


Estimation of the Thermal Influence Size Zones of Oil Spill Fire


Advanced Sciences and Technologies for Security Applications • Book Chapter • 2025 •

DOI: 10.1007/978-3-031-78544-3_30 

Kalchenko, Yaroslav  ; Afanasenko, Kostiantyn ; Minska, Natalia ; Kerdyvar, Valentin

National University of Civil Defence of Ukraine, Kharkiv, Ukraine

[Show all information](#)

 This document is one of the chapters of a book series. [See all chapters](#)

Full text  Export   Save to list

Document Impact Cited by (0) References (14) Similar documents

Abstract

The study assessed the consequences of emergencies at oil refineries. Three scenarios for the development of an emergency situation were considered. Local depressurization of the tank with formation of oil spill fire in the dike. Full depressurization of the oil tank with petroleum products without a breakthrough wave with the formation of a fire in the dike. Complete depressurization of the petroleum product tank with formation of a breakthrough wave on the spill fire. Graphs of the dependence of the intensity of thermal radiation on the distance to the center of the spill for oil tanks of different volumes were constructed. The numerical values of distances from the oil spill fire for different degrees of human injury, which are presented in the form of a table, were determined. © The Author(s), under exclusive license to Springer Nature Switzerland AG 2025.