) from 0 to 99% by weight of a polyol having a functionality of from 2 to 6, and an OH number of from 20 to 500;

wherein the sum of the %'s by weight of (A)(1) and (A)(2) totals 100% by weight of component (A);

(B) optionally, a preformed stabilizer;

and

(C) one or more ethylenically unsaturated monomers;

in the presence of:

(D) a free-radical polymerization initiator;

and

(E) optionally, a polymer control agent;

wherein the resultant hybrid polymer polyol has a solids content of from 20 to 70% by weight, which comprises (i) from 1% to 60% by weight of polyureas and/or polyhydrazodicarbonamides or polyisocyanate polyaddition products, and (ii) from 40% to 99% by weight of graft copolymers comprising the ethylenically unsaturated monomers, with the sum of the %'s by weight of (i) and (ii) totaling 100% by weight of the solids in the hybrid polymer polyol

Claim 10. The process of Claim 9, wherein (A) said base polyol component comprises:

(1) from 2 to 80% by weight of a polymer modified polyol selected from the group consisting of:

(a) one or more dispersions of a polyurea and/or polyhydrazodicarbonamide in a hydroxyl group containing compound,

and

(b) one or more polyisocyanate polyaddition polyols;

and

(2) from 20 to 98% by weight of a polyol having a functionality of from 2 to 4 and an OH number of from 25 to 300;

wherein the sum of the %'s by weight of (A)(1) and (A)(2) totals 100% by weight of component (A).

Claim 11. The process of Claim 9, wherein (A)(1)(a) said one or more dispersions of a polyurea and/or polyhydrazodicarbonamide is the reaction product of (i) at least one organic polyisocyanate, with (ii) one or more amine functional compounds selected from the group consisting of primary and/or second amino-group containing di- and/or polyamines, hydrazines, hydrazides and mixtures thereof, in (iii) a hydroxyl group containing compound.

Claim 12. The process of Claim 11, in which (i) said organic polyisocyanate is toluene diisocyanate, (ii) said amine functional compound is hydrazine hydrate, and (iii) said hydroxyl group containing compound is a polyether polyol having a functionality of about 3 and an OH number of about 35, wherein the resultant polyhydrazodicarbonamide polyol has a functionality of about 3 and an OH number of about 28.

Claim 13. The process of Claim 9, wherein (C) said one or more ethylenically unsaturated monomers comprise styrene, acrylonitrile or mixtures thereof.

Claim 14. The process of Claim 13, wherein (C) said ethylenically unsaturated monomers comprise a mixture of styrene and acrylonitrile in a weight ratio of about 80:20 to 20:80.

Claim 15. The process of Claim 9, wherein the solids content of the hybrid polymer polyol ranges from 25 to 65% by weight, and comprises (i) from 3 to 55% by weight of polyureas and/or polyhydrazodicarbonamides or polyisocyanate polyaddition products, and (ii) from 45% to 97% by weight of graft copolymers comprising the ethylenically unsaturated monomers, with the sum of the %'s by weight of (i) and (ii) totaling 100% by weight of the solids in the hybrid polymer polyol.

Claim 16. The process of Claim 9, which additionally comprises a chain transfer agent.

Claim 17. A process for the preparation of a polyurethane foam, comprising reacting:

(I) a polyisocyanate component,

with

(II) an isocyanate-reactive component comprising the stable, low viscosity hybrid polymer polyol of Claim 1:

in the presence of

(III) a blowing agent,

and

(IV) at least one catalyst.

Claim 18. The process of Claim 17, wherein (II) said isocyanate-reactive component comprises (1) from 5 to 100% by weight of the hybrid polymer polyol, and (2) from 0 to 95% by weight of one or more conventional isocyanate-reactive components selected from the group consisting of polyether polyols, polyester polyols, polyoxyalkylene polyols, crosslinking agents, chain extenders and mixtures thereof, with the sum of the %'s by weight of (1) and (2) totaling 100% by weight of component (II).

