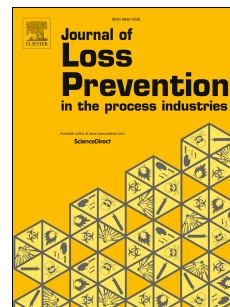


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The impact of nature on chemical industrial facilities: dealing with challenges for creating resilient chemical industrial parks.

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Abstract

In this paper, a conceptual framework is developed to improve NaTech safety in the chemical industry. The concept is called EPIC, indicating that emphasis should be put on Education, learning and training, Proactive risk minimization and safety innovation, Intensified informed inspection and analysis, and Cooperation and transparency. Concrete initiatives addressing NaTech for every domain of the EPIC conceptual framework are given. The innovativeness of the EPIC framework resides in the potential of the simultaneous application of initiatives within the four areas of improvement (E, P, I, and C) to make chemical clusters much more resilient with respect to nature-related disasters. As such, the proposed EPIC framework may lead to a much-needed revolution of NaTech safety in the chemical industry.

Keywords: NaTech safety, chemical industrial facility, chemical clusters

1. Introduction

Chemical plants are attributed with large inventories of hazardous materials whose release could result in catastrophic events. The proximity of chemical plants to residential areas and transportation networks makes the potential consequences of such undesired releases even more catastrophic. The ever-increasing complexity and interdependencies of design and operational parameters in the chemical industry, exacerbate the vulnerability of these industrial activities and the severity and the extent of potential consequences, e.g., via cascading effects. For example, the emergence of chemical clusters has raised the concern of external (cross-boundary) domino effects

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