Removal Of Dissolved Oxygen From Water A Comparison Of Four

Over the years the aim of the International Conference on Magnet Technology has been the exchange of information on the design, construction and operation of magnets for a variety of applications, such as high energy physics, fusion, electrical machinery and others. The aim has included advances in materials for magnet conductors, insulators and supporting structures. Since its inception the focus of the International Conference on Magnet Technology has gradually shifted to superconducting magnets. Now almost all papers are related to superconductivity. The 11th International Conference on Magnet Technology (MT-11) was organized by the combined efforts of the Institute of Electrical Engineers of Japan, the Association for Promotion of Electrical, Electronic and Information Engineering, and the Tokyo Section of the IEEE. The Conference was held at the Tsukuba University Hall, Tsukuba, Japan, from 28 August to 1 September 1989, courtesy ofthe University ofTsukuba. The Tsukuba University Hall was large enough to host invited talks, parallel sessions, poster sessions and industrial exhibitions. 461 participants from 19 countries registered for MT-ll, and 280 invited and contributed papers were presented. The papers were reviewed not only by the Program Committee but also by foreign participants. Working sessions and social events were characterized by a truly international atmo sphere. Scientific as well as cultural excursions were organized so that foreign visitors could experience the spirit of modern Japan. 26 companies, of which 8 were from Western countries, participated in the industrial exhibition which featured diverse products and services of interest to the magnet community.

In order to prevent waterside corrosion of steam generating plants used by the Navy, it is necessary to remove the dissolved oxygen from the water. In most cases this is accomplished by mechanical deaeration. When the efficiency of the deaerator is reduced, however, or when oxygen (air) leaks occur, it is necessary to supplement the oxygen-removal process with chemical treatment. Small amounts of oxygen can be scavenged economically by adding a reducing agent, such as sodium sulfite, to the feedwater. The objective of the study was to increase the effectiveness of the use of sulfite as an oxygen scavenger in closed water systems. The chelating agent chosen was disodium ethylenediamine tetraacetate (Na2EDTA). Other inhibitors were also included in some of the experiments. The autoxidation of sodium sulfite was inhibited by the EDTA. Results of experiments show that, when ions of copper and iron are chelated with EDTA, they no longer catalyze the oxidation of Na2SO3.

Removal of Arsenic in Drinking Water

Nitrogen and Carbon Removal from Organic Loaded Effluents

Polarography

Executive Summary

Experimental Measurements of Spatial Particle Removal from Silicon Wafers by Megasonic Energy

Many water resource recovery facilities (WRRF) around the world utilize biological processes for effective removal of nitrogen (N) from municipal waste; since biologically available N has been recognized as a significant pollutant in wastewater, is toxic to aquatic life and contributes to eutrophication. Over the past 30 years, discoveries of novel N-cycling microorganisms and biological pathways have been especially influential to energy-conscious WRRF research. Today, most biological N removal processes rely on extensive aeration for nitrification and organic carbon for denitrification; however, the high cost and loss of energy generating carbon associated with this type of treatment has propelled engineers and scientists to develop novel biological N treatment strategies that employ many of the newly discovered microorganisms and pathways. While energy-saving strategies are promising and have been employed full-scale, the microorganisms involved in some of these micro-aerobic N-cycling engineered ecosystems remain elusive. We have shown at the pilot-scale (treating full-scale primary effluent) that we can slowly transform an existing high-oxygen N-cycling microbial community to low oxygen concentrations, without loss of effluent quality, and with improved N removal efficiency [9]. Separate work with a bench-scale Madison Micro-Aerobic/AnoXic (MAD MA-AX) bioreactor has also shown that we can achieve up to 90% N removal with minimal aeration to treat the reject water from a struvite harvesting process. In both cases, we describe the key microorganisms contributing to N removal and discuss the factors that may lead to adaptation to microaerobic conditions.

Abstract: The potential changes of dissolved oxygen concentrations caused by combined sewer overflows (CSOs) are an important consideration before and after dam removal in many urban rivers. In central Ohio, removal of a 2-m-high dam is planned in Columbus for the fourth-order Lower Olentangy River, which has several major CSOs. Two simulation models were developed, using STELLA® 9.1.4, an icon-based dynamic systems modeling software, to investigate the interactions of hydrology, water quality, CSOs, and dam removal on the Olentangy River reservoir before the Fifth Avenue Dam. The first simulation model, focusing on daily dissolved oxygen (DO), was created to predict DO changes with the pollution of CSOs before and 120 hours after dam removal. Field DO data in 2009, 2011, and 2012 were used to calibrate and validate the model. The second simulation model, a weekly water quality model, was created to simulate one-year streamflow, gross primary productivity (GPP) and DO changes before dam removal and to predict long-term water quality changes 2 years after dam removal. Field streamflow and water quality data in 2004 and 2009 were used to calibrate the model. The results from both field data analysis and model simulations suggest that large differences existed in water quality between base flow and flooding periods. The water quality of the Lower Olentangy River will be impacted immediately after dam removal. DO concentrations will continue to be significantly impacted by CSO discharges even after dam removal.

