Guidelines for Using the Membrane Application Form

A filtering membrane is a unit operation stream splitter. The stream going across the membrane is called permeate and the stream retained is the retentate (or concentrate). Membranes will split the components of a solution into permeate or retentate, according to certain properties of the components such as size, charge, shape etc.

AMS is using a nanofiltration membrane. This kind of membrane is characterized by an excellent retention of multivalent ions (copper, uranium, cobalt, zinc etc.) and low retentions of monovalent ions (chloride and acids). This behavior enables the use of the nanofiltration membrane as a way to simultaneously concentrate multivalent ions and purify acids from metal ions.

The behavior of each ion in connection with the nanofiltration membrane is both a function of the membrane and solution characteristics. For this reason, it is difficult to give an exact prediction of the separation result for a particular solution. However, knowing the composition of the solution and past performance of the membrane, it is possible to carry out a simulation which gives an approximate result of the separation.

This application form lists the parameters required for running a membrane performance simulation.
The most important parameter is the composition of the solution. It is critical to include in the composition list the ions as they appear in the solution at the operating pH and temperature.   Because of the separation characteristics of the membrane, the same element in different molecular structures may be seen differently by the membrane (mainly due to different size and/or charges).

The utilities costs may enable us to calculate approximate operating costs for a preliminary industrial system.

The more complete the form, the better the results of the simulation. Please use additional pages if/where necessary. If any information required is not available please write N/A.