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RECOVERY OF ENERGETIC MATERIALS FROM PBXs

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ABSTRACT

Following the International Treaty held in London and Oslo in 1972 and its amendment in Paris in 1992 on banning the dumping of hazardous and toxic waste at sea, large stockpiles of unwanted munition are now awaiting disposal. Public awareness, environmental concern and legislation are preventing the disposal of this explosive waste by landfill, detonation and open pit burning. One solution to this dilemma is to recover the waste from the containers and recycle the waste in an environmentally sensitive manner.

In this investigation, a study was conducted to explore the possibility of recovering RDX from a PBX using a supercritical fluid. An environmentally friendly method for the resource, reuse and recycling was also developed. The results showed that RDX could be extracted from PBX using supercritical carbon dioxide and that the recovery is enhanced by using co-solvents. Two methods have been proposed (SWAT and DARE) which lead to an increase in RDX recovery yield and shorten the extraction time.