Final Report Production Test 105-504-E

Rates of Removal of Dissolved Gasoline Components from Laboratory Soil Columns with and Without Microbiological Activity

The Effects of Dredging on Dissolved Oxygen in Agricultural Waterways in King County, Washington

Insights Into Biological Nutrient Removal Using Low Dissolved Oxygen

This presentation describes various aspects of the regulation of tissue oxygenation, including the roles of the circulatory system, respiratory system, and blood, the carrier of oxygen within these components of the cardiorespiratory system. The respiratory system takes oxygen from the atmosphere and transports it by diffusion from the air in the alveoli to the blood flowing through the pulmonary capillaries. The cardiovascular system then moves the oxygenated blood from the heart to the microcirculation of the various organs by convection, where oxygen is released from hemoglobin in the red blood cells and moves to the parenchymal cells of each tissue by diffusion. Oxygen that has diffused into cells is then utilized in the mitochondria to produce adenosine triphosphate (ATP), the energy currency of all cells. The mitochondria are able to produce ATP until the oxygen tension or PO2 on the cell surface falls to a critical level of about 4–5 mm Hg. Thus, in order to meet the energetic needs of cells, it is important to maintain a continuous supply of oxygen to the mitochondria at or above the critical PO2 . In order to accomplish this desired outcome, the cardiorespiratory system, including the blood, must be capable of regulation to ensure survival of all tissues under a wide range of circumstances. The purpose of this presentation is to provide basic information about the operation and regulation of the cardiovascular and respiratory systems, as well as the properties of the blood and parenchymal cells, so that a fundamental understanding of the regulation of tissue oxygenation is achieved.

Keywords: ORP, Dissolved Oxygen, and pH, nitrogen removal, Nitrogen species profiles, intermittent aeration, swine wastewater.

Removal of Dissolved Oxygen in Ultrapure Water Production

The Analysis and Optimization of Dissolved Oxygen/aeration Levels in a Biological Substrate Removal Process

The Promotion of Chemical Reaction by Pile Radiation

Thermal Power Plants

Nitrogen removal in a photo-bioreactor by nitritation and anammox under variations in dissolved oxygen concentration

Dissolved oxygen was extracted from flowing sodium by ionic transport through an impervious solid electrolyte wall. Current efficiency and cell resistivity were measured for three solid oxide electrolytes at several temperatures and voltages. Best results were obtained with ZrO2 + 8 m/o CaO at 1200F and 4 to 6 volts/mm. Current efficiency was low, due to induced electronic conduction, but oxygen removal rates higher than in zirconium hot traps were achieved. Similar cells tested in pure oxygen at the same temperature also developed electronic conduction, suggesting that it is due more to low temperature electrolysis than to the low oxygen pressure in sodium. Application of such cells to aerospace sodium systems is hindered by the unpredictable life of the ceramic tube. A modified cell concept, substituting an oxide film on a metallic substrate for the free-standing ceramic tube, is described. (Author).

This book compares the process of denitrification/anaerobic digestion/nitrification for the simultaneous removal of nitrogen and carbon from organic loaded effluents. In the first type of process, nitrification and denitrification simultaneously take place in the same reactor (SND). In the second type of process, there is one hybrid reactor with internal recycle, in which denitrification and anaerobic digestion take place, followed by one aerobic reactor where nitrification occurs with recycle to the anoxic/anaerobic stage. This book analyses the different factors that affect both processes, such as: (1) Dissolved oxygen (DO), (2) Carbon and nitrogen ratio in the influent (C/N), (3) Hydraulic residence time (TRH), (4) Effect of the recycle ratio, and (5) Effect of the presence of salt (NaCl) in the influent.

