

Accepted Manuscript

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PII: S0304-3894(17)30450-8
DOI: <http://dx.doi.org/doi:10.1016/j.jhazmat.2017.06.029>
Reference: HAZMAT 18650

To appear in: *Journal of Hazardous Materials*

Received date: 23-11-2016
Revised date: 12-5-2017
Accepted date: 14-6-2017

Please cite this article as: {<http://dx.doi.org/>

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Experimental study on the thermal decomposition and combustion characteristics of nitrocellulose with different alcohol humectants

Yu He^a, Yaping He^b, Jiahao Liu^a, Pan Li^a, Mingyi Chen^a, Ruichao Wei^a, Jian Wang^{a,*}

^a*State Key Laboratory of Fire Science, University of Science and Technology of China, Hefei 230026, Anhui, People's Republic of China*

^b*School of Engineering, University of Western Sydney, South Penrith, NSW, Australia*

Highlights

- The cone calorimeter was firstly used to investigate the fire behaviors of NC with alcohol humectants.
- The two alcohols, namely isopropanol and ethanol, barely affect the micro structures of pure NC.
- The thermal stability of NC sample increases with increasing heating rate.
- Compared with NC-E, NC-I is more sensitive to the change in external radiation and reflects a higher fire risk.

Abstract

Although the thermal behaviors including thermal instability of nitrocellulose (NC) and its mixtures with some humectants have been comprehensively examined previously in the literature, their combustion characteristics have not been

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