1. Record Nr. UNINA9910810443803321

Titolo	Ozone in food processing / / edited by Colm O'Donnell ... [et al.]
Pubbl/distr/stampa	Oxford ; ; Ames, Iowa, : Blackwell Pub., 2012
ISBN	1-280-58640-0 9786613616234 1-118-30747-X 1-118-30741-0
Edizione	[1st ed.]
Descrizione fisica	1 online resource (316 p.)
Altri autori (Persone)	O'DonnellC. P (Colm P.)
Disciplina	664/.0286
Soggetti	Ozone Food industry and trade
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Ozone in Food Processing; Contents; Contributors; 1 Status and Trends of Ozone in Food Processing; 1.1 Why ozone?; 1.2 Drivers of ozone in the food industry; 1.2.1 Regulation; 1.2.2 Surface cleaning and disinfection; 1.2.3 Food safety and shelf life extension; 1.2.4 Nutrient and sensory aspects; 1.2.5 Consumer and processor acceptability; 1.2.6 Technology advances; 1.2.7 Environmental impact; 1.3 The hurdle concept; 1.4 Challenges; 1.5 Objective; References; 2 Regulatory and Legislative Issues; 2.1 Introduction; 2.2 History of ozone application and regulation; 2.3 Ozone regulation 2.3.1 Overview of US regulations2.3.2 Overview of European regulations; 2.3.3 Overview of Canadian regulations; 2.3.4 Overview of Australian and New Zealand regulations; 2.3.5 Overview of Japanese regulations; 2.4 Global harmonisation of food safety regulations; References; 3 Chemical and Physical Properties of Ozone; 3.1 Introduction; 3.2 The molecular structure of ozone; 3.3 The chemical and physical properties of ozone; 3.3.1 The chemical mechanisms of ozonation; 3.3.2 Ozone reaction pathways in water; 3.4 Ozone action on macromolecules; 3.5 Mechanisms of microbial inactivation 3.6 Ozone reactions against virus3.7 Ozone reaction on biofilms; Acknowledgments; References; 4 Generation and Control of Ozone; 4.1

Introduction; 4.2 Ozone generation; 4.2.1 Ozone generation by corona discharge (CD); 4.2.2 Ultraviolet (UV) (photochemical) ozone generation; 4.3 Feed gas preparation systems; 4.3.1 Need for feed gas treatment; 4.3.2 Air preparation systems; 4.3.3 Oxygen feed gas systems; 4.4 Solubility of ozone in water; 4.5 Contacting ozone with water: physical means of transferring ozone into water; 4.5.1 Venturi injection method; 4.5.2 Fine bubble diffuser method
4.6 Measuring and monitoring ozone in water4.6.1 Colourimetric method; 4.6.2 Electronic method - for dissolved ozone; 4.6.3 Electronic method - for ORP; 4.7 Measuring and monitoring ozone in air; 4.7.1 Ozone measurement equipment for food processing plant air; 4.8 Ozonation equipment for food storage rooms; 4.9 Ozone generator output control; 4.10 Some recent novel applications for ozone generation in food processing plants; 4.11 Helpful calculations; 4.11.1 Gallons per minute; 4.11.2 Metric equivalent; References; 5 Ozone in Fruit and Vegetable Processing; 5.1 Introduction
5.2 Applications in fruit and vegetable processing5.2.1 Surface decontamination; 5.2.2 Storage in ozone-rich atmospheres; 5.2.3 Ozone in fruit and vegetable juice processing; 5.3 Efficacy of ozone; 5.4 Synergistic effects with ozone; 5.5 Effect of ozone on product quality and nutrition; 5.5.1 Chemical attributes; 5.5.2 Visual quality; 5.5.3 Texture; 5.5.4 Sensory quality; 5.6 Conclusion; References; 6 Ozone in Grain Processing; 6.1 Introduction; 6.2 Ozone application in grain storage and effects on grain components; 6.2.1 Insect control; 6.2.2 Microorganism control
6.2.3 Reduction of toxic chemical levels

Sommario/riassunto

This book is the first to bring together essential information on the application of ozone in food processing, providing an insight into the current state-of-the-art and reviewing established and emerging applications in food processing, preservation and waste management. The chemical and physical properties of ozone are described, along with its microbial inactivation mechanisms. The various methods of ozone production are compared, including their economic and technical aspects. Several chapters are dedicated to the major food processing applications: fruit and vegetables, grains, meat, se