developed by Toronto's Dr. Alfred W. Farmer. It was the first time that aluminum foil for burns had been used in the U.S.; the first time it had ever been used for burns of the whole body. Relief from pain was "miraculous", and within 20 minutes of application, Mihlan was resting comfortably. As an added precaution, Mihlan was given intravenous fluids and penicillin. The aluminum foil, which looked like the inside wrapping of a cigarette package, apparently acted as a seal for the body fluids that seep from burned surfaces. It also apparently helped kill bacteria, speeding the healing process. Twelve days after being bandaged in the aluminum foil wrappings, Mihlan was out of bed. Eventually, Mihlan left the hospital unscarred, albeit temporarily reddened.

[0005] Bandages and wraps may incorporate a thin layer of thermally conductive metal (such as aluminum) at the base of a substrate adapted to be in direct contact with a burn wound, while the top side of the aluminum substrate has a heat-dissipation-enhancing topography to help cool burns faster by enhancing thermal convection properties. Such products are described in Aluminaid's U.S. Patent No. 8,530,720 to Freer, et al.

[0006] Spray-on wound dressings are convenient, easy ways to protect wounds during the healing process and avoid certain drawbacks of conventional dressings such as physical mobility, pain, and peeling of hair during removal. Currently there is no burn dressing product available to the general public that employs medical advantages of aluminum (or other metals) in a convenient spray-on dressing.

[0007] It would be advantageous to develop aluminum or other metal-infused healing/therapeutic dressing products that are easy for a consumer to safely use in a convenient, aerosol or manual-pump spray.

SUMMARY ~~OF THE INVENTION~~

[0007a] In one aspect of the present disclosure, there is provided a spray-on burn dressing comprising: a film-forming polymer and aluminum oxide particles.

[0007b] In another aspect of the present disclosure, there is provided a use of a thermally conductive composition comprising a film-forming polymer with aluminum oxide particles, in the manufacture of a medicament for treating a burn.

[0007c] In yet another aspect of the present disclosure, there is provided a burn dressing composition comprising: about 1% to about 20% of methyl vinyl ether / maleic acid copolymer, about 10% to about 90% isopropanol, about 10% to about 40% water, and about 10% to about 30% aluminum oxide microparticles.

[0007d] In a further aspect of the present disclosure, there is provided a use of a composition comprising a film-forming polymer and aluminum oxide particles, in the manufacture of a medicament for healing burnt skin, wherein said medicament improves heat dissipation from the burnt skin.

[0007e] In another aspect of the present disclosure, there is provided a thermally conductive composition comprising a film-forming polymer with aluminum oxide particles for use in treating a burn.

[0007f] In yet another aspect of the present disclosure, there is provided a composition comprising a film-forming polymer and aluminum oxide particles for use in healing burnt skin, wherein said composition improves heat dissipation from the burnt skin.

[0008] The ~~invention~~ present disclosure is a class of medical products, more particularly a spray-on burn dressing containing a metal or metal oxide. The burn dressings are designed to alleviate

discomfort and relieve pain caused by burns. The metal or metal-oxide, and in particular aluminum oxide (Al_2O_3), is included as a component of the dressing for its effective heat-transfer and wound healing characteristics. The inventive dressing provides a metalized mass at the burn site to enhance heat-dissipation and to assist in the healing of the burn.

[0009] The metal or metal oxide is dispersed within a liquid or gel comprising a film forming polymer to form the base composition. In one embodiment aluminum is selected as the metal. In one embodiment aluminum oxide is selected as the metal oxide. Microparticles (diameter larger than about 0.1 micrometers and preferably between about 5 to about 100 micrometers) or nanoparticles (diameter smaller than about 100 nanometers) of metal or metal oxide are dispersed in the film-forming polymer. Solvents such as alcohols, ethyl acetate, or water may be used to disperse the metal or metal oxide in the polymer and to dissolve the polymer. Surface modification of metal or metal oxide particles may be used to increase particles' stability and compatibility in the solvents. In-situ or emulsion polymerization of one monomer with particles may be used to disperse the particles. In-situ or miniemulsion copolymerization of one monomer with hydrophilic groups and one monomer with hydrophobic groups with metal or metal oxide particles may also be used to disperse the metal or metal oxide particles in as-prepared copolymer. Surface-initiated polymerization may also be used to make the particle-dispersed polymer suspension. Viscosity may be controlled by adjusting the concentration of polymer and metal or metal oxide to attain preferred characteristics.

[0010] ~~Another aspect of t~~The ~~invention~~ present disclosure is also directed to the method of applying the spray-on burn dressing. In one embodiment the burn dressing is applied using an aerosol spray. In another embodiment the burn dressing is applied with a manual pump spray. In each embodiment, the method enhances heat-dissipation to assist in the healing of a burn. It is preferred that the spray-on burn dressing has a drying time of less than about a minute, and

What is claimed is:

1) A spray-on burn dressing comprising: a film-forming polymer and aluminum oxide particles.

2) A dressing of claim 1 further comprising a solvent.

3) A dressing of claim 2 further comprising heparan sulfate.

4) A dressing of claim 1 wherein said film-forming polymer is methyl vinyl ether / maleic acid copolymer, wherein said aluminum oxide particles have a diameters between about 5 and about 100 nanometers, and further including isopropanol and water.

5) Use of ~~A method of treating a burn comprising: applying~~ a thermally conductive composition ~~to a burn, said composition~~ comprising a film-forming polymer with aluminum oxide particles, in the manufacture of a medicament for treating a burn.

6) ~~A method~~ The use of claim 5 wherein the ~~composition~~ medicament is to be applied via aerosol spray.

7) A burn dressing composition comprising: about 1% to about 20% of methyl vinyl ether / maleic acid copolymer, about 10% to about 90% isopropanol, about 10% to about 40% water, and about 10% to about 30% aluminum oxide microparticles.

8) A burn dressing of claim 7 comprising about 2% of methyl vinyl ether / maleic acid copolymer, about 50% isopropanol, about 28% water, and about 20% aluminum oxide microparticles.

9) A burn dressing of claim 8 where said aluminum oxide microparticles have a mean size of about 10 micrometers.

10) Use of a composition comprising a film-forming polymer and aluminum oxide particles ~~A method of healing burnt skin, the method comprising: applying a dressing to the burnt skin, wherein the dressing is made in accordance with any of claims 1–9~~, in the manufacture of a medicament for healing burnt skin~~; and improving~~, wherein said medicament improves heat dissipation from the burnt skin.

11) A thermally conductive composition comprising a film-forming polymer with aluminum oxide particles for use in treating a burn.

12) A composition comprising a film-forming polymer and aluminum oxide particles for use in healing burnt skin, wherein said composition improves heat dissipation from the burnt skin.