CLAIMS

1. A membrane structure comprising a composite comprising a substrate and an optically transparent resin layer formed on the substrate,

wherein the substrate comprises a woven fabric and a composition layer formed on the woven fabric and comprising tetrafluoroethylene resin and silicon dioxide, and

the optically transparent resin layer is placed on the composition layer.

2. The membrane structure according to claim 1, wherein the tetrafluoroethylene resin has an average primary particle size in a range of 0.02 μm to 0.5 μm.

3. The membrane structure according to claim 1 or 2, wherein the silicon dioxide is hydrophilic amorphous silica.

4. The membrane structure according to any one of claims 1 to 3, wherein the silicon dioxide has a specific surface area of 10 m^2/g or more as determined by Brunauer-Emmett-Teller (BET) adsorption isotherm.

5. The membrane structure according to any one of claims 1 to 4, wherein the silicon dioxide has an average primary particle size in a range of 5 nm to 80 nm.

6. The membrane structure according to any one of claims 1 to 5, wherein a weight percent of the tetrafluoroethylene resin in a weight of the substrate is in a range of 5% by weight to 40% by weight.

7. The membrane structure according to any one of claims 1 to 6, wherein a weight percent of the silicon dioxide in a weight of the composition is in a range of 0.5% by weight to 30% by weight.

8. The membrane structure according to any one of claims 1 to 7, wherein the optically transparent resin layer comprises at least one resin selected from the group consisting of ethylene-tetrafluoroethylene copolymer, tetrafluoroethylene-perfluoroalkyl vinyl ether copolymer, tetrafluoroethylene-hexafluoropropylene copolymer, and polyvinylidene fluoride.

9. A membrane structure comprising external walls, roofing materials, tents, or coating materials, wherein each of the external walls, the roofing materials, the tents and coating materials is the composite of the membrane structure according to any one of claims 1 to 8.