Army fields first non-lethal munition in twenty years

The Army has fielded its first non-lethal munition in 20 years with the M1006 40mm Non-lethal Cartridge.

The munition, previously known as the "Sponge Grenade" cartridge and developed by the Army Research Laboratory (ARL), successfully completed type classification on March 31. The cartridge is also the Army's first non-lethal munition capable of being fired from a standard issue weapon, the M203 Grenade Launcher, without modifications.

This munition increases soldier capabilities by adding a unique non-lethal option. In addition, this program represents the successful transition of an ARL-designed prototype to the Army Armaments Research, Development and Engineering Center, for refinement and fielding.

Theoretical chemistists using computers instead of chemicals

A small team of theoretical chemists at the Army Research Laboratory is using high performance computing to study what's going on inside chemical reactions with an eye toward improving the performance and safety of energetic materials while saving the Army time and money.

Unlike traditional chemists who mix actual chemicals, theoretical chemists use computer models to recreate chemical reactions, performing their experiments on a computer rather than in a test tube. The theoretical approach is faster, less expensive, causes less wear and tear on equipment, and is safer since no one has to deal with hazardous materials.

One of the team's current projects is establishing design rules to develop new energetic materials with specific performance properties. The team is developing the computational tools to screen out poor candidates before they go into the expensive testing regime.

They are also investigating alternatives to conventional methods (open burning, detonation) for demilitarization of energetic materials One method they are looking at is extracting the explosive material from ordnance by placing it in a bath of supercritical CO_2 (carbon dioxide under high pressure), a standard technology used for, among other things, taking the caffeine out of coffee.

They are developing models to see exactly how it extracts propellant from the ordnance and determine the underlying mechanisms.

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