10. The composition of any of claims 1-9, wherein the composition comprises the copolymer in an amount of from 0.5% to 15% by weight of the composition.

11. The composition of any of claims 1-10, wherein the composition is formulated for intravenous infusion.

12. The composition of claim 11, wherein the composition is formulated for administration as a single continuous infusion, multiple continuous infusions, a single bolus administration, or multiple bolus administrations.

13. The composition of any of claims 1-12 for use for treating a disease or condition in which treatment includes transfusion of blood or a packed red blood cells.

14. The composition of claim 13, wherein the disease or condition in which treatment includes transfusion of blood or packed red blood cells is selected from among sickle cell disease, acute chest syndrome, peripheral artery disease, myocardial infarction, stroke, peripheral vascular disease, macular degeneration, acute respiratory distress syndrome (ARDS), multiple organ failure, ischemia, hemorrhagic shock, septic shock, acidosis, hypothermia, anemic decomposition, surgery, trauma, acute blood loss and blood disorders.

15. A polyoxyethylene/polyoxypropylene copolymer for use for increasing the safety and efficacy of a blood or packed red blood cells, which has been stored for at least 1 week, for transfusion, wherein:

the blood or packed red blood cells is compromised by storage lesion;

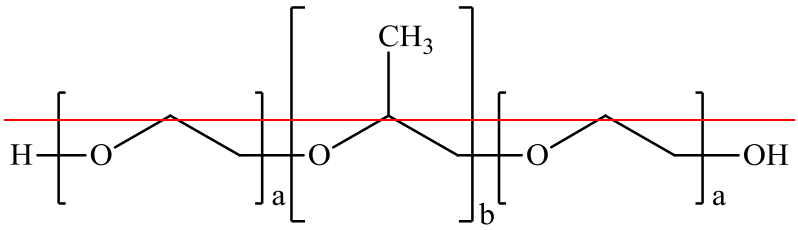
the copolymer has the chemical formula:

$HO(C_2H_4O)_a – (C_3H_6O)_b – (C_2H_4O)_aH$;

b is an integer such that the hydrophobe represented by (C_3H_6O) has a molecular weight of 950 to 4000; and

a is an integer such that the hydrophile portion represented by (C_2H_4O) constitutes 50% to 90% by weight of the copolymer.

16. The use of claim 15, wherein the copolymer is a poloxamer 188 that has the formula:



$HO\ (CH_2CH_2O)_a\ (CHCH_2O)_b\ (CH_2CH_2O)_aH$

CH_3

, wherein the molecular weight of the hydrophobe (C_3H_6O) is 1750 daltons and the total molecular weight of the copolymer is 8400 daltons.

17. The use of claim 15 or claim 16, wherein the blood or packed red blood cells is compromised by storage for two weeks or longer.

18. The use of claim 15 or claim 16, wherein the blood or packed red blood cells is compromised by storage for three weeks or longer.

19. The use of any of claims 15-18, wherein the blood or packed red blood cells is compromised by storage for four weeks or longer.

20. A method of improving the safety and efficacy of blood or packed red blood cells for transfusion, comprising mixing the blood or packed red blood cells with a polyoxyethylene/polyoxypropylene copolymer to produce a composition for transfusion, wherein:

the blood or packed red blood cells is compromised by storage lesion; and

the copolymer has the chemical formula:

$HO(C_2H_4O)_a – (C_3H_6O)_b – (C_2H_4O)_aH$, wherein:

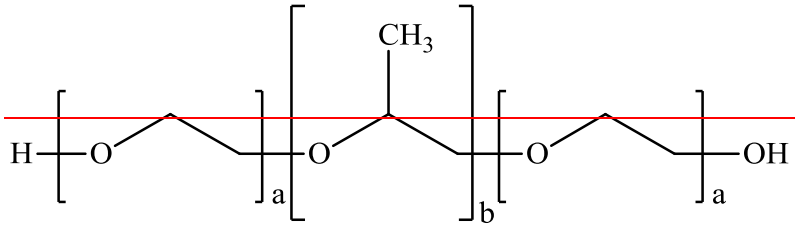
b is an integer such that the hydrophobe represented by (C_3H_6O) has a molecular weight of 950 to 4000; and

a is an integer such that the hydrophile portion represented by (C_2H_4O) constitutes 50% to 90% by weight of the copolymer.

21. The method of claim 20, wherein b is an integer such that the hydrophobe represented by (C_3H_6O) has a molecular weight of 1200 to 3500.

