

Determination of Vitamin C Concentration by Titration

(Redox Titration Using Iodate Solution)

Introduction

This method determines the vitamin C concentration in a solution by a redox titration with potassium iodate. In the presence of potassium iodide, Vitamin C, more properly called ascorbic acid, is an essential antioxidant needed by the human body (see additional notes).

When iodate ions (IO_3^-) are added to an acidic solution containing iodide ions (I^-), an oxidation-reduction reaction occurs:

- the iodate ions are reduced to form iodine



- while the iodide ions are oxidised to form iodine.



Combining these half-equations demonstrates the reaction between iodate and iodide



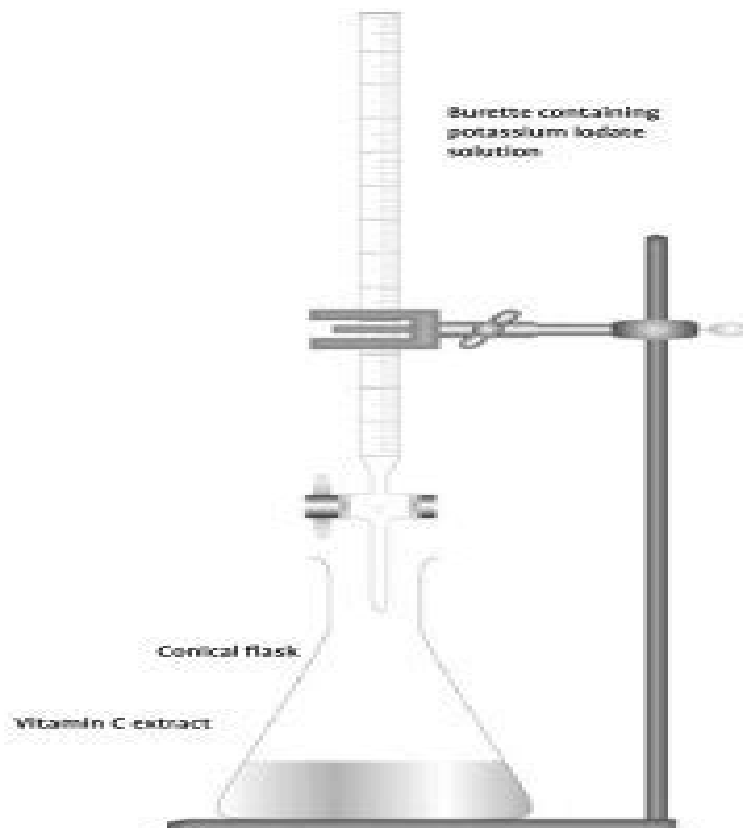
It is the iodine formed by this reaction that oxidises the ascorbic acid to dehydroascorbic acid as the iodine is reduced to iodide ions.



Due to this reaction the iodine formed is immediately reduced to iodide as long as there is any ascorbic acid present. Once all the ascorbic acid has been oxidised, the excess iodine is free to react with the starch indicator, forming the blue-black starch-iodine complex. This is the endpoint of the titration.

The method is suitable for use with Vitamin C tablets, fresh or packaged fruit juices and solid fruits and vegetables.

NB: This method is really the same as titrating ascorbic acid directly with iodine solution (see Vitamin C Method using Iodine). However, this method is more reliable as the potassium iodate solution is more stable than iodine as a primary standard.



Determination Of Vitamin C Concentration By Titration

AW Rasmussen

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Nutrition Labeling Handbook Ralph Shapiro, 1995-08-30 This handbook examines the Nutritional Labeling and Education Act NLEA passed by Congress in 1990 It discusses the history of the NLEA and its impact on various segments of the food industry making complex and detailed regulations easily understandable throughout Government industry and consumer perspectives on labelling regulations are provided along with practical guidelines for compliance and packaging

Handbook of Food Analysis: Physical characterization and nutrient analysis Leo M. L. Nollet, 2004 This two volume handbook supplies food chemists with essential information on the physical and chemical properties of nutrients descriptions of analytical techniques and an assessment of their procedural reliability The new edition includes two new chapters that spotlight the characterization of water activity and the analysis of inorganic nutrients and provides authoritative rundowns of analytical techniques for the sensory evaluation of food amino acids and fatty acids neutral lipids and phospholipids and more The leading reference work on the analysis of food this edition covers new topics and techniques and reflects the very latest data and methodological advances in all chapters

An Introduction to Chemistry Michael Mosher, Paul Kelter, 2023-03-18 This textbook is written to thoroughly cover the topic of introductory chemistry in detail with specific references to examples of topics in common or everyday life It provides a major overview of topics typically found in first year chemistry courses in the USA The textbook is written in a conversational question based format with a well defined problem solving strategy and presented in a way to encourage readers to think like a chemist and to think outside of the box Numerous examples are presented in every chapter to aid students and provide helpful self learning tools The topics are arranged throughout the textbook in a traditional approach to the subject with the primary audience being undergraduate students and advanced high school students of chemistry

A Textbook of Pharmaceutical Analysis Dr. Yedlapalli. Govindarao , Mrs. Sakshy Sharma , Dr. Padmanabh B. Deshpande , Mr. Manoj Gangadhar Shinde, Mrs. G. Jahnavi, 2025-05-10 It brings us immense joy to introduce the book Pharmaceutical Analysis This book has been carefully designed to align with the Bachelor of Pharmacy curriculum set by the Pharmacy Council of India We hope it proves valuable to both students and teachers alike We welcome feedback and suggestions on all aspects of the subject and take full responsibility for any inadvertent errors or omissions If any discrepancies are found we

would greatly appreciate readers bringing them to our attention

Food Analysis Suzanne Nielsen, 2003-04-30 This book provides information on the techniques needed to analyze foods in laboratory experiments All topics covered include information on the basic principles procedures advantages limitations and applications This book is ideal for undergraduate courses in food analysis and is also an invaluable reference to professionals in the food industry General information is provided on regulations standards labeling sampling and data handling as background for chapters on specific methods to determine the chemical composition and characteristics of foods Large expanded sections on spectroscopy and chromatography are also included Other methods and instrumentation such as thermal analysis selective electrodes enzymes and immunoassays are covered from the perspective of their use in the chemical analysis of foods A helpful Instructor s Manual is available to adopting professors

A Textbook of Pharmaceutical Analysis Mr. A. L. Ware , Mrs. Seema Chahar Beniwal , Dr. N. Kannappan , Dr. K. K. Senthilkumar Dr. D. Samson Israel, 2024-07-20 Introducing the book Pharmaceutical Analysis is something that fills me with an incredible amount of joy The content of this book has been meticulously crafted to adhere to the curriculum for Bachelor of Pharmacy students that has been outlined by the Pharmacy Council of India An effort has been made to investigate the topic using terminology that is as straightforward as possible in order to make it more simply digestible for pupils The book has a number of illustrations such as flowcharts and diagrams that make it simple for students to comprehend complex ideas It is the author s honest desire that both students and academicians would take something helpful away from reading this book

Photoacoustic IR Spectroscopy Kirk H. Michaelian, 2010-12-01 This invaluable and up to date source on instruments and applications covers everything needed to employ a technique for investigating various gases and materials including biomaterials It includes the latest developments in light sources signal recovery and numerical methods There is no other single publication that reviews the entire subject of photoacoustic infrared spectroscopy in such detail Physicists chemists and spectroscopists in both academic and industrial laboratories polymer and organic chemists analysts in industry forensic and government laboratories and materials scientists will find this book to be a vital resource

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