

SIMPLIFIED METHODS FOR THE DETERMINATION OF THE IONIC COMPOSITION OF ION EXCHANGE RESINS

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ABSTRACT

Condensate polishing plays a vital role in power plant cycle chemistry. It provides a means to radically reduce transport of oxides and ionic impurities to the steam generator during all modes of operation. If the ionic composition of the resin is compromised, condensate polishers can be a source of impurity ingress.

In this study, rapid and simplified methods have been developed to quantify the impurities on condensate polishing plant resins. Diethylamine (25 %) proved successful in releasing sufficient sodium from cation exchange resin for quantification using a sodium electrode. It was found that 5 % sodium hydroxide releases sufficient chloride from anion exchange resins. Thereafter, hydrogen form cation resin was used to remove the sodium hydroxide prior to quantification by ion chromatography or silver nitrate titration.

Cation resins with sodium content as low as 0.13 % have been encountered. Recent investigations has shown that 0.10 % chloride on anion resins can be determined using these methods provided that ion chromatography is used for chloride quantification.