Claim 19. The process of Claim 18, wherein (II) said isocyanate-reactive component comprises (1) from 10 to 75% by weight of the hybrid polymer polyol, and (2) from 25 to 75% by weight of one or more conventional isocyanate-reactive components selected from the group consisting of polyether polyols, polyester polyols, polyoxyalkylene polyols, crosslinking agents, chain extenders and mixtures thereof, with the sum of the %'s by weight of (1) and (2) totaling 100% by weight of component (II).

Claim 20. The process of Claim 17, wherein said process additionally comprises reacting

(V) at least one silicon surfactant.

Claim 21. A polyurethane foam comprising the reaction product of:

(I) a polyisocyanate component,

with

(II) an isocyanate-reactive component comprising the stable, low viscosity hybrid polymer polyol of Claim 1:

in the presence of

(III) a blowing agent,

and

(IV) at least one catalyst.

Claim 22. The foam of Claim 21, wherein (II) said isocyanate-reactive component comprises (1) from 5 to 100% by weight of the hybrid polymer polyol, and (2) from 0 to 95% by weight of one or more conventional isocyanate-reactive components selected from the group consisting of polyether polyols, polyester polyols, polyoxyalkylene polyols, crosslinking agents, chain extenders and mixtures thereof, with the sum of the %'s by weight of (1) and (2) totaling 100% by weight of component (II).

Claim 23. The foam of Claim 22, wherein (II) said isocyanate-reactive component comprises (1) from 10 to 75% by weight of the hybrid polymer polyol, and (2) from 25 to 75% by weight of one or more conventional isocyanate-reactive components selected from the group consisting of polyether polyols, polyester polyols, polyoxyalkylene polyols, crosslinking agents, chain extenders and mixtures thereof, with the sum of the %'s by weight of (1) and (2) totaling 100% by weight of component (II).

Claim 24. The foam of Claim 21, which additionally comprises (V) at least one silicon surfactant.

CLAIMS

1. A stable, low-viscosity hybrid polymer polyol comprising the free-radical polymerization product of:

(A) a base polyol component comprising:

(1) from 1 to 100% by weight of a polymer modified polyol selected from the group consisting of:

(a) one or more dispersions of a polyurea and/or polyhydrazodicarbonamide in a hydroxyl group containing compound,

and

(b) one or more polyisocyanate polyaddition polyols;

and

(2) from 0 to 99% by weight of a polyol having a functionality of from 2 to 6, and an OH number of from 20 to 500;

with the proviso that said base polyol is not prepared from a natural oil, and wherein the sum of the %'s by weight of (A)(1) and (A)(2) totals 100% by weight of component (A);

(B) optionally, a preformed stabilizer;

and

(C) one or more ethylenically unsaturated monomers; in the presence of:

(D) a free-radical polymerization initiator;

and

(E) optionally, a polymer control agent;

wherein the solids content of the hybrid polymer polyol ranges from 20 to 70% by weight, and comprises (i) from 1% to 60% by weight of polyureas and/or polyhydrazodicarbonamides or polyisocyanate polyaddition products, and (ii) from 40% to 99% by weight of graft copolymers comprising the ethylenically unsaturated monomers, with the sum of the %'s by weight of (i) and (ii) totaling 100% by weight of the solids in the hybrid polymer polyol.

2. The stable, low-viscosity hybrid polymer polyol of claim 1, wherein (A) said base polyol component comprises:

(1) from 2 to 80% by weight of a polymer modified polyol selected from the group consisting of:

(a) one or more dispersions of a polyurea and/or polyhydrazodicarbonamide in a hydroxyl group containing compound, and

(b) one or more polyisocyanate polyaddition polyols;

and

(2) from 20 to 98% by weight of a polyol having a functionality of from 2 to 4 and an OH number of from 25 to 300;

with the proviso that said base polyol is not prepared from a natural oil, and wherein the sum of the %'s by weight of (A)(1) and (A)(2) totals 100% by weight of component (A).

