

CONCURRENT SESSION 3 – CHEMICAL AGENT SAMPLING & ANALYSIS

METHODS

Soldier Vulnerabilities to Toxic Industrial Chemicals/Materials While in MOPP Gear

Philip Gidley | *U.S. Army Engineer Research and Development Center*

Soldiers are vulnerable to industrial chemicals. Modern warfare is increasingly involving urban environments, and because of this, soldiers could encounter industrial facilities while deployed in theater. Soldiers must be prepared for the environments they encounter. Typically, soldiers will be equipped and trained with Mission Oriented Protective Posture (MOPP) gear (<https://www.remm.nlm.gov/MOPP.htm>), which has been designed for common chemical warfare agents. However, industrial facilities may have a much wider range of chemicals that the soldier can be exposed to. Some of these chemicals are especially problematic, and these may be defined as Toxic Industrial Chemicals/Materials (TICMs).

The U.S. Army Public Health Command has performed and provided an “Environmental Health Risk Assessment and Chemical Exposure Guidelines for Deployed Military Personnel” (<https://phc.amedd.army.mil/topics/envirohealth/hrasm/Pages/TG230.aspx>), which was last updated in 2013. The Military Exposure Guidelines (MEGs) associated with this study provide concentrations in air, water, and soil that can be tolerated by soldiers. The air MEGs are available for 3289 chemicals.

This study considers situations where soldiers could become vulnerable to TICMs. This includes fording situations, where soldiers will be immersed in water (contaminated with TICMs) and limits of the C2A1 gas mask canister (containing ASZM-T activated carbon) when TICMs are present in the air as a gas or vapor.

This effort is associated with the development of an online tool: the Engineer Research and Development Center’s (ERDC) Toxic Industrial Chemicals/Materials Intelligence Tool (TICMINT) (<https://toks.erdcdren.mil/>).
