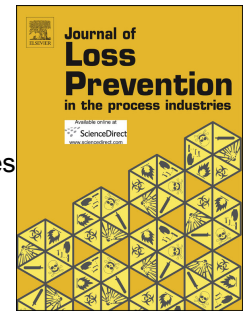
Accepted Manuscript



Numerical simulation of deflagration-to-detonation transition in large confined volumes

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PII: S0950-4230(14)00211-3

DOI: 10.1016/j.jlp.2014.11.018

Reference: JLPP 2864

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

Received Date: 12 September 2014

Revised Date: 21 November 2014

Accepted Date: 26 November 2014

Please cite this article as: Hasslberger, J., Boeck, L.R., Sattelmayer, T., Numerical simulation of deflagration-to-detonation transition in large confined volumes, *Journal of Loss Prevention in the Process Industries* (2014), doi: 10.1016/j.jlp.2014.11.018.

Highlights

- CFD simulations of hydrogen-air explosions in large confined volumes are presented.
- Adaptive mesh refinement is a key technique to minimize computational costs.
- The model is successfully validated by large-scale experiments in the RUT facility.
- Safety-relevant lean mixtures close to the lower detonation limit are considered.
- The influence of mixture inhomogeneity on flame acceleration and DDT is discussed.