

ABSTRACT

POROUS PTFE MEMBRANES FOR METAL REMOVAL

Disclosed is a porous membrane comprising a porous polytetrafluoroethylene (PTFE) substrate and a coating comprising a copolymer of formula (I):

$\text{H}-[\text{O}-\text{CH}(\text{Rf})-\text{CH}_2-]_m-[\text{O}-\text{CHM}-\text{CH}_2-]_n-[\text{O}-\text{CHL}-\text{CH}_2-]_s-\text{OH}$ (I), wherein Rf is perfluoro-substituted alkyl or perfluoro-substituted alkyloxy alkyl; M is $-\text{CH}_2-\text{O}-(\text{CH}_2)_3-\text{S}-(\text{CHP})_t-\text{Y}$, wherein P is hydrogen or $-\text{CH}_2\text{COOH}$, and for example, Y is $-\text{COOH}$ or $-\text{SO}_3\text{H}$, R is hydrogen or alkyl, L is $-\text{CH}_2-\text{O}-\text{CH}_2-\text{CH}=\text{CH}_2$, m and n are each independently from about 10 to about 1000, n:s ranges from 0.3:0.7 to 1:0, and t is 0 or 1. Also disclosed is a method of preparing the porous membrane and a method of filtering a fluid, such as isopropanol, containing dissolved metals at a low concentration by the use of such membrane.

(Figure 1)