

1. Record Nr.	UNINA9910132304403321
Titolo	Handbook of oil spill science and technology / / edited by Merv Fingas
Pubbl/distr/stampa	Hoboken, New Jersey : , : John Wiley and Sons, Inc., , [2015] ©2015
ISBN	1-5231-2358-3 1-118-98998-8 1-118-98996-1
Descrizione fisica	1 online resource (724 p.)
Disciplina	628.1/6833
Soggetti	Oil spills - Prevention Oil spills - Cleanup Oil spills - Management
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 and index.
Nota di contenuto	Title Page; Copyright Page; Contents; Contributors; Author Biographies; Preface; Part I Risk Analysis; Chapter 1 Risk Analysis and Prevention; 1.1 Introduction; 1.2 Executive Summary; 1.3 Oil Spill Risk Analysis; 1.3.1 Defining "Oil Spill Risk"; 1.3.2 Factors That Determine the Probability of Spill Occurrence; 1.3.3 Probability Distributions of Spill Volume; 1.3.4 Determining the Probable Locations and Timing of Spills; 1.3.5 Factors That Determine the Consequences/Impacts of a Spill; 1.3.6 Spill Impacts: The Effects of Spill Location Type; 1.3.7 Measuring Oil Spill Impacts 1.3.8 Interpreting Risk for Policy-Making1.4 Overview of Oil Spill Prevention; 1.4.1 Basic Strategies for Spill Prevention; 1.4.2 Implementation of Spill Prevention Measures; 1.4.3 Effectiveness of Spill Prevention; 1.4.4 Spill Fines and Penalties as Deterrents; References; Part II Oil Properties; Chapter 2 Oil Physical Properties: Measurement and Correlation; 2.1 Introduction; 2.2 Bulk Properties of Crude Oil and Fuel Products; 2.2.1 Density and API Gravity; 2.2.2 Dynamic Viscosity; 2.2.3 Surface and Interfacial Tensions; 2.2.4 Flash Point; 2.2.5 Pour Point; 2.2.6 Sulfur Content 2.2.7 Water Content2.2.8 Evaluation of the Stability of Emulsions

Formed from Brine and Oils and Oil Products; 2.2.9 Evaluation of the Effectiveness of Dispersants on an Oil; 2.2.10 Adhesion; 2.3 Hydrocarbon Groups; 2.3.1 Saturates; 2.3.2 Aromatics; 2.3.3 Resins; 2.3.4 Asphaltenes; 2.4 Quality Assurance and Control; 2.5 Effects of Evaporative Weathering on Oil Bulk Properties; 2.5.1 Weathering; 2.5.2 Preparing Evaporated (Weathered) Samples of Oils; 2.5.3 Quantifying Equation(s) for Predicting Evaporation; References; Part III Oil Composition and Properties
Chapter 3 Introduction to Oil Chemistry and Properties 3.1 Introduction; 3.2 The Composition of Oil; 3.2.1 SARA; 3.2.2 Sulfur Compounds; 3.2.3 Oxygen Compounds; 3.2.4 Nitrogen Compounds; 3.2.5 Metals; 3.2.6 Resins; 3.2.7 Asphaltenes; 3.3 Properties of Oil; References; Chapter 4 Vegetable Oil Spills: Oil Properties and Behavior; 4.1 Introduction; 4.2 The Oils; 4.3 Historical Spills; 4.4 Aquatic Toxicity; 4.5 Properties of the Oils; 4.6 Behavior in the Environment; 4.7 Oxidation, Biodegradation, and Polymerization; 4.8 Spill Countermeasures; 4.9 Biofuels; 4.10 Conclusions; References
Part IV Oil Analysis Chapter 5 Chromatographic Fingerprinting Analysis of Crude Oils and Petroleum Products; 5.1 Introduction; 5.1.1 Crude Oils and Refined Petroleum Products; 5.1.2 Chemical Components of Petroleum; 5.2 Introduction to Oil Analysis Techniques; 5.2.1 GC; 5.2.2 GC with Mass Spectrometry; 5.2.3 Ancillary Oil Fingerprinting Techniques; 5.3 Methodology of Oil Fingerprinting Analysis; 5.3.1 Oil Sample Preparation and Separation; 5.3.2 Identification and Quantitation of Target Petroleum Hydrocarbons; 5.3.3 Oil Type Screening by GC-FID; 5.3.4 Aliphatic Hydrocarbons in Petroleum 5.3.5 Aromatic Hydrocarbons in Petroleum

Sommario/riassunto

Provides a scientific basis for the cleanup and for the assessment of oil spills
Enables Non-scientific officers to understand the science they use on a daily basis
Multi-disciplinary approach covering fields as diverse as biology, microbiology, chemistry, physics, oceanography and toxicology
Covers the science of oil spills from risk analysis to cleanup and through the effects on the environment
Includes case studies examining and analyzing spills, such as Tasman Spirit oil spill on the Karachi Coast, and provides lessons to prevent these in the future
