1.	Record Nr.	UNISA996199267403316
	Autore	Woodward John Lowell
	Titolo	Estimating the flammable mass of a vapor cloud [[electronic resource] /] / John L. Woodward
	Pubbl/distr/stampa	New York, : Center for Chemical Process Safety of the American Institute of Chemical Engineers, c1998
	ISBN	1-282-84929-8
		9786612849299
		0-470-93536-7
		1-59124-559-1
		0-470-93535-9
	Descrizione fisica	1 online resource (326 p.)
	Collana	CCPS concept book
	Disciplina	660.2804
		660/.2804
	Soggetti	Vapors - Flammability - Mathematical models
		Explosions - Mathematical models
		Fire - Mathematical models
		Chemical plants - Safety measures
		Flammable gases
	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 (p. 267-284) and index.
	Nota di contenuto	Estimating the Flammable Mass of a Vapor Cloud; CONTENTS; Preface; Acknowledgments; Glossary; Nomenclature; 1 INTRODUCTION; 1.1. Why Calculate Flammable Mass?; 1.2. How Are Flammable Mass Estimates Used?; 1.3. Other CCPS Publications; 2 OVERVIEW; 2.1. Context; 2.2. Objectives; 1.3. How to Use This Book; 3 INDUSTRY EXPERIENCES WITH FLAMMABLE VAPOR CLOUDS; 3.1. Property Losses from Vapor Cloud Accidents; 3.2. Examples of Vapor Cloud Events; 3.2.1. Bangkok, Thailand, LPG Vapor Cloud; 3.2.2. Saint Herblain, France, Gasoline Cloud, October 7,1991 3.2.3. Pampa, Texas, Hoechst-Celanese Explosion, November 17,19873.2.4. Monsanto Ethanol Explosion, Autumn, 1970; 3.2.5. Mexico City Vapor Cloud and Explosion, November 19,1984; 3.2.6. Pasadena, Texas Fire and Explosion, October 23,1989; 3.3. Examples

with Postaccident Determination of Flammable Mass; 3.3.1. Flixborough Vapor Cloud Explosion, June 1,1974; 3.3.2. Piper Alpha North Sea Platform Fire, July 6,1988; 3.3.3. DSM Naphtha Cracker, Beek, the Netherlands, 7 November 1975; 4 BASIC CONCEPTS-FLUID FLOW, FIRES, AND EXPLOSIONS; 4.1. Discharge Characteristics 4.1.1. Single-Phase Discharge Rates from Tanks4.1.2. Single-Phase Discharge Rates from Pipes; 4.1.3. Two-Phase Discharge Rates from Tanks; 4.1.4. Two-Phase Discharge Rates from Pipes; 4.1.5. Aerosol Formation and Drop Size Correlations; 4.1.6. Rainout; 4.1.7. Pool Spread and Evaporation on Land; 4.2. Dispersion Factors; 4.2.1. Jet Mixing; 4.2.2. Meteorology; 4.2.3. Surface Roughness and Terrain; 4.2.4. Averaging Time; 4.2.5. Impingement and Cratering; 4.2.6. Obstacle Effects; 4.3. Sources of Ignition; 4.4. Flame Characteristics; 4.4.1. Flammable Limits; 4.4.2. Flammable Limits with Inerts 4.4.3. Autoignition Temperature for Gases4.4.4. Minimum Ignition Energy for Gases; 4.4.5. Flash Point; 4.4.6. Laminar Burning Velocity and Turbulent Flame Speed; 4.5. Aerosol Flammability; 4.6. Turbulence Effects; 4.6.1. Turbulence Effects of Jet Plume Ignition; 4.6.2. Turbulence and Pockets of Flammable Material; 4.7. Flash Fires; 4.8. Explosions; 4.8.1. Confinement and Congestion; 4.8.2. Effect of Concentration on Explosion Overpressure; 4.8.3. TNT Equivalence Explosion Models; 4.8.4. Volume Source Explosion Models; 4.8.5. Determining Fuel Reactivity 4.8.6. Determining Degree of Confinement4.8.7. Determining Level of Congestion; 4.8.8. Multiple Congested Volumes; 4.9. Minimum Flammable Mass for Vapor Cloud Explosions; 4.10. Probability of Vapor Cloud Ignition and Explosion; 5 DETERMINATION OF FLAMMABLE MASS; 5.1. Estimation Methods by Degree of Confinement; 5.2. Methods for Finding the Flammable Mass in Unconfined Vapor Clouds; 5.2.1. Screening: Rules of Thumb; 5.2.2. Calculating Flammable Mass with Dispersion Models; 5.3. Methods for Finding the Flammable Mass in Partially Confined Vapor Clouds 5.3.1. Estimating Flammable Mass for Potential Explosion Sites

| Sommario/riassunto | This CCPS Concept book shows designers and operators of chemical facilities how to realistically estimate the flammable mass in a cloud of accidentally released material that is capable of igniting. It provides information on industry experience with flammable vapor clouds, basic concepts of fires and explosions, and an overview of related computer programs. |