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Nota di contenuto	Guidelines for Engineering Design for Process Safety, Second Edition; CONTENTS; Acronyms and Abbreviations; Glossary; Acknowledgments; Foreword; Preface; 1 INTRODUCTION; 1.1 Engineering Design for Process Safety Through the Life Cycle of the Facility; 1.2 Regulatory Review / Impact on Process Safety; 1.3 Who Will Benefit From These Guidelines?; 1.4 Organization of this Book; 1.5 Other CCPS Resources; 1.6 References; 2 FOUNDATIONAL CONCEPTS; 2.1 Understanding the Hazard; 2.1.1 Dangerous Properties of Process Materials; 2.1.2 Process Conditions; 2.1.3 Inventory; 2.2 Risk-Based Design 2.2.1 The Concept of Risk2.2.2 Selection of Design Bases for Process Safety Systems; 2.3 Intentional Unsteady State Condition Evaluation; 2.3.1 Batch Reaction Systems; 2.4 Unintentional Unsteady State Issues; 2.4.1 Runaway Reactions; 2.4.2 Deviating from the Design Intent; 2.5 Non-Linearity of the Design Process; 2.6 References; 3 BASIC PHYSICAL PROPERTIES / THERMAL STABILITY DATA; 3.1 Basic Physical Properties; 3.2 Flammability Data; 3.2.1 Flash Point; 3.2.2 Fire Point; 3.2.3 Autoignition Temperature; 3.2.4 Flammable Limits; 3.2.5 Minimum / Limiting Oxygen Concentration

3.2.6 Dust Deflagration Index - KSt3.2.7 Gas Deflagration Index - Kg; 3.3 Reactivity / Thermal Stability Data; 3.3.1 Chemical Reactivity; 3.3.2 Detonations and Deflagrations; 3.3.3 Runaway Reactions; 3.3.4 Calorimetric Data; 3.3.5 Interaction Matrix; 3.3.6 Testing Methods; 3.4 References; 4 ANALYSIS TECHNIQUES; 4.1 Hazard Identification; 4.1.1 Process Hazards; 4.1.2 Chemical / Material Hazards; 4.1.3 Human Impact Data; 4.2 Hazard Analysis Techniques; 4.2.1 A Life Cycle Approach; 4.2.2 Qualitative; 4.2.3 Semi-Quantitative; 4.2.4 Quantitative; 4.2.5 Human Factors
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5.8.3 Design Considerations

Sommario/riassunto

"This updated version of one of the most popular and widely used CCPS books provides plant design engineers, facility operators, and safety professionals with key information on selected topics of interest. The book focuses on process safety issues in the design of chemical, petrochemical, and hydrocarbon processing facilities. It discusses how to select designs that can prevent or mitigate the release of flammable or toxic materials, which could lead to a fire, explosion, or environmental damage. Key areas to be enhanced in the new edition include inherently safer design, specifically concepts for design of inherently safer unit operations and Safety Instrumented Systems and Layer of Protection Analysis. This book also provides an extensive bibliography to related publications and topic-specific information, as well as key information on failure modes and potential design solutions"--