SYNERGISTIC SIMULATION VALIDITY

ROUQUAND,A.

In order to define the means of a combined effaces simulation (thermal flash and shock wave) the Centre d'Etude de Gramat has studied the influence of the experimental device characteristics on a tested target response. For a synergetic simulation the problem is to obtain, on the target, at shock wave arrival, a distributed temperature similar to the one obtained during a nuclear explosion. The thermal loading shape simulated with a TRS LOX is trapezoidal which is different from the nuclear thermal loading. Moreover the venting of the combustion products with an exhauster or by natural convection, requires a delay between the end of the thermal simulation and the shock wave arrival. Considering all this it will not always be possible to obtain the wanted temperature distribution.

The computation method presented is a fast method which, from an analytical solution and considering the device performances, the thermal characteristics of the target and the weapon yield, will determine the domain where a synergetic simulation will be correct. Some examples of results will be shown.