WHAT IS CLAIMED IS:

1. A gel comprising a phase-change material and a gelling agent, wherein the phase-change material is at least one n-alkane, the gel being formed by (a) mixing the phase-change material and the gelling agent at a first temperature at which the phase-change material is in a liquid state and which is below the flash point of the phase-change material and at which the mixture is not a viscoelastic liquid, wherein the first temperature is in the range of about 15°C to about 30°C, whereby a non-homogenous mixture is produced; (b) then, heating the non-homogeneous mixture to a second temperature that is below the flash point of the phase-change material and at which a viscoelastic liquid is formed; and (c) then, cooling the viscoelastic liquid to room temperature.

2. The gel as claimed in claim 1 wherein the at least one n-alkane is selected from n-alkanes ranging in size from n-tetradecane to n-octadecane.

3. The gel as claimed in claim 2 wherein the at least one n-alkane is selected from the group consisting of n-tetradecane, n-hexadecane, n-octadecane, and mixtures thereof.

4. The gel as claimed in claim 3 wherein the at least one n-alkane is n-tetradecane and/or n-hexadecane.

5. The gel as claimed in claim 1 wherein the gelling agent is at least one saturated olefin rubber.

6. The gel as claimed in claim 5 wherein the gelling agent is at least one hydrogenated styrenic block copolymer.

7. The gel as claimed in claim 6 wherein the gelling agent is at least one styrene-ethylene-butylene-styrene (SEBS) tri-block copolymer.

8. The gel as claimed in claim 7 wherein the gelling agent is at least one high molecular weight styrene-ethylene-butylene-styrene tri-block copolymer with a styrene:rubber ratio in the range of 30:70 to 33:67 % by weight.

9. The gel as claimed in claim 2 wherein the gelling agent is selected from the group consisting of at least one styrene-ethylene-butylene-styrene tri-block copolymer, at least one styrene-ethylene-propylene-styrene (SEPS) tri-block copolymer, and mixtures thereof.

10. The gel as claimed in claim 1 wherein the gelling agent constitutes up to 10%, by weight, of the gel.

11. The gel as claimed in claim 1 wherein the gelling agent constitutes up to 10%, by weight, of the gel, with the phase-change material and, optionally, a dye constituting the remainder of the gel.

12. The gel as claimed in claim 6 wherein the gelling agent is at least one styrene-ethylene-propylene-styrene (SEPS) tri-block copolymer.

13. The gel as claimed in claim 12 wherein the gelling agent is at least one high molecular weight styrene-ethylene-propylene-styrene tri-block copolymer with a styrene:rubber ratio in the range of about 20:80 % by weight.

14. The gel as claimed in claim 1 wherein the second temperature is in the range of about 40ºC to about 80ºC.

15. The gel as claimed in claim 14 wherein the second temperature is in the range of about 45ºC to about 65ºC.

16. The gel as claimed in claim 1 wherein the phase-change material is a liquid at a temperature in the range of about 19ºC to about 25ºC, wherein the first temperature is in the

range of about 19ºC to about 25ºC, and wherein the second temperature is in the range of about 40ºC to about 80ºC.

17. The gel as claimed in claim 16 wherein the second temperature is in the range of about 45ºC to about 65ºC.

18. A method of preparing a gel, the method comprising the steps of:

(a) providing a phase-change material, wherein the phase-change material comprises at least one n-alkane;

(b) providing a gelling agent;

(c) mixing the phase-change material and the gelling agent at a first temperature at which the phase-change material is in a liquid state and which is below the flash point of the phase-change material and at which the mixture is not a viscoelastic liquid, whereby a non-homogenous mixture is produced;

(d) then, heating the non-homogeneous mixture to a second temperature that is below the flash point of the phase-change material and at which a viscoelastic liquid is formed; and

(e) then, cooling the viscoelastic liquid to room temperature.

19. The method as claimed in claim 18 wherein the phase-change material is selected from the group consisting of n-tetradecane, n-hexadecane, n-octadecane, and mixtures thereof.

20. The method as claimed in claim 19 wherein the gelling agent is at least one styrene-ethylene-butylene-styrene (SEBS) tri-block copolymer and/or at least one styrene-ethylene-propylene-styrene (SEPS) tri-block copolymer.

21. The method as claimed in claim 20 wherein the phase-change material is a liquid at a temperature in the range of about 15ºC to about 30ºC, wherein the first temperature is in

the range of about 15ºC to about 30ºC, and wherein the second temperature is in the range of about 40ºC to about 80ºC.

22. The method as claimed in claim 20 wherein the phase-change material is a liquid at a temperature in the range of about 19ºC to about 25ºC, wherein the first temperature is in the range of about 19ºC to about 25ºC, and wherein the second temperature is in the range of about 40ºC to about 80ºC.

23. The method as claimed in claim 18 further comprising, after the mixing step and before the heating step, the step of allowing the non-homogenous mixture to rest for a period of time ranging from about 30 minutes to about 72 hours.

24. The method as claimed in claim 18 wherein said heating step comprises a ramp phase in which the temperature is ramped from the first temperature to the second temperature and a constant phase in which the temperature is maintained at the second temperature.

25. The method as claimed in claim 24 wherein the ramp phase ranges from a rate of about 0.025ºC/minute to about 2.5ºC/minute.

26. The method as claimed in claim 25 wherein the ramp phase ranges from a rate of about 0.15ºC/minute to about 0.30ºC/minute.

27. The method as claimed in claim 24 wherein the constant phase ranges from about 0.5 hours to about 20 hours.

28. The method as claimed in claim 27 wherein the constant phase ranges from about 6 hours to about 16 hours.

29. The method as claimed in claim 18 wherein said cooling step comprises cooling at a rate of about 0.025ºC/minute to about 2.5ºC/minute.

30. The method as claimed in claim 29 wherein said cooling step comprises cooling at a rate of about 0.15ºC/minute to about 0.30ºC/minute.

31. A thermal exchange implement, the thermal exchange implement comprising:

(a) the gel of claim 1; and

(b) a container, the container holding a quantity of the gel.

32. A method of preparing a thermal exchange implement, the method comprising the steps of:

(a) providing a phase-change material;

(b) providing a gelling agent;

(c) providing a thermal exchange implement container;

(d) mixing the phase-change material and the gelling agent at a first temperature at which the phase-change material is in a liquid state and which is below the flash point of the phase-change material and at which the mixture is not a viscoelastic liquid, whereby a non-homogenous mixture is produced;

(e) then, heating the non-homogeneous mixture to a second temperature that is below the flash point of the phase-change material and at which the non-homogenous mixture forms a viscoelastic liquid; and

(f) then, cooling the viscoelastic liquid to room temperature;

(g) wherein the heating and cooling steps are performed while the non-homogeneous mixture is disposed within the thermal exchange implement container.

33. The thermal exchange implement as claimed in claim 31 wherein the container is a flexible pouch.

34. The method as claimed in claim 32 wherein the phase-change material is at least one n-alkane.

35. The method as claimed in claim 34 wherein the at least one n-alkane is selected from the group consisting of n-tetradecane, n-hexadecane, n-octadecane, and mixtures thereof.

36. The gel as claimed in claim 1 wherein the gel consists essentially of the phase-change material, the gelling agent, and, optionally, a dye.