What is claimed is:

1. A vinylidene fluoride porous hollow fiber membrane comprising a vinylidene fluoride resin and a hydrophilic resin, wherein

the hydrophilic resin is contained at a concentration of from 0.5 to 10% by weight based on the weight of the hollow fiber membrane, and resides on outer and inner surfaces of the hollow fiber membrane and on the pore surfaces in the membrane; and

the membrane has a ratio Pi/Po of 2.5 to 50.0 where Pi and Po denote an average pore size on inner surface (Pi) and an average pore size on outer surface (Po), respectively, and has a pure water permeation rate satisfying the following formula:

$$(FLUX_d / FLUX_w) \times 100 \geq 40.0$$

wherein $FLUX_d$ represents a pure water permeation rate ($L/m^2/hr/98$ kPa) of the hollow fiber membrane in a dry state, and $FLUX_w$ represents a pure water permeation rate ($L/m^2/hr/98$ kPa) of the hollow fiber membrane in a wet state.

2. The vinylidene fluoride porous hollow fiber membrane according to claim 1, wherein the vinylidene fluoride resin porous hollow fiber membrane has a surface pore ratio of outer surface of 5% or higher and 40% or lower relative to total outer surface area of the hollow fiber membrane, and a fraction particle size of 0.01 μm or larger and 5.0 μm or smaller.

3. The vinylidene fluoride porous hollow fiber membrane according to claim 1 or 2, wherein the hydrophilic resin is approximately uniformly distributed in a membrane cross-sectional direction of the hollow fiber membrane.

4. The vinylidene fluoride porous hollow fiber membrane according to any one of claims 1 to 3, wherein the hydrophilic resin is distributed in a membrane cross-sectional direction such that the difference in peak area ratio resulting from oxygen 1S (O1s) orbital in XPS analysis between the outer surface and the inner surface is within a range of ± 10% based on the peak area ratio of the central portion of the hollow fiber membrane.

5. A method for producing a vinylidene fluoride resin porous hollow fiber membrane recited in any one of claims 1 to 4, the method comprising:

extruding a spinning liquid containing a vinylidene fluoride resin, a solvent, inorganic particles for forming pores, and an aggregater from a co-axial spinneret,

bringing the extruded spinning liquid into contact with an internal coagulating liquid injected from the center of the co-axial spinneret, and

immersing the extruded spinning liquid in an external coagulation bath containing an external coagulating liquid, wherein the internal coagulating liquid contains a hydrophilic resin at a concentration of 0.1 to 15% by weight based on the internal coagulating liquid, has a lower coagulating property than the external coagulating liquid, and has a temperature of from 80 to 170^{o}C.

6. The method according to claim 5, wherein the spinning liquid extruded from a spinneret enters a dry spinning zone and then an extruded fibrous material is brought into contact with the external coagulating liquid.

7. The method according to claim 5 or 6, wherein

the spinning liquid has a three dimensional solubility parameter δ (s, c) of 21 to 33 (MPa$^{1/2}$), and

the internal coagulating liquid has a three dimensional solubility parameter δ (i, c) of 23 to 35 (MPa$^{1/2}$).