Determination Of Available Chlorine In Bleaching Solution

This test method covers the determination of residual chlorine in water by direct amperometric titration.

Water quality monitoring is a fundamental tool in the management of freshwater resources, and this book covers the entire monitoring process providing detailed guidance for implementing a monitoring network with step-by-step descriptions of field and laboratory methods.

Is An Amalgam Of Theory And Experiments. It Serves As A Laboratory Manual Of Examination, Testing, Characterisation And Evaluation Of A Few Materials Of Wide Industrial And Engineering Application. The Significance And Practical Utility Of The Various Tests And The Inferences Drawn Therefore Have Been Described In Detail. The Derivation Of The Formulas, Where-Ever Used, The Introduction, Theory And Related Discussion Are Quite Elaborate And Touch The Level Of A Theory Text.The Book Has Been Designed To Cover The Laboratory Courses In Applied Chemistry At The Various Engineering And Technical Institutions. The Book Will Be Useful To The Students Where Applied Chemistry Is Taught At The M.Sc. Level And To Public Health/Water Analysis Laboratories. It Will Also Be Useful To The Students Of Industrial Chemistry A Subject That Is Being Introduced At The Undergraduate Level In Some Of The Universities.Students Of All Levels Of Intelligence From Very Weak To Extremely Brilliant Will Find Something Of Interest To Them In The Chapter On Solutions To Viva-Voce Questions A Striking Feature Of The Book.

(A) These methods cover procedures for the determination of residual chlorine in industrial water. Provision is made for the determination of total chlorine, free available chlorine, and

combined available chlorine in the presence of the amount of color, turbidity, iron, manganese, chromium, nitrites, and organic matter normally present. Three methods are given, as follows: (b) The referee method is amperometric, and is not subject to commonly encountered interferences. This method is applicable to all types of industrial water having a residual chlorine content of not more than 5 ppm. Non-referee method A is colorimetric, and is subject to interferences by certain ions and by elevated temperatures. This method is not applicable to highly colored or turbid water. Non-referee method B is a dilution-colorimetric method subject to interferences similar to non-referee method A, but is applicable to water containing high amounts of residual chlorine. (c) Methods for the determination of residual chlorine in water containing appreciable amounts of industrial waste are given in the Methods of Test for Residual Chlorine in Industrial Waste Water (ASTM Designation: D 1427).

Water, Quality, Water testing, Chemical analysis and testing, Determination of content, Chlorine, Water resources, Wastes, Volumetric analysis, Iodometry, Reproducibility, Interferences (chemical), Testing conditions, Potable water, Bibliography

The purpose of this study was to develop a biological referee procedure (biofac) for the qualitative and quantitative determination of free chlorine in solutions containinfg compounds that may interfere with the colorimetric chemical methods and to use this procedure to compare the specificity of the DPD, FACTS, amperometric, and electrode procedures for free chlorine. The bacterial virus f2 was chosen as the test organism for the development of the biofac procedure, since f2 is resistant to inactivation by combined chlorine and sensitive to free chlorine. A linear, reproducible, relationship was found between the rate of f2 inactivation and free chlorine concentration at pH 6.0 and 7.0. This relationship was used as a standard curve for the determination of free

chlorine concentration from the rate of f2 inactivation. Specificity of the tests for free available chlorine was determined by comparison of the level of free chlorine indicated by the test to the level indicated by the biofac procedure. A false positive result was defined as an indication of free chlorine by the test in the absence of viricidal activity. (Author).

This standard specifies the use of iodometric method for the determination of available chlorine in chlorine disinfectants. This method is applicable to the determination of available chlorine in solid or liquid chlorine-containing disinfectants.

The Code of Federal Regulations is the codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the Federal Government.

Ten different methods for determining total available residual chlorine, all based on the iodine-iodide reaction, were tested without modification on four sample matrices. Their precision was determined by seven replicate determinations. Accuracy, as compared to the iodometric starch titration method, was determined in terms of percent yield. Observations regarding advantages, disadvantages, deviations from the expected and problems involved in the determination are recorded. The data are presented in tables arranged for instructive purposes and in a figure intended to present the data in reduced form for easier appraisal. The information obtained can be used by the analyst in determining which method is most suitable for a particular matrix. The data show the importance of the

nature of the sample matrix. The necessity of comparing several methods in order to be certain of the accuracy is also obvious given the data. This report covers a period from March 1976 to November 1976 and was completed as of November 12, 1976.

The DPD and amperometric methods for determining free available chlorine were compared in a study of chlorine demand in a denitrified (unchlorinated) wastewater. The DPD method was found to be more precise than the amperometric method. Chlorine demand of denitrified wastewater from the Kanapaha Water Reclamation Facility (KWRF) was found to increase with increase in chlorine dose. Total chlorine demand was found to increase with time when dose was constant. These results support previous work at the KWRF which found increased chlorine demand with chlorine dose. Synthetic (laboratory prepared) water was spiked with ammonium chloride at various concentrations to determine the effect of chloramines on the free chlorine measurement. The interference of chloramines, particularly monochloramine, on the free available chlorine residual measurements made using the DPD method was significant. The amperometric method showed no such interference.

(A) These methods cover nonreferee procedures for the determination of residual chlorine in industrial waste water. A referee method and two nonreferee methods for the determination of residual chlorine in industrial water other than that containing waste are given in the Methods of Test for Residual Chlorine in Industrial Water (ASTM Designation: D 1253). Provision is made in these

methods for the determination of total chlorine and free available chlorine. Provision is also made for the determination of the total chlorine in the presence of most of the interfering constituents found in industrial waste water, either through choice of the method employed or by a modification of the same. Two methods are given, as follows: Sections Non-Referee Method A (Starch-Iodide Titration Method) 6 to 11 Non-Referee Method B (Amperometric Titration Method) 12 to 20 (b) Both methods are applicable to the determination of total chlorine in industrial waste water. Only non-referee method B is applicable to the determination of free available chlorine in industrial waste water. (c) The type of residual chlorine to be determined depends on the objective of chlorination. When a free chlorine residual is not required, a determination of the total chlorine normally suffices regardless of the composition of the chlorine residual. (d) Modifications of these methods are provided to eliminate one or more interferences present either initially in the industrial waste water or present subsequent to chlorination. The methods are most dependable when used with industrial waste water of known composition.