Claims

[Claim 1] A composite material for use in a face mask, comprising:

at least one fabric layer comprising a metallic silver-coated fibre material; wherein the metallic silver-coated fibre material is woven with one or more non-metallic fibre materials to form the fabric layer; and

at least one polymer layer comprising thermoplastic polyurethane (TPU);

wherein the at least one polymer layer is laminated with the at least one fabric layer to form a single composite layer;

wherein the at least one polymer layer is of substantially the same shape and size as the at least one fabric layer to substantially overlay each other, such that any air stream passing through the single composite layer will be effectively filtered by both the at least one fabric layer and the at least one polymer layer;

wherein the single composite layer demonstrates a bacterial filtration efficiency (BFE) of more than 97% and the bacterial filtration efficiency (BFE) is maintained after 50-100 washings.

[Claim 2] The composite material according to claim 1, wherein the one or more non-metallic fibre materials comprise a polyester fibre material and/or a spandex fibre material.

[Claim 3] The composite material according to claim 2, wherein the at least one fabric layer is a woven fabric comprising 80% to 90% by weight of the polyester fibre material, 5% to 8% by weight of the spandex fibre material, and 2% to 15% by weight of the metallic silver-coated fibre material.

[Claim 4] The composite material according to claim 1, wherein the at least one fabric layer is of a thickness ranged from 1.03 mm to 1.05 mm.

[Claim 5] The composite material according to claim 1, wherein the metallic silver-coated fibre material of the at least one fabric layer comprises metallic silver atoms oxidizable to form silver ions.

[Claim 6] The composite material according to claim 1, wherein the at least one polymer layer is water-resistant.

[Claim 7] The composite material according to claim 1, wherein the at least one polymer layer is stretchable.

[Claim 8] The composite material according to claim 1, wherein the at least one polymer layer is of a thickness ranged from 0.02 mm to 0.03 mm.

[Claim 9] The composite material according to claim 1, wherein the formed single composite layer is of a thickness ranged from 1 mm to 2 mm.

[Claim 10] The composite material according to claim 1, wherein the at least one fabric layer comprising a first fabric layer and a second fabric layer, with the at least one polymer layer arranged therebetween.

[Claim 11] The composite material according to claim 10, wherein at least one of the first and the second fabric layers comprises the metallic fibre material.

[Claim 12] The composite material according to claim 1, wherein the at least one polymer layer is laminated with the at least one fabric layer to form the single composite layer via hot melt processing.

[Claim 13] A face mask, comprising:
a face covering portion formed of the composite material of claim 1; and
a strap attached to the face covering portion.

[Claim 14] The face mask according to claim 13, further comprising an elongated deformable member arranged at a centre region of an upper edge of the face covering portion for a close fitting of the upper edge of the face covering portion across a wear's nose.

[Claim 15] The face mask according to claim 14, wherein the elongated de- formable member comprises an extended portion for a close fitting of the upper edge of the face covering portion against the wearer's face.

[Claim 16] The face mask according to claim 13, wherein the at least one fabric layer of composite fabric material comprises at least a first fabric layer and a second fabric layer sandwiching the at the one polymer layer therebetween.

[Claim 17] The face mask according to claim 13, wherein the face covering portion is contoured to conform with shape of a wear's face.