Claims:

1. A porous polyether ether ketone membrane having:

a flow time of less than 10,000 seconds measured using isopropyl alcohol (500 milliliters) with a membrane surface area of 13.5 cm^2, and a pressure of 14.5 psia, and

an initial bubble point of at least 25 pounds per square inch (psig), measured using HFE-7200 at a temperature of 21 degrees Celsius.

2. The membrane of claim 1, having

a flow time of less than 4,000 seconds measured using isopropyl alcohol (500 milliliters) with a membrane surface area of 13.5 cm^2, and a pressure of 14.5 psia, and

an initial bubble point of at least 30 psig, measured using HFE-7200 at a temperature of 21 degrees Celsius.

3. The membrane of claims 1 or 2, wherein the polyether ether ketone is non-sulfonated.

4. The membrane of claims 1 or 2, wherein the polyetherether ketone has a molecular weight in a range from above 75 Mw and 125 Mw.

5. A filter product containing a membrane of claims 1 or 2.

6. A method of purifying a liquid, the method comprising passing the liquid through a membrane of claims 1 or 2.

7. A method of preparing a porous polyether ether ketone membrane, the method comprising:

preparing a combination comprising:

from 20 to 40 weight percent polymer that comprises polyether ether ketone, and

from 60 to 80 weight percent solvent that has a boiling point that is higher than a melting point of the polymer, based on total weight of the combination,

heating the combination to form a homogeneous casting solution,

causing polyetherether ketone of the casting solution to coagulate to form a porous membrane, and

removing solvent from the porous membrane.

8. The method of claim 7, wherein the solvent has a boiling point of at least 320 degrees Celsius.

9. The method of claim 7, wherein the solvent is triphenylmethane.

10. The method of any of claims 7 through 9, wherein the polyether ether ketone has a molecular weight in a range from above 75 Mw and 125 Mw.

11. The method of any of claims 7 through 9, wherein the membrane has a flow time of less than 10,000 seconds measured using isopropyl alcohol (500 milliliters) with a membrane surface area of 13.5 cm^2, and a pressure of 14.5 psia.

12. The method of any of claims 7 through 9, the membrane having an initial bubble point of at least 25 psig, measured using HFE-7200 at a temperature of 21 degrees Celsius.