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Ultrafine particle size distribution during high velocity impact of high density metals GIORGIO BUONANNO, LUCA STABILE, ANDREW RUGGIERO, GIANLUCA IANNITTI, NICOLA BONORA, University of Cassino, Italy — In the event of kinetic energy penetrator impact, survival personnel is exposed to the additional hazard stemming from ultrafine metallic particles, i.e. exposure, inhalation, and respiration of aerolized metals. Aerosol particle size distribution is an important parameter that influences aerosol transport and deposition processes. In order to have reliable quantitative measure of the aerosol particles generated under controlled impact conditions, an experimental set-up has been developed. Both non penetrating and penetrating impacts tests have been designed and performed with light gas-gun in chamber. During the impact, size distribution, total concentration and chemical composition of ultrafine particles have been measured and correlated with impact parameters (such as energy and velocity). In order to avoid measurement contamination, as a result of undesired participating materials, target and projectile have been made of the same metal and tests have been performed in clean environmental chamber. In this study the results relative to high purity copper are presented.

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