Electrolytic Removal of Oxygen from Sodium

Removal of 2,4-dimethylphenol from Distilled Water by Enzymatic Treatment

Predicting River Aquatic Productivity and Dissolved Oxygen Before and After Dam Removal in Central Ohio, USA

A Manual for Measuring Dissolved Oxygen and Nitrogen Gas Concentration in Water with the Van-Slyke-Neill Apparatus

Oxidation Ditch Treatment of Meatpacking Wastes

Thermal power plants are one of the most important process industries for engineering professionals. Over the past decades, the power sector is facing a number of critical issues; however, the most fundamental challenge is meeting the growing power demand in sustainable and efficient ways. Practicing power plant engineers not only look after operation and maintenance of the plant, but, also look after range of activities including research and development, starting from power generation to environmental aspects of power plants. The book Thermal Power Plants - Advanced Applications introduces analysis of plant performance, energy efficiency, combustion, heat transfer, renewable power generation, catalytic reduction of dissolved oxygen and environmental aspects of combustion residues. This book addresses issues related to both coal fired and steam power plants. The book is suitable for both undergraduate and research higher degree students, and of course for practicing power plant engineers.

The reaction rate of sodium sulfite was studied as a function of oxygen concentration, Na2SO3/O2 ratio, temperature, catalyst, pH and surface/volume ratio. The reaction rate of hydrazine with dissolved oxygen was also studied. Oxygen removal is incomplete when the sulfite to oxygen ratio is leas than the stoichiometric quantity. With the stoichiometric quantities of oxygen and sodium sulfite present, removal is incomplete at 100 deg F in 1 min, at 200 deg F, about 95% of the oxygen is removed in 10 sec and at 300 deg F oxygen removal is essentially complete in 10 sec. With an excess of sulfite present (10 Na2SO3/1 O2, molar), 95% of the oxygen is removed at 100 deg F in 10 sec. At 200 and 300 deg F, oxygen removal is essentially complete in 10 sec. The rate of oxygen removal is dependent to some extent on the container material. The sulfite oxygen reaction progresses at a higher rate in boiler water than in feedwater. The reaction rate of hydrazine with oxygen is low compared with the reaction rate of sulfite and dissolved oxygen. No reduction of oxygen was noted over a one-minute period with an excess of hydrazine. (auth).

Biological Removal of Nitrate from River Water

Applied Mechanics and Civil Engineering VI

Modeling Nutrient and Dissolved-oxygen Transport in the Truckee River and Truckee Canal Downstream from Reno, Nevada

Biological Removal of Carbon and Nitrogen Compounds from Coke Plant Wastes

11th International Conference on Magnet Technology (MT-11)

Applied Mechanics and Civil Engineering VI includes the contributions to the 6th International Conference on Applied Mechanics and Civil Engineering (AMCE 2016, Hong kong, China, 30-31 December 2016), and showcases the challenging developments in the areas of applied mechanics, civil engineering and associated engineering practice. The book covers a wide variety of topics: - Applied mechanics and its applications in civil engineering; - Bridge engineering; - Underground engineering; - Structural safety and reliability; - Reinforced concrete (RC) structures; - Rock mechanics and rock engineering; - Geotechnical in-situ testing & monitoring; - New construction materials and applications; - Computational mechanics; - Natural hazards and risk, and - Water and hydraulic engineering. Applied Mechanics and Civil Engineering VI will appeal to professionals and academics involved in the above mentioned areas, and it is expected that the book will stimulate new ideas, methods and applications in ongoing civil engineering advances.

PolarographyEfficient Removal of Dissolved OxygenThe Effect of Catalysts on the Removal of Dissolved Oxygen from Water by Sodium Sulfite ...Removal of Dissolved Oxygen in Ultrapure Water ProductionThe Effect of Catalysts on the Removal of Dissolved Oxygen from Boiler Water by Sodium Sulfite ...The Analysis of Dissolved Oxygen in Molten Copper and Its Removal by Inert Gas Injection in the Presence of CarbonNovel Membrane Reactors for Dissolved Oxygen Removal in Ultrapure Water ProductionSubstrate Removal at Zero Dissolved Oxygen Concentration Incorporating Oxidation-reduction Potential Control11th International Conference on Magnet Technology (MT-11)Volume 1Springer Science & Business Media

Efficient Removal of Dissolved Oxygen

Effects of Internal Recycle of Nitrified Liquor and Dissolved Oxygen Control in Anaerobic/Anoxic/Oxic (A2/O) Process for Biological Nutrient Removal

Selenium Removal with Ferrous Hydroxide

The Effect of Catalysts on the Removal of Dissolved Oxygen from Water by Sodium Sulfite ...

The Effect of Catalysts on the Removal of Dissolved Oxygen from Boiler Water by Sodium Sulfite ...