1. Record Nr. UNINA9910464854003321 Autore Nolan Dennis P. **Titolo** Handbook of fire and explosion protection engineering principles / / Dennis P. Nolan Kidlington, England:,: William Andrew,, 2014 Pubbl/distr/stampa ©2014 **ISBN** 0-323-31144-X Edizione [Third edition.] Descrizione fisica 1 online resource (487 p.) Disciplina 660.2804 Chemical plants - Fires and fire prevention Soggetti Petroleum refineries - Fires and fire prevention **Explosions** Explosions - Safety measures Electronic books. 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 at the end of each chapters and index. Nota di contenuto Half Title; Title Page; Copyright; Dedication; Contents; About the Author; Preface; 1 Historical Background, Legal Influences, Management Responsibility, and Safety Culture; 1.1. Historical Background; 1.2. Legal Influences; 1.2.1 Occupational Safety and Health Administration (OSHA); 1.2.2 Chemical Safety and Hazard Investigation Board (CSB); 1.2.3 DOT/PIPA Guidelines; 1.2.4 BSEE, Safety and Environmental Management Systems; 1.2.5 National Institute of Occupational Safety and Health (NIOSH); 1.2.6 Security Vulnerability Assessment (SVA) Regulation 1.2.7 US Presidential Executive Orders (13605 and 13650)1.3. Hazards and Their Prevention; 1.4. Systems Approach; 1.5. Fire Protection Engineering Role/Design Team; 1.5.1 Risk Management and Insurance; 1.6. Senior Management's Responsibility and Accountability; 1.6.1 Achieving a World Class Organizational Safety Culture: 1.7. Operational Excellence: 1.7.1 Typical OE Elements: Further Reading: 2 Overview of Oil, Gas, and Petrochemical Facilities; 2.1. Exploration; 2.2. Production;

2.3. Enhanced Oil Recovery; 2.4. Secondary Recovery; 2.5. Tertiary

Recovery; 2.6. Transportation; 2.7. Refining 2.7.1 Basic Distillation 2.7.2 Thermal Cracking; 2.7.3 Alkylation and Catalytic Cracking; 2.7.4 Purification; 2.8. Typical Refinery Process Flow; 2.8.1 Production Percentages; 2.9. Marketing; 2.10. Chemical Processes; Further Reading; 3 Philosophy of Protection Principles; 3.1. Legal Obligations; 3.1.1 Occupational Safety and Health Administration (OSHA); 3.1.2 Environmental Protection Agency (EPA); 3.2. Insurance Recommendations: 3.3. Company and Industry Standards: 3.3.1 General Philosophy; 3.4. Worst Case Condition; 3.4.1 Ambient Conditions; 3.5. Independent Layers of Protection (ILP) 3.6. Design Principles 3.7. Accountability and Auditability; Further Reading; 4 Physical Properties of Hydrocarbons and Petrochemicals; 4.1. General Description of Hydrocarbons; 4.1.1 Alkene Series; 4.1.2 Alkyne Series; 4.1.3 Cyclic Hydrocarbons; 4.2. Characteristics of Hydrocarbons; 4.2.1 Lower Explosive Limit (LEL) and Upper Explosive Limit (UEL); 4.3. Flash Point (FP); 4.4. Autoignition Temperature (AIT); 4.5. Vapor Density Ratio; 4.6. Vapor Pressure; 4.7. Specific Gravity; 4.8. Flammable; 4.9. Combustible; 4.10. Heat of Combustion; 4.10.1 Description of Some Common Hydrocarbons 4.10.1.1 Natural Gas4.10.1.2 Crude Oil; 4.10.1.3 Methane; 4.10.1.4 LNG, Liquefied Natural Gas; 4.10.1.5 Ethane; 4.10.1.6 Propane; 4.10.1.7 Butane; 4.10.1.8 LPG, Liquefied Petroleum Gas; 4.10.1.9 Gasoline: 4.10.1.10 Condensate: 4.10.1.11 Gas and Fuel Oils: 4.10.1.12 Kerosene; 4.10.1.13 Diesel; 4.10.1.14 Fuel Oils #4, 5, and 6; 4.10.1.15 Lubricating Oils and Greases; 4.10.1.16 Asphalt; 4.10.1.17

## Sommario/riassunto

Written by an engineer for engineers, this book is both training manual and on-going reference, bringing together all the different facets of the complex processes that must be in place to minimize the risk to people, plant and the environment from fires, explosions, vapour releases and oil spills. Fully compliant with international regulatory requirements, relatively compact but comprehensive in its coverage, engineers, safety professionals and concerned company management will buy this book to capitalize on the author's life-long expertise. This is the only book focusing specifically on o

5 Characteristics of Hazardous Material Releases, Fires, and Explosions

Wax; 4.10.2 Description of Common Petrochemicals Used in the Petrochemical Industry; 4.10.2.1 Aromatics; 4.10.2.2 Olefins/Alkenes;

4.10.2.3 Chemical Compound Concerns; Further Reading