3. The stable, low-viscosity hybrid polymer polyol of claim 1, wherein (A)(1)(a) said one or more dispersions of a polyurea and/or polyhydrazodicarbonamide is the reaction product of (i) at least one organic polyisocyanate, with (ii) one or more amine functional compounds selected from the group consisting of primary and/or secondary amino-group containing di- and/or polyamines, hydrazines, hydrazides and mixtures thereof, in (iii) a hydroxyl group containing compound.

4. The stable, low-viscosity hybrid polymer polyol of claim 3, in which (i) said organic polyisocyanate is toluene diisocyanate, (ii) said amine functional compound is hydrazine hydrate, and (iii) said hydroxyl group containing compound is a polyether polyol having a functionality of about 3 and an OH number of about 35, wherein the resultant polyhydrazodicarbonamide polyol has a functionality of about 3 and an OH number of about 28.

5. The stable, low-viscosity hybrid polymer polyol of claim 1, wherein (C) said one or more ethylenically unsaturated monomers comprise styrene, acrylonitrile or mixtures thereof.

6. The stable, low-viscosity hybrid polymer polyol of claim 5, wherein C) said ethylenically unsaturated monomers comprise a mixture of styrene and acrylonitrile in a weight ratio of about 80:20 to 20:80.

7. The stable, low-viscosity hybrid polymer polyol of claim 1, wherein the solids content of the hybrid polymer polyol ranges from 25 to 65% by weight, and comprises (i) from 3 to 55% by weight of polyureas and/or polyhydrazodicarbonamides or polyisocyanate polyaddition products, and (ii) from 45% to 97% by weight of graft copolymers comprising the ethylenically unsaturated monomers, with the sum of the %'s by weight of (i) and (ii)

totaling 100% by weight of the solids in the hybrid polymer polyol.

8. The stable, low-viscosity hybrid polymer polyol of claim 1, which additionally comprises a chain transfer agent.

9. A process for the preparation of a stable, low-viscosity hybrid polymer polyol comprising

(I) free-radically polymerizing:

(A) a base polyol component comprising:

(1) from 1 to 100% by weight of a polymer modified polyol selected from the group consisting of:

(a) one or more dispersions of a polyurea and/or polyhydrazodicarbonamide in a hydroxyl group containing compound and

(b) one or more polyisocyanate polyaddition polyols;

and

(2) from 0 to 99% by weight of a polyol having a functionality of from 2 to 6, and an OH number of from 20 to 500;

with the proviso that said base polyol is not prepared from a natural oil, and wherein the sum of the %'s by weight of (A)(1) and (A)(2) totals 100% by weight of component (A);

(B) optionally, a preformed stabilizer;

and

(C) one or more ethylenically unsaturated monomers; in the presence of:

(D) a free-radical polymerization initiator;

and

(E) optionally, a polymer control agent;

wherein the resultant hybrid polymer polyol has a solids content of from 20 to 70% by weight, which comprises (i) from 1% to 60% by weight of polyureas and/or polyhydrazodicarbonamides or polyisocyanate polyaddition products, and (ii) from 40% to 99% by weight of graft copolymers comprising the ethylenically unsaturated monomers, with the sum of the %'s by weight of (i) and (ii) totaling 100% by weight of the solids in the hybrid polymer polyol.

10. The process of claim 9, wherein (A) said base polyol component comprises:

(1) from 2 to 80% by weight of a polymer modified polyol selected from the group consisting of:

(a) one or more dispersions of a polyurea and/or polyhydrazodicarbonamide in a hydroxyl group containing compound, and

(b) one or more polyisocyanate polyaddition polyols;

and

(2) from 20 to 98% by weight of a polyol having a functionality of from 2 to 4 and an OH number of from 25 to 300;

with the proviso that said base polyol is not prepared from a natural oil, and wherein the sum of the %'s by weight of (A)(1) and (A)(2) totals 100% by weight of component (A).

11. The process of claim 9, wherein (A)(1)(a) said one or more dispersions of a polyurea and/or polyhydrazodicarbonamide is the reaction product of (i) at least one organic polyisocyanate, with (ii) one or more amine functional compounds selected from the group consisting of primary and/or secondary amino-group containing di- and/or polyamines, hydrazines, hydrazides and mixtures thereof, in (iii) a hydroxyl group containing compound.