22. The method of claim 20 or claim 21, wherein:

the copolymer is poloxamer 188 that has the formula:



$HO(CH_2CH_2O)_a(CHCH_2O)_b(CH_2CH_2O)_aH$

CH_3

;

the molecular weight of the hydrophobe (C_3H_6O) is 1750 daltons; and

the total molecular weight of the copolymer is 8400 daltons.

23. The method of any of claims 20-22, wherein the polyoxyethylene/polyoxypropylene copolymer is purified to reduce low and high molecular weight contaminants so that the polydispersity value is less than or equal to 1.07.

24. The method of any of claims 20-23, wherein the composition comprises the copolymer in an amount of from 0.5% to 15% of the composition.

25. The method of any of claims 20-24, wherein the blood or packed red blood cells that is compromised by storage lesion was stored for at least 1 week before it is mixed with the polyoxyethylene/polyoxypropylene copolymer.

26. The method of any of claims 20-24, wherein the blood or packed red blood cells that

is compromised by storage lesion was stored for 2 weeks or longer before it is mixed with the polyoxyethylene/polyoxypropylene copolymer.

27. The method of any of claims 20-24, wherein the blood or packed red blood cells that is compromised by storage lesion was stored for 3 weeks or longer before it is mixed with the polyoxyethylene/polyoxypropylene copolymer.

28. The method of any of claims 20-24, wherein the blood or packed red blood cells that is compromised by storage lesion was stored for 4 weeks or longer before it is mixed with the polyoxyethylene/polyoxypropylene copolymer.

29. The method of any of claims 20-28, further comprising storing the composition.

30. A method of improving the safety and efficacy of blood or packed red blood cells for transfusion, comprising mixing the blood or packed red blood cells with a polyoxyethylene/polyoxypropylene copolymer to produce a composition of any of claims 1-14.

10. The composition of any of claims 1-9, wherein the composition comprises the copolymer in an amount of from 0.5% to 15% by weight of the composition.

11. The composition of any of claims 1-10, wherein the composition is formulated for intravenous infusion.

12. The composition of claim 11, wherein the composition is formulated for administration as a single continuous infusion, multiple continuous infusions, a single bolus administration, or multiple bolus administrations.

13. The composition of any of claims 1-12 for use for treating a disease or condition in which treatment includes transfusion of blood or a packed red blood cells.

14. The composition of claim 13, wherein the disease or condition in which treatment includes transfusion of blood or packed red blood cells is selected from among sickle cell disease, acute chest syndrome, peripheral artery disease, myocardial infarction, stroke, peripheral vascular disease, macular degeneration, acute respiratory distress syndrome (ARDS), multiple organ failure, ischemia, hemorrhagic shock, septic shock, acidosis, hypothermia, anemic decomposition, surgery, trauma, acute blood loss and blood disorders.

15. A polyoxyethylene/polyoxypropylene copolymer for use for increasing the safety and efficacy of a blood or packed red blood cells, which has been stored for at least 1 week, for transfusion, wherein:

the blood or packed red blood cells is compromised by storage lesion;

the copolymer has the chemical formula:

$HO(C_2H_4O)_a – (C_3H_6O)_b – (C_2H_4O)_aH$;

b is an integer such that the hydrophobe represented by (C_3H_6O) has a molecular weight of 950 to 4000; and

a is an integer such that the hydrophile portion represented by (C_2H_4O) constitutes 50% to 90% by weight of the copolymer.

16. The use of claim 15, wherein the copolymer is a poloxamer 188 that has the formula:

$HO(CH_2CH_2O)_a(CHCH_2O)_b(CH_2CH_2O)_aH$

CH_3

, wherein the molecular weight of the hydrophobe (C_3H_6O) is 1750 daltons and the total molecular weight of the copolymer is 8400 daltons.

17. The use of claim 15 or claim 16, wherein the blood or packed red blood cells is compromised by storage for two weeks or longer.

18. The use of claim 15 or claim 16, wherein the blood or packed red blood cells is compromised by storage for three weeks or longer.

19. The use of any of claims 15-18, wherein the blood or packed red blood cells is compromised by storage for four weeks or longer.

20. A method of improving the safety and efficacy of blood or packed red blood cells for transfusion, comprising mixing the blood or packed red blood cells with a polyoxyethylene/polyoxypropylene copolymer to produce a composition for transfusion, wherein:

the blood or packed red blood cells is compromised by storage lesion; and