

THE QUANTITATIVE ANALYSIS OF TECHNETIUM IN SODIUM PERTECHNATE USING ION CHROMATOGRAPHY COUPLED WITH AN INDUCTIVELY COUPLED PLASMA MASS SPECTROMETER

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It has long been known that higher levels of the long lived ^{99}Tc isotope in sodium pertechnate eluates, derived from $^{99}\text{Mo}/^{99\text{m}}\text{Tc}$ generators, can affect labelling efficiencies of sensitive radiopharmaceutical kits. From a quality perspective, government regulatory authorities are therefore demanding that manufacturers of $^{99}\text{Mo}/^{99\text{m}}\text{Tc}$ generators quantify the ultra-trace levels of technetium in sodium pertechnate, over a variety of generator radioactivities and elution regimes. These requirements push current analytical techniques to their limits.

We investigated the application of Ion Chromatography with an Inductively Coupled Plasma Mass Spectrometer as detector to measure technetium in generator eluates to the sub ppb level.