Title: Investigation of the thermal hazardous effect of protective clothing caused by stored energy discharge

Authors: Jiazhen He, Yehu Lu, Yan Chen, Jun Li

PII: S0304-3894(17)30355-2
DOI: http://dx.doi.org/doi:10.1016/j.jhazmat.2017.05.012
Reference: HAZMAT 18571

To appear in: *Journal of Hazardous Materials*

Received date: 24-2-2017
Revised date: 26-4-2017
Accepted date: 8-5-2017

Please cite this article as: Jiazhen He, Yehu Lu, Yan Chen, Jun Li, Investigation of the thermal hazardous effect of protective clothing caused by stored energy discharge, Journal of Hazardous Materialshttp://dx.doi.org/10.1016/j.jhazmat.2017.05.012

Investigation of the thermal hazardous effect of protective clothing caused by stored energy discharge

Jiazhen He[1, 2], Yehu Lu[1, 2], Yan Chen[1, 2], Jun Li[3*]

1. National Engineering Laboratory for Modern Silk, Soochow University, Suzhou 215123, China
2. College of Textile and Clothing Engineering, Soochow University, Suzhou 215021, China
3. College of Fashion and Design, Donghua University, Shanghai 200051, China

* Corresponding author at: Key Laboratory of Clothing Design & Technology , Donghua University, Shanghai 445400, PR China.
E-mail address: lijun@dhu.edu.cn (J. Li). hejzzq@hotmail.com (J. He).

Highlights

- New indices were introduced to evaluate the thermal hazardous effect of protective clothing on human skin.
- The influences of fabric property, air gap under clothing and applied compression were examined.
- The thermal liner in a multilayer fabric system plays a key role in heat discharge to the skin.
- The correlation between heat storage and heat release of fabric systems has been established.

Abstract

In addition to direct thermal energy from a heating source, a large amount of thermal energy stored in clothing will continuously discharge to skin after exposure. Investigating the