STUDIES ON ADDITIVES IN OPTIMISING TRACE LEVEL ESTIMATION OF LEAD

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COMPARATIVE STUDY OF METHODS FOR ESTIMATION OF SOLUBLE SILICA IN BOILER WATERS.
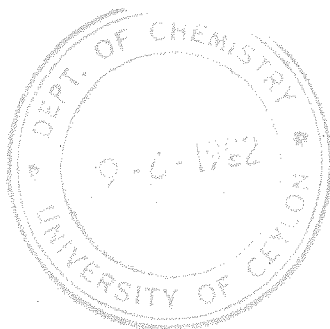
This th esis is presented as partial fulfi lment of M.Sc.(Analytical Chemistry) 1981, under the guidance of Professor. R.S.Ramakrishna.

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Abstract

The need to use additives to minimise losses of lead during ashing of samples as well as a comparison of atomic absorption spectrophotometry with the dithizone procedure for estimation of trace levels of lead are investigated; in part 1 of this dissertation.

Analysis of dissolved silica in boiler waters' is important as scale formation in boilers is dependent on limitng values for silica in the water used. Silica content in boiler waters should be below 0.02 ppm. for the boilers operated at 1000 p.s.i. American standard test method employing 1-amino, 2-napthol 4-sulphonic acid as reductant in the formation of molybdosilicic acid (reduced form) as the analytical species has been found to yield low recoveries. Part II of this dissertation reports a study of various reductant and shows that the use of aqueous stanic chloride as a reductant gives higher recovery. Method of standard addition was used in these investigations. This part of the dissertation also includes the effect of Fe(iii) in the estimation of dissolved silica. Relavent spectral data are presented and discussed.