

Miller, Diane M. (CDC/NIOSH/EID)

From: WFinegan@total-victory.org
Sent: Wednesday, February 09, 2011 10:55 AM
To: NIOSH Docket Office (CDC)
Cc: Chen, Jihong (Jane) (CDC/NIOSH/EID) (CTR)
Subject: 156 - Current Intelligence Bulletin (CIB): Derivation of Immediately Dangerous to Life and Health (IDLH) Values Comments

Name
William Finegan

Organization
Bensalem EMS

Email
WFinegan@total-victory.org

Address
6358 Woodbine Ave
Philadelphia, PA 19151
US

Comments

When determining IDLH values please differentiate the effects of the route of entry of the agent to prevent the misapplication of the values. This is a serious problem, and has resulted in the creation of personal protective equipment that unnecessarily overprotects by many orders of magnitude. This gross overprotection has serious blowback in the both increased physiological burden and cost. The anatomical and physiological differences between the integumentary (skin) and the respiratory systems are massive. Their structure (anatomy) and their function (physiology) are opposite. The skin is a barrier while the purpose of the lungs is gas exchange. The surface area of the skin is less than 2 m², and the lungs are more than 50 m². The skin, at its thinnest, is one thousand times thicker than the lungs at their thickest. The skin exudes oil (barrier) while the lungs contain a surfactant (enables gas exchange). We cover our skin with clothing (decreasing exposure) and we breathe (multiplying exposure by 12 to 20 times). Specifically, the NFPA 1994 document tests dermal protective systems against a small number of chemicals including Chlorine Ammonia, and Acrolein. I have not been able to find any data that would suggest that these chemicals are able to be transitioned from the vapor state and deposited and absorbed into the skin. They are not dermal threats, and yet the NFPA 1994 committee used the IDLH values of these chemicals in their basis of assessment but failed to recognize that these values were derived for respiratory not dermal exposures. I would submit that this problem would be simply mitigated by linking IDLH values with the route of entry: RIDLH (respiratory IDLH) and DIDLH (dermal IDLH). The overwhelming number of IDLH values will be easily transitioned into RIDLH values. Historically, upwards of 10% of IDLH values were derived from the lower explosive limit (LEL) of the environment. These values should become EIDLH values. This simple change in nomenclature will have the added benefit of educating the community about the true nature of the risks of specific chemicals. This improved language will also empower the NFPA 1994 committee to correct this fundamental mistake and create personal protective equipment that addresses credible threats and supports the life saving mission of first responders.

respectfully~
William Finegan, EMT-P
CBRNE SME