1. Record Nr. UNINA9910823746603321 Mercury control: for coal-derived gas streams / / edited by Evan J. **Titolo** Granite, Henry W. Pennline, and Constance Senior Pubbl/distr/stampa Weinheim, Germany:,: Wiley-VCH,, 2015 ©2015 **ISBN** 3-527-65880-7 3-527-65878-5 3-527-65881-5 Descrizione fisica 1 online resource (478 p.) Disciplina 363.7384 Soggetti Coal - Mercury content Mercury - Environmental aspects Mercury wastes Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Includes bibliographical references at the end of each chapters and Nota di bibliografia index. Mercury Control; Contents; List of Contributors; Mercury R&D Book Nota di contenuto Foreword; Preface; List of Abbreviations; Part I: Mercury in the Environment: Origin, Fate, and Regulation; Chapter 1 Mercury in the Environment: 1.1 Introduction: 1.2 Mercury as a Chemical Element: 1.2.1 Physical and Chemical Properties of the Forms of Mercury; 1.2.2 Associations with Minerals and Fuels; 1.3 Direct Uses of Mercury; 1.4 Atmospheric Transport and Deposition; 1.5 Atmospheric Reactions and Lifetime; 1.6 Mercury Biogeochemical Cycling; References; Chapter 2 Mercury and Halogens in Coal; 2.1 Introduction 2.1.1 Mode of Occurrence of Mercury (Hg) in Coal 2.1.2 Effectiveness of Pre-Combustion Mercury Removal; 2.1.3 Methods for Mercury Determination; 2.2 Mercury in U.S. Coals; 2.2.1 U.S. Coal Databases: 2.2.1.1 USGS COALQUAL Database; 2.2.1.2 1999 EPA ICR; 2.2.1.3 2010 EPA ICR; 2.2.2 Comparison of U.S. Coal Databases; 2.3 Mercury in International Coals; 2.3.1 Review of Mercury in Coal in the Largest Coal Producers; 2.3.1.1 China; 2.3.1.2 India; 2.3.1.3 Australia; 2.3.1.4 South Africa; 2.3.1.5 Russian Federation; 2.3.1.6 Indonesia; 2.4 Halogens in

Coal; 2.4.1 Introduction; 2.4.1.1 Chlorine (CI)

2.4.1.2 Bromine (Br) 2.4.1.3 Iodine (I); 2.4.1.4 Fluorine (F); 2.5 Summary; Acknowledgments; References; Chapter 3 Regulations; 3.1 U. S. Regulations; 3.1.1 Background; 3.1.2 Electric Generating Units (EGUs); 3.1.3 Mercury and Air Toxics Standards (""MATS"") - Existing Sources; 3.1.4 Mercury and Air Toxics Standards (""MATS"") - New Sources; References; Chapter 4 International Legislation and Trends; 4.1 Introduction; 4.2 International Legislation; 4.2.1 UNEP International Legally Binding Instrument on Mercury (""Minamata Convention""); 4.2.2 European Union (EU)

4.3 Regional and National Legislation 4.3.1 Europe; 4.3.1.1 Germany; 4.3.1.2 Netherlands; 4.3.2 Asia; 4.3.2.1 China; 4.3.2.2 Japan; 4.3.2.3 Other Asian Countries; 4.3.3 Other Countries; 4.3.3.1 Australia; 4.3.3.2 Canada; 4.3.3.3 Russia; 4.3.3.4 South Africa; 4.4 Summary; References; Part II: Mercury Measurement in Coal Gas; Chapter 5 Continuous Mercury Monitors for Fossil Fuel-Fired Utilities; 5.1 Introduction; 5.2 Components of a CMM; 5.2.1 Mercury Analyzer; 5.2.1.1 Cold-Vapor Atomic Absorption Spectrometry; 5.2.1.2 Cold-Vapor Atomic Fluorescence Spectrometry; 5.2.1.3 Other Analytical Methods 5.2.2 Pretreatment/Conversion Systems and Probe 5.2.2.1 Sampling Probe; 5.2.2.2 Pretreatment and Mercury Conversion; 5.2.3 CMM Calibration System; 5.3 Installation and Verification Requirements; 5.3.1 Installation; 5.3.2 CMM Verification; 5.3.2.1 Measurement Error; 5.3.2.2 Seven-Day Calibration Drift; 5.3.2.3 Relative Accuracy Test Audit; 5.4 Major CMM Tests; 5.5 CMM Vendors; References; Chapter 6 Batch Methods for Mercury Monitoring; 6.1 Introduction; 6.2 Wet Chemistry Batch Methods; 6.2.1 Early EPA Total Hg Methods; 6.2.2 Development of Wet Chemistry Methods to Speciate Hg 6.2.3 Method Application and Data Quality Considerations

## Sommario/riassunto

This essential handbook and ready reference offers a detailed overview of the existing and currently researched technologies available for the control of mercury in coal-derived gas streams and that are viable for meeting the strict standards set by environmental protection agencies. Written by an internationally acclaimed author team from government agencies, academia and industry, it details US, EU, Asia-Pacific and other international perspectives, regulations and guidelines.