dissolved from the walls of the containers. We observed that silicon concentrations of 0.5–25 ppm (the latter is commonly observed in sodium hydroxide solutions) do not affect the formation of macro-iron hydroxide particles and do not appear to alter their particle size distribution. However, zirconium contents as low as 0.05 ppm appear to catalyze the precipitation reaction but, at this level, do not have any affect on the particle size distribution. At zirconium concentration levels of 4 ppm and higher the particle size distribution is altered—particles greater than 100 microns were observed and were different in appearance. The number of particles greater than 100 microns in diameter increased as the zirconium concentration increased. At 10 ppm a large number of particles were formed with diameters considerably larger than 100 microns.

We recommend that the macro-iron hydroxide particles be submitted to rigid quality control before human use. Our studies indicate that at least two tests should be performed:

1. Large particle size—to insure that no particles greater than 100 microns in diameter are present in the solution. When the eluate is pure, we found that no particles greater than 75 microns were formed by the formulation. However, trace amounts of certain cations will catalyze the formulation of very large particles when one uses the formulation.

The test: Shake the solution vigorously, aliquot several drops, place one drop on a hemacytometer and then cover the drop with a cover glass. Do not place cover glass on hemacytometer before adding the prepared compound because the larger particles will not diffuse into the scribed areas but will remain at the edge of the cover glass. Observe the sizes of the particles on the scribed portion of the hemacytometer. Look at the edges of the cover glass for large particles that may have been squeezed out and away from the scribed area.

2. Small particle size—to ascertain liver and lung uptake.

The test: Filter a small aliquot of the final solution through a 14-micron Millipore filter. The fact that more than 90% of the activity was deposited on the filter indicated (in our animal data) more than 90% lung uptake with less than 5% liver uptake.

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COMMENT ON QUANTITATIVE COUNTING

The authors of the article on "Quantitative Counting in the Presence of Coincidence-Summing Scintillations" (JNM, July '67, p. 502) should be congratulated on the excellent presentation and timely topic.

The article also demonstrates the problems that can be encountered in quantitative separation of dual isotopes using well crystals.

It might be of interest to mention ^{133}Ba. Because of its long half-life and similarity to ^{131}I, it is often used as a counting standard or calibration source. When it is used in a well crystal, this isotope exhibits a spectrum that resembles that of a beta particle due to coincidence summing. Thus it is difficult to determine the true location of the main photopeak. The situation can be greatly improved by surrounding the source with lead absorber that is thick enough to attenuate low energies. The penalty of course is a lower photopeak counting rate.

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