12. The process of claim 11, in which (i) said organic polyisocyanate is toluene diisocyanate, (ii) said amine functional compound is hydrazine hydrate, and (iii) said hydroxyl group containing compound is a polyether polyol having a functionality of about 3 and an OH number of about 35, wherein the resultant polyhydrazodicarbonamide polyol has a functionality of about 3 and an OH number of about 28.

13. The process of claim 9, wherein (C) said one or more ethylenically unsaturated monomers comprise styrene, acrylonitrile or mixtures thereof.

14. The process of claim 13, wherein (C) said ethylenically unsaturated monomers comprise a mixture of styrene and acrylonitrile in a weight ratio of about 80:20 to 20:80.

15. The process of claim 9, wherein the solids content of the hybrid polymer polyol ranges from 25 to 65% by weight, and comprises (i) from 3 to 55% by weight of polyureas and/or polyhydrazodicarbonamides or polyisocyanate polyaddition products, and (ii) from 45% to 97% by weight of graft copolymers comprising the ethylenically unsaturated monomers, with the sum of the %'s by weight of (i) and (ii) totaling 100% by weight of the solids in the hybrid polymer polyol.

16. The process of claim 9, which additionally comprises a chain transfer agent.

17. A process for the preparation of a polyurethane foam, comprising reacting:

(I) a polyisocyanate component,

with

(II) an isocyanate-reactive component comprising the stable, low viscosity hybrid polymer polyol of claim 1:

in the presence of

(III) a blowing agent,

and

(IV) at least one catalyst.

18. The process of claim 17, wherein (II) said isocyanate-reactive component comprises (1) from 5 to 100% by weight of the hybrid polymer polyol, and (2) from 0 to 95% by weight of one or more isocyanate-reactive components selected from the group consisting of polyether polyols, polyester polyols, polyoxyalkylene polyols, crosslinking agents, chain extenders and mixtures thereof, with the sum of the %'s by weight of (1) and (2) totaling 100% by weight of component (II).

19. The process of claim 18, wherein (II) said isocyanate-reactive component comprises (1) from 10 to 75% by weight of the hybrid polymer polyol, and (2) from 25 to 75% by weight of one or more isocyanate-reactive components selected from the group consisting of polyether polyols, polyester polyols, polyoxyalkylene polyols, crosslinking agents, chain extenders and mixtures thereof, with the sum of the %'s by weight of (1) and (2) totaling 100% by weight of component (II).

20. The process of claim 17, wherein said process additionally comprises reacting

(V) at least one silicon surfactant.

21. A polyurethane foam comprising the reaction product of:

(I) a polyisocyanate component,

with

(II) an isocyanate-reactive component comprising the stable, low viscosity hybrid polymer polyol of claim 1:

in the presence of

(III) a blowing agent,

and

(IV) at least one catalyst.

22. The foam of claim 21, wherein (II) said isocyanate-reactive component comprises (1) from 5 to 100% by weight of the hybrid polymer polyol, and (2) from 0 to 95% by weight of one or more isocyanate-reactive components selected from the group consisting of polyether polyols, polyester polyols, polyoxyalkylene polyols, crosslinking agents, chain extenders and mixtures thereof, with the sum of the %'s by weight of (1) and (2) totaling 100% by weight of component (II).

23. The foam of claim 22, wherein (II) said isocyanate-reactive component comprises (1) from 10 to 75% by weight of the hybrid polymer polyol, and (2) from 25 to 75% by weight of one or more isocyanate-reactive components selected from the group consisting of polyether polyols, polyester polyols, polyoxyalkylene polyols, crosslinking agents, chain extenders and mixtures thereof, with the sum of the %'s by weight of (1) and (2) totaling 100% by weight of component (II).

24. The foam of claim 21, which additionally comprises

(V) at least one silicon surfactant.