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Models; 4.1. Conceptual Process for Source Term Determination
4.2. Calculation of Source Terms4.2.1. Gas Jet Releases; 4.2.2. Liquid Jet Releases; 4.2.3. Two-Phase Jet Releases; 4.2.4. Liquid Pool Spreading; 4.2.5. Liquid Pool Evaporation; 4.2.6. Multicomponent Evaporation; 4.3. Uncertainties in Source Term Estimation; 5. Dispersion Models; 5.1. Critical Richardson Number Criterion; 5.2. Jet Trajectory and Entrainment; 5.2.1. Momentum-Dominated Jets; 5.2.2. Elevated Dense Gas Jets; 5.2.3. Positively Buoyant Plumes; 5.3. Dense Gas Release at Grade; 5.3.1. Background and Overview; 5.3.2. Dense Gas Clouds in the Absence of Heat Exchange
5.3.3. Dense Gas Clouds in the Presence of Heat Exchanges5.4. Transport and Dispersion of Neutrally Buoyant or Passive Gas Clouds; 5.5. Simple Nomograms for Calculating the Dilution of Dense Gas Release; 5.6. Three-Dimensional Numerical Models of Dense Gas Dispersion; 5.7. Transport and Dispersion Near Buildings; 5.7.1. Plume Confinement by Canyons; 5.7.2. Concentrations on Building Faces Due to Releases from Vents; 5.7.3. Concentrations on the Building Downwind Face (the Near-Wake) Due to Releases from Sources on the Building; 5.7.4. Other Effects of Buildings
5.8. Worst Case Meteorological Conditions5.9. Removal by Dry and Wet Deposition; 5.9.1. Gravitational Settling of Lorge Particles or Aerosols; 5.9.2. Dry Deposition of Small Particles and Gases; 5.9.3. Removal of Particles and Gases by Precipitation and Clouds (Wet Deposition); 6. Averaging Times, Concentration Fluctuations, and Modeling Uncertainties; 6.1. Overview of Physical Considerations Related to Averaging Time; 6.2. Overview of Characteristics of Concentration Fluctuations in Plumes
6.3. Predictions of Concentrations on the Plume Centerline at a Given Downwind Distance as a Function of Averaging Time, Ta6.4. Predictions of Concentrations at a Given Receptor Position as a Function of Averaging Time, Ta; 6.5. Threshold Crossing Probability; 6.6. A General Structure for the Analysis of Model Uncertainties; 7. Overview of Operational Vapor Cloud Models in Common Use; 7.1. Summary of Commonly Used Models; 7.2. Characteristics of Commonly Used Vapor Cloud Dispersion Models; 8. Evaluation of Models with Field Data; 8.1. Description of Field Data Sets
8.2. Model Evaluation Procedures

Sommario/riassunto

The second edition of this essential reference updates and combines two earlier titles to capture the many technological advances for predicting the ""footprint"" of a vapor cloud release. Cited by EPA in its 1996 document, ""Off-Site Consequence Analysis Guidance,"" the aim of the book is to encourage and facilitate the development and use of dispersion modeling as an everyday tool, providing practical understanding of basic physical and chemical principles, guidance in selecting release scenarios and the best available models, and information and examples on how to run some models and interp