

Title: Personal Protective Clothing and Work Rates under Extreme Heat Stress



Joo-Young Lee
Seoul National University, Seoul, Korea
+82-2-880-8746
leex3140@snu.ac.kr

Abstract. There are various types of physical work for which personal protective clothing (PPC) should be required, even under heat stress. Firefighters, military soldiers, pesticide workers, and medical teams experience heat strain due to their semi-permeable or impermeable PPC, especially in hot weather. Balancing between protection and comfort has been a moot point. Which one should be considered more importantly for workers' safety and health? OSHA and EPA classify PPC from Level A to D according to protective function and a number of researchers have achieved substantial success researching the thermo-physiological impact of PPC on human body. However, the maximum exposure limit criteria for workers wearing PPC under heat stress have not yet to be established due to various individual factors (age, sex, physical fitness, heat acclimation, etc.), work factors (work rates, hours, shift, rest, drinking, etc.) and environmental factors (temperature, humidity, air flow, radiation, etc.). In particular, metabolic rates are crucial for establishing exposure limits for those wearing PPC. Our research explores the limits of exposure for workers under extreme stress according to PPC level and work rates. This presentation will briefly summarize the research on personal protective clothing and work rates under extreme heat stress.

Joo-Young Lee is an associate professor in the Department of Textiles, Merchandising and Fashion Design at the Seoul National University in Korea. Dr. Lee earned her Ph.D. in the same department at the Seoul National University and continued her research at University of Minnesota (USA) and Kyushu University (Japan) as a post-doctoral fellow. She has published 107 referred research papers (as of Feb 2019), 230 presentations at domestic and international conferences and 50 invited lectures. Her primary research interests are thermoregulation and clothing under heat and cold stress. In particular, Dr. Lee is doing research on the influence of protective clothing on thermal tolerance and adaptation in extreme heat and cold waves due to climate change. Further, her research focuses on exploring thermal adaptation training programs for workers in order to expand thermal resilience under extreme heat and cold stress.