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Enhancing Energy in Future Conventional Munition

SUHITHI PEIRIS, AFRL - Munitions Directorate

Future conventional weapons are envisioned to contain more energy per volume than current weapons. Current weapons comprise of inert steel outer case, with inner volume for energetic materials, fuzing, sensor package, propulsion system, etc. Recent research on reactive materials (RM) & new energetics, and exploiting additive manufacturing can optimize the use of both mass and volume to achieve much higher energy in future weapons. For instance, replacing inert steel with RM of similar strength, additively manufacturing fuzing packages within the weapon form factor, and combining the whole with new energetics, will enable the same lethality effects from smaller weapons as obtained from today's larger weapons. This paper will elaborate on reactive materials and properties necessary for optimal utilization in various weapon features, and touch on other aspects of enhancing energy in future conventional munition.