

## Risk Management of Exposure to Chemicals under Operational Conditions<sup>1</sup>

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### **ABSTRACT**

*The HFM panel has decided to install an Exploratory Team, ET-078, which should advise whether or not a Technical Group (TG) should be established on the subject of risk management of exposure to chemicals under operational conditions. This paper described the context and approach of ET-078.*

### **1.0 BACKGROUND**

Participation in military operations is accompanied by health hazards resulting from exposure to chemical substances. Historically, focus has been on the health effects of exposure to chemical weapons (CW). From WWI till today impressive research and development efforts have been devoted to passive defense against CW comprising relevant elements such as threat analysis, all sorts of detection and identification, diagnosis, protection (both physical and medical), decontamination, and last but not least medical countermeasures. In recent years the awareness of the importance of health hazards resulting from exposure of other chemicals encountered during military operations has grown steadily. Whereas the end of the Cold War may have lowered the threat of large attacks of classical CW, the new era brings new types of operations, mostly out-of-area, and new “threats” including intended and unintended releases of toxic industrial chemicals (TICs) and materials (TIMs), the possible use of CW in terrorism as well as the occupational health effects of many chemicals of different nature in the operational environment.

Consequently, the spectrum of chemical threats is broadening and becoming more diffuse which requires a new approach for risk management of these threats under military operational conditions. Since the early 1980s TG-004 (previously called RSG-3) has been the platform for research and development of medical countermeasures against CW. Likewise TG-009 has been addressing the issue of how to assess toxic hazards and exposures under operational conditions, since 2000. Both TGs have made relevant contributions to solving the problems in these areas. Their activities have been complementary, but some ‘gray’ areas have not been addressed by either of the TGs. Both groups have terminated their activities by the end of 2006 [1], [2].

Following the reasoning outlined above it seems high time to address the issue of toxic hazards as a whole in one activity, enabling an integral approach of this problem.

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Justification for the activity is apparent from the statement that an increased level of safety and health care for military personnel under operational conditions will improve combat readiness and effectiveness, and therefore the probability of successful mission completion. An additional (non-operational) benefit is that the risk of post-deployment illness and disability, resulting from exposures during deployment, will be reduced.

### **2.0 OBJECTIVE**

The new activity will address the issue of health hazards resulting from exposure to chemicals, being either TICs, TIMs or CW, in order to develop a strategy as well as tools for risk management. Special attention will be paid to operational risk assessment and rationally managing the health effects of exposure to CW, TICs, and TIMs. For this purpose the TG will have regular meetings, in order to facilitate communication and coordination of research efforts among the participating nations. The objectives will be specified in more detail in the TOR.

### **3.0 TOPICS TO BE COVERED**

Designing a strategy as well as tools for risk management of exposure to chemicals requires insight into the routes of entry and mechanisms of toxicity, development of markers of exposure and effect, development of dosimetric methods, as well as development of medical countermeasures.

In view of the length and width of the threat list a high priority topic should be the development of generic (more realistically: broad-spectrum) approaches to assess exposures and medical countermeasures.

The topics to be covered will be specified in more detail in the TAP, TOR and POW for the RTG to be prepared after the finalization of the ET.

### **4.0 DELIVERABLES**

The major product of this activity will be a technical report on the strategy for follow-on activities in this area (as a RTG). The deliverables and products will be specified in more detail in the TOR and POW.

### **5.0 PARTICIPATION**

ETs are open to NATO nations. NL is leading the ET. Nations that have participated in TG-004 and TG-009 have been approached to participate. So far (mid August 2007) CAN, FR, GER, NL and USA have shown an interest to participate in ET-078. SWE has also shown an interest and has been invited to act as a consultant, since non-NATO nations cannot participate in ETs. Hopefully, more nations will join in.

### **6.0 REFERENCES**

- [1] NATO HFM-041/RTG-004 on Prophylaxis and Therapy Against Chemical Agents, Final Report, February 2007
- [2] NATO HFM-057/RTG-009 on Biotechnologies for Assessment of Toxic Hazards in Operational Environments, Final Report, January 2007.