What is claimed is:

1. A bandage comprising:

(a) a top layer of polymeric material, the top layer having a first surface and a second surface, and where the second surface of the top layer has adhesive disposed thereon; and

(b) a bottom layer of hydrogel substrate, the hydrogel substrate having a first surface and a second surface, where the first surface of the hydrogel substrate is coupled to the second surface of the top layer, and where the hydrogel substrate comprises a thermally conductive material.

2. A bandage of claim 1 wherein said thermally conductive material comprises at least one of aluminum, aluminum oxide particles, titanium dioxide particle, and zinc oxide particles.

3. A bandage of claim 2 wherein said aluminum oxide particles are between about 1 nanometer to about 500 micrometers in size; or said aluminum oxide particles have a mean size of about 3 to about 20 micrometers; or said aluminum oxide particles have a mean size of approximately 10 micrometers; or said aluminum oxide particles have a mean size smaller than about 100 nanometers; or said aluminum oxide particles have a mean size of approximately 10 micrometers; or said aluminum oxide particles are approximately 10 micrometers.

4. A bandage of claim 2 further comprising a backing layer removably coupled to the

bottom surface of the bandage.

5. A bandage of claim 1 further comprising a thermochromic indicator member disposed within the top layer.

6. A bandage of claim 2 further comprising (c) a conductive metal layer coupled to the second surface of the hydrogel substrate.

7. A bandage of claim 2 wherein the hydrogel substrate comprises polyvinylpyrrolidone.

8. A dual-layered bandage having a top surface and a bottom surface, said bandage consisting of: a top layer of a polymeric material with a top surface and a bottom surface, wherein said bottom surface has adhesive disposed thereon; and a bottom layer of a hydrogel comprising a thermally conductive material.

9. A dual-layered bandage of claim 8 wherein said thermally conductive material comprises aluminum or aluminum oxide particles.

10. A bandage of claim 8 wherein said thermally conductive material comprises aluminum oxide particles between about 1 nanometer to about 500 micrometers in size; or aluminum oxide particles having a mean size of approximately 10 micrometers.

11. A bandage according to any of claims 1-10 for treatment of a burn in a subject wherein heat is dissipated from the burn to the hydrogel substrate.

12. A bandage of claim 1 wherein said hydrogel substrate comprises about 10% thermally conductive material.

13. A bandage of claim 1 wherein said hydrogel substrate is comprised of (a) about 1% to about 70% monomer; (b) about 0.01% to about 20% cross-linker; (c) about 0.001% to about 1% photoinitiator; (d) about 1% to about 40% thermally conductive material; and (e) about 1% to about 30% humectant.

14. A bandage of claim 13 comprising about 30% acrylamide.

15. A bandage of claim 13 comprising about 0.1% methylene-bisacrylamide.

16. A bandage of claim 13 where said photoinitiator comprises about 0.08% 1-[4-(2-Hydroxyethoxy)-phenyl]-2-hydroxy-2-methyl-1-propane-1-one.

17. A bandage of claim 13 comprising about 10% aluminum oxide.

18. A bandage of claim 13 comprising about 10% glycerol.

19. A bandage of claim 13 comprising (a) about 30% acrylamide; (b) about 0.1% methylene-bisacrylamide; (c) about 0.08 % 1-[4-(2-Hydroxyethoxy)-phenyl]-2-hydroxy-2-methyl-1-propane-1-one; (d) about 10% aluminum oxide; and (e) about 10% glycerol.

20. A bandage of claim 1 wherein said hydrogel substrate is comprised of (a) about 1% to about 30% polymer; (b) about 0.01% to about 20% cross-linker; (c) about 0.001% to about 0.2% photoinitiator; (d) about 1% to about 40% thermally conductive material; and (e) about 1% to about 30% humectant.

21. A bandage of claim 20 comprising about 10% polyvinylpyrrolidone.

22. A bandage of claim 20 where said cross-linker comprises about 2% polyethylene glycol diacrylate.

23. A bandage of claim 20 where said photoinitiator comprises about 0.1% 1-[4-(2-Hydroxyethoxy)-phenyl]-2-hydroxy-2-methyl-1-propane-1-one.

24. A bandage of claim 20 comprising about 10% aluminum oxide.

25. A bandage of claim 20 comprising about 10% glycerol.

26. A bandage of claim 20 comprising (a) about 10% polyvinylpyrrolidone; (b) about 2% polyethylene glycol diacrylate; (c) about 0.1% 1-[4-(2-Hydroxyethoxy)-phenyl]-2-hydroxy-2-methyl-1-propane-1-one; (d) about 10% aluminum oxide; and (e) about 10% glycerol.

27. A bandage of claim 13 comprising (a) about 40% 2-acrylamido-2-methylpropane sulfonic acid; (b) about 0.2% polyethylene glycol diacrylate; (c) about 0.05% 1-[4-(2-Hydroxyethoxy)-phenyl]-2-hydroxy-2-methyl-1-propane-1-one; (d) about 10% aluminum oxide; and (e) about 10% glycerol.