Activated Carbon For Water And Wastewater Treatment Integration Of Adsorption And Biological Treatment

Adsorption Processes for Water Treatment discusses the application of adsorption in water purification. The book is comprised of 10 chapters that detail the carbon and resin adsorptive processes for potable water treatment. The text first covers the elements of surface chemistry and then proceeds to discussing adsorption models. Chapter 3 tackles the kinetics of adsorption, while Chapter 4 deals with batch systems and fixed fluid beds. Next, the book talks about the physical and chemical properties of carbon. The next two chapters discuss the adsorption of organic compounds and the removal of inorganic compounds, respectively. The eighth chapter presents operational, pilot plant, and case studies. Chapter 9 discusses the biological activated carbon treatment of drinking water, and Chapter 10 covers the adsorption of macroreticular resins. The book will be of great use to both researchers and professionals involved in the research and development of water treatment process.

This part specifies the requirements, inspection rules, test methods, mark, package, transportation, and storage etc. for granular activated carbon from coal for water treatment. This part is applicable to

dechlorination, oil removal and purification for industrial water; further purification treatment for drinking water and sewage; and granular activated carbon from coal for water treatment when water source are outbreak-polluted.

Project Report from the year 2016 in the subject Engineering - Chemical Engineering, grade: 87, Moi University, language: English, abstract: This degree thesis studied the viability of treating molasses waste water using a combination of chitosan and activated carbon. Chitosan is obtained by deacetylation of chitin and is an important polymer in water treatment. Activated carbon is a powerful absorbent that is used in filtration. Effects of temperature, time, oh and agitation was studied. The research pointed important leads to embracing chitosan in waste water treatment. Kenya is a major sugar producer with a sugar production output of 591,658 tonnes. The sugar industry encompasses sugar refining which yields molasses used in molasses distilleries to produce ethanol. The molasses distillery produces distillery waste known as spent wash which has a high BOD/COD, bad odor and brown color. The high BOD/COD can be removed by conventional means such as aerobic and anaerobic digesters, but it is this brown caramelized compounds known as melanoidins that must be removed by unconventional means since they are recalcitrant and difficult to biodegrade biologically. This project aims to explore options of removing recalcitrant compounds in molasses waste water by adsorption process using powdered activated carbon and chitosan a biopolymer derived from chitin. Sugarcane molasses is the by-product of the sugar production industry which are generated during sugar production. Sugarcane molasses contains 50% fermentable sugar is dark brown, putrid and viscous liquid. Sugarcane molasses is a feedstock

for ethanol production and is used in a ratio of 1:1 for fermentation and purification of spirit. The product collected as bottom products form spent wash which is the major constituent of molasses waste water. Properties of molasses include high acidity, strong odor, coloring pigments due to presence of melanoidins, metal sulfides and phenolics giving it brown color. Spent wash

This monograph provides comprehensive coverage of technologies which integrate adsorption and biological processes in water and wastewater treatment. The authors provide both an introduction to the topic as well as a detailed discussion of theoretical and practical considerations. After a review of the basics involved in the chemistry, biology and technology of integrated adsorption and biological removal, they discuss the setup of pilot- and full-scale treatment facilities, covering powdered as well as granular activated carbon. They elucidate the factors that influence the successful operation of integrated systems. Their discussion on integrated systems expands from the effects of environmental to the removal of various pollutants, to regeneration of activated carbon, and to the analysis of such systems in mathematical terms. The authors conclude with a look at future needs for research and develoment. A truly valuable resource for environmental engineers, environmental and water chemists, as well as professionals working in water and wastewater treatment.

Activated CarbonSolutions for Improving Water QualityAmerican Water Works Association

This book presents topical research in the study of activated carbon, which includes topics such as the surface chemistry of activated carbons and as catalyst supports; thermal processing of activated

carbons from agro-industrial wastes; activated carbon as a metal oxide support; Virtual Porous Carbon (VPC) models and combining ozone and activated carbon for water and wastewater treatment.

"Many books have been written about granular activated carbon. Some focus on the theory of performance and removal mechanisms while others focus on design features. This book focuses on solutions. It describes the challenges facing water providers to provide safe water that is acceptable to their customers, utility experiences using activated carbon, activated carbon applications, and design and procurement approaches. The appendices include detailed case studies and a life-cycle assessment demonstrating favorable sustainability considerations for activated carbon when compared to other treatment technologies. Never before has all of this information been together in one location. The what, why, and how of activated carbon are connected in this book and demonstrate why this treatment technology has maintained its status as an integral treatment technology in the quest for pure water over millennia"--

Tiivistelmä: Kaksivaiheinen aktiivihiilisuodatus talousveden valmistuksessa.