

ABSTRACT for 2016 IMEMTS

**INSENSITIVE MUNITIONS INDUSTRY CONTRIBUTION
FOR STANAG AND AOP IMPROVEMENTS**

**Prepared by the Hazard Assessment & Classification Expert Working Group of the
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IMEMG is the European Organisation that brings together the twenty-two leading armament manufacturing groups working with IM technologies. It aims to express the viewpoint of the armament industry with regards to relevant transnational regulations and requirements. This paper summarises the analysis of the AOP 39 ed3 Response Descriptors carried by the Hazard Assessment & Classification Expert Working Group of IMEMG. It comprises an update of the paper given at the 2015 IMEMTS conference based on feedback from individual companies via a survey of AC326 Sub-Group B workshops and MSIAC documents. As an example, we have reviewed the MSIAC O-167 "Analysis of the IM Type V Response Descriptor" issued on 19 January 2016, which discusses potential changes to the current 20 Joules fragment energy threshold criteria of the current AOP39 ed3. The question is whether or not it is pertinent to change to the 79 Joules criterion, which is currently used in NATO safety rules and previously considered in AOP39 ed2, or is it preferable to maintain the 20 Joules threshold? IM requirements should take into account all life cycles phases and relevant hazard management. A meaningful illustration is given by considering the Slow Heating threat which requires a type V response. If we consider that the associated temperature ramp can only be achieved in an enclosed oven (the whole process taking many hours), is the current criteria that the energy of any fragments produced should not exceed 20 J at 15 m range appropriate? Indeed, such propelled pieces cannot even penetrate 2 mm thick aluminum sheets, in which case a type IV reaction requirement seems to be sufficient. In a similar perspective, it is our view that potential projections should not be taken into account for the Slow Heating threat, or, at least, Response Descriptors should be upgraded to take into account allowed projections. The same analysis can also be conducted for the Fragment Impact Threat. A warhead able to propel a 18.6g fragment at 2530 m/s simultaneously generates a potentially fatal blast at least up to 50 meters range. In such circumstances it is hard to justify the 15 metres threshold for any fragment hazards in which case, a type IV reaction appears to be a much more pertinent requirement. This paper will present the European IM industry comments concerning current discussions for the future AOP 39 4th edition, especially regarding: Responses Descriptors; test STANAGs; associated AOPs; and potentially feedback coming from the results / outcomes of the MSAIC Science of Cook-off workshop.