ARRANGEMENT OF ION EXCHANGE MATERIAL WITHIN AN ELECTRODEIONIZATION APPARATUS

ABSTRACT

An electrodeionization apparatus is provided comprising an ion-concentrating compartment partially bounded by an anion permeable membrane and also partially bounded by a cation permeable membrane, and a first ion exchange material domain disposed within the ion-concentrating compartment, wherein the first ion exchange material domain is contiguous with at least a portion of an ion-concentrating compartment side surface of one of the anion permeable membrane and the cation permeable membrane, and is spaced apart from the other one of the one of the anion permeable membrane and the cation permeable membrane. In the case where the one of the anion permeable membrane and the cation permeable membrane, having the at least a portion of an ion-concentrating compartment side surface with which the first ion exchange material domain is contiguous, is an anion permeable membrane, the first ion exchange material domain is an anion exchange material predominant domain. In the case where the one of the anion permeable membrane and the cation permeable membrane, having the at least a portion of an ion-concentrating compartment side surface with which the first ion exchange material domain is contiguous, is a cation permeable membrane, the first ion exchange material domain is a cation exchange material predominant domain.

Fig. 2