

## Removal of fluorions from trifluoroacetic acid by reverse osmosis

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### ABSTRACT

The separation characteristics of fluorions and trifluoroacetic acid (TFA) by reverse osmosis (RO) were investigated in detail. Separation results revealed that the fluorion rejection depended strongly on pH of the feed solution. The fluorion rejection could be very low by adjusting pH of the feed solution to acidic condition. Under operating pressure of 2.5 MPa, the fluorion rejection decreased sharply from 96% to 17.71% with the feed pH decreased from 6.7 to 2.75. Experimental results illustrated that RO separation can effectively remove fluorions from TFA solutions. Multi-stage RO separation can decrease the fluorion concentration to desirable level. Therefore, RO separation is an efficient and alternative method to remove fluorions from waste effluents or other fluorine compounds.

*Keywords:* Fluorion; Reverse osmosis; Trifluoroacetic acid; Hydrofluoric acid

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