This paper describes an investigation on the rejection of the divalent anions from ZnSO4 using LPROMs, and to establish the effect of operating pressure, feed concentration and temperature on metal removal, then to compare with the monovalent anions, ZnCl2. A bench-scale spiral wound configuration of sulphonated polysulphone low pressure reverse osmosis membrane (LPROM) was used to remove heavy metals at various operating conditions i.e. operating conditions, solute concentrations and temperature. The results show that the higher the operating pressure the greater will be the permeate flux for heavy metals from both mono- and divalent anions. At low operating pressure however, metals from the divalent anions give a higher permeate flux than did the monovalent anions. Permeate flux in both mono- and divalent anions is shown to be subsequently increased by a decrease of the concentration of feed solution. Regarding metal removal, metals from divalent anions were rejected more effectively than monovalent anions at all levels of feed concentration.