On-Site Destruction of Explosive Peroxides Utilizing Metallic Based Nanoparticle Catalysts

Advantages
- First method of its kind for disarming peroxide based explosives!
- Quickly degrades TATP and other peroxide based explosives
- Works in situ, removing the need to move and potentially detonate explosives before they are disarmed
- Provides a faster and safer method for cleanup of explosives

Invention
Methods and apparatus for creating and implementing a catalyst that safely degrades peroxide based explosives.

Background
A group of UCF researchers have developed a catalyst capable of degrading peroxide explosives on site or in situ. This method makes use of micron and nano-sized metal catalysts in liquids or suspensions. The decomposition of Tri-acetone tri-peroxide (TATP) takes place directly and quickly. Afterward, the degraded material can be safely removed. This method could easily have global demand and abate crises caused by terrorism or other radical groups.

TATP and other peroxide based explosives are used extensively by terrorist organizations around the world. They are easy to prepare, can be made from common household items and are very difficult to detect. The low cost of the reactants and the ease with which they can be obtained lead to the manufacture of TATP by those without the resources to make or buy more sophisticated explosives. TATP is highly unstable and sensitive to heat and friction. It is not used by the military because there are a plethora of better alternatives. Several methods currently exist to degrade TATP and other organic peroxides, but none of them can be performed where the explosives are discovered. The unstable material usually must first be transported to a disposal site.

Application
The invention can be utilized by law enforcement and military personnel for safely and quickly disarming/degrading peroxide based explosives at the very site at which they are set. Once said explosives are degraded they can then be easily removed and disposed of without causing significant hazard to any surrounding civilians or those dismantling it.

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