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# Guidelines For Engineering Design For Process Safety



## Synopsis

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.

## Book Information

Hardcover: 440 pages

Publisher: Wiley-AIChE; 2 edition (April 10, 2012)

Language: English

ISBN-10: 0470767723

ISBN-13: 978-0470767726

Product Dimensions: 6.4 x 1 x 9.6 inches

Shipping Weight: 1.6 pounds (View shipping rates and policies)

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## Customer Reviews

"Guidelines for Engineering Design for Process Safety" is a comprehensive introduction to inherently safer industrial processing plant design. Published by the Center for Chemical Process Safety, it covers everything from plant design (including a brief but very useful "Inherent Process Safety Checklist," pp. 44-46,) to equipment design, materials selection, piping systems, heat transfer fluid systems, process monitoring and control, electrical hazards, sources of ignition, fire protection, deflagration and detonation flame arresters, explosion protection, effluent disposal systems, and documentation. The book focuses on hazard mitigation and managing unavoidable hazards. Optimally this book would be consulted prior to building a new plant, but has much of value

for those working in existing plants as well. I thought the quotation from p. 343 was quite insightful: "Years of uneventful operation usually occur before a hazardous condition is recognized." So often people equate low accident rates and safety, but this book dispels that notion, and latent failures are covered in detail. One feature I particularly like about this book is the great list of references at the end of each chapter that deal specifically with that chapter's material. This is so much more helpful than a single giant reference section at the end of the book. Chapter six, "Piping Systems," is one of the best in the book. Not only does it discuss theoretical and practical design constraints (the book is especially strong on welding, gaskets, and flanges,) but discusses the advantages and disadvantages of different types of joints and valves with an eye toward reducing fugitive emissions, discussing fire safety and EPA requirements in the process.

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