20. The membrane sensor of any preceding claim, further comprising a plurality of parallel vanes configured for directing fluid from the inlet of the first chamber to the outlet of the first chamber.

21. A method of detecting fouling in a fluid using only one membrane disposed between a first chamber and a second chamber, the method comprising:

permeating a fluid through the membrane from the first chamber to the second chamber;

obtaining a first pressure upstream of the membrane;

adjusting a second pressure downstream of the membrane by setting a resistance of a resistance regulator equal to a resistance of the membrane when the membrane is new;

obtaining the second pressure; and

determining a ratio between $(P_1 - P_2)$ and (P_2), P_1 being the first pressure and P_2 being the second pressure.

22. The method of claim 21, further comprising obtaining a third pressure downstream of the resistance regulator, wherein determining the ratio between $(P_1 - P_2)$ and (P_2) comprises determining a ratio between $(P_1 - P_2)$ and $(P_2 - P_3)$, P_3 being the third pressure.

23. The method of claim 21 or 22, further comprising allowing some fluid received at an inlet of the first chamber to flow over the membrane to an outlet of the first chamber.

24. The method of any one of claims 21 to 23, further comprising permeating fluid through the membrane from the second chamber to the first chamber.

25. The method of claim 24, further comprising allowing some fluid received at an inlet of the second chamber to flow over the membrane to an outlet of the second chamber.

26. The method of any one of claims 21 to 25, further comprising controlling fluid flow rate to the first chamber.

27. The method of any one of claims 21 to 26, further comprising smoothening the first pressure.

28. The method of any one of claims 21 to 26, further comprising adjusting the first pressure.

29. The method of any one of claims ~~22~~21 to ~~29~~28, wherein the resistance of the membrane is a resistance of the membrane when the membrane has been fouled.

30. A treatment apparatus comprising the membrane sensor of any one of claims 1 to 20 in fluid communication with an upstream membrane filtration apparatus, wherein fluid received on the membrane of the membrane sensor is an effluent of the upstream membrane filtration apparatus.

31. The treatment apparatus of claim 30, further comprising a control unit configured for receiving the obtained first and second pressures, determining a ratio between (P_1 – P_2) and (P_2), P_1 being the first pressure and P_2 being the second pressure, and correlating the ratio with one selected from the group consisting of: a failure of the upstream membrane filtration apparatus and a presence of a foulant in the effluent.

32. The treatment apparatus of claim 31, wherein the control unit is further configured to

selectably direct fluid alternately to the first chamber and the second chamber based on a pre-set interval or a pre-set value of the ratio between ($P_1 - P_2$) and (P_2).