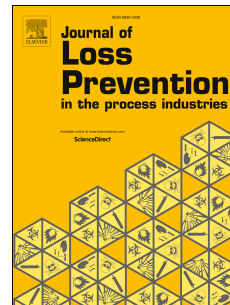


Accepted Manuscript

Integrated self-assessment module for fire rescue safety in a chemical plant – A case study

Shih-Fang Tsai, An-Chi Huang, Chi-Min Shu



PII: S0950-4230(17)31095-1

DOI: [10.1016/j.jlp.2017.12.011](https://doi.org/10.1016/j.jlp.2017.12.011)

Reference: JLPP 3636

To appear in: *Journal of Loss Prevention in the Process Industries*

Received Date: 17 January 2017

Revised Date: 29 July 2017

Accepted Date: 14 December 2017

Please cite this article as: Tsai, S.-F., Huang, A.-C., Shu, C.-M., Integrated self-assessment module for fire rescue safety in a chemical plant – A case study, *Journal of Loss Prevention in the Process Industries* (2018), doi: 10.1016/j.jlp.2017.12.011.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

1 Integrated self-assessment module for fire rescue safety in a chemical
2 plant – A case study

3 **Shih-Fang Tsai^{a,b}, An-Chi Huang^a, Chi-Min Shu^c**

4 ^a *Graduate School of Engineering Science and Technology, National Yunlin University of*
5 *Science and Technology (YunTech), Taiwan, ROC*

6 ^b *Fire Bureau of Taichung City Government, Taiwan, ROC*

7 ^c *Center for Process Safety and Industrial Disaster Prevention, School of Engineering,*
8 *YunTech, Taiwan, ROC*

9

10 A B S T R A C T

11 An integrated self-assessment module using disaster simulation software (suite for the
12 assessment of flammable, explosive, and toxic impacts, SAFETI) was employed to analyze
13 the consequences of chain fire disasters in chemical plants. Fire incident rescue procedures
14 were successfully simulated and quantified. This study was implemented based on
15 environmental data, risk frequency, and the physical and chemical characteristics of the
16 chemical materials involved. Factors such as thermal radiation and the high pressure induced
17 by an explosion were evaluated, and a second-round SAFETI simulation was then designed.
18 The results of the study can assist supervisors in determining the influence of domino effects
19 during related incidents and also help determine the appropriate deployment of rescue
20 personnel and vehicles to avoid casualties and fatalities.

21

22 *Keywords:*

23 Integrated self-assessment module

24 Chain fire disasters

25 Fire incident rescue procedures

Download English Version:

<https://daneshyari.com/en/article/6972940>

Download Persian Version:

<https://daneshyari.com/article/6972940>

[Daneshyari.com](https://daneshyari.com)