

Supporting Information

Investigation on Stripping-down TNT from Waste Munitions by Supercritical CO₂ Fluid Extraction under Low Temperature Conditions

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Figure S1 shows the morphological changes of the cylindrical TNT pellets at a constant temperature of 35 °C and pressure range 5-50 MPa. The melting phenomenon was not observed at pressures of 5 MPa, 10 MPa and 15 MPa. There was only a small amount of recrystallized TNT on the bottom of the glass sample bottle. However, the melting phenomenon was observed in the pressure range of 20-50 MPa. It was observed that the TNT accumulated at the bottom of the bottle solidified with a deeper colour when the experimental pressure was returned to atmospheric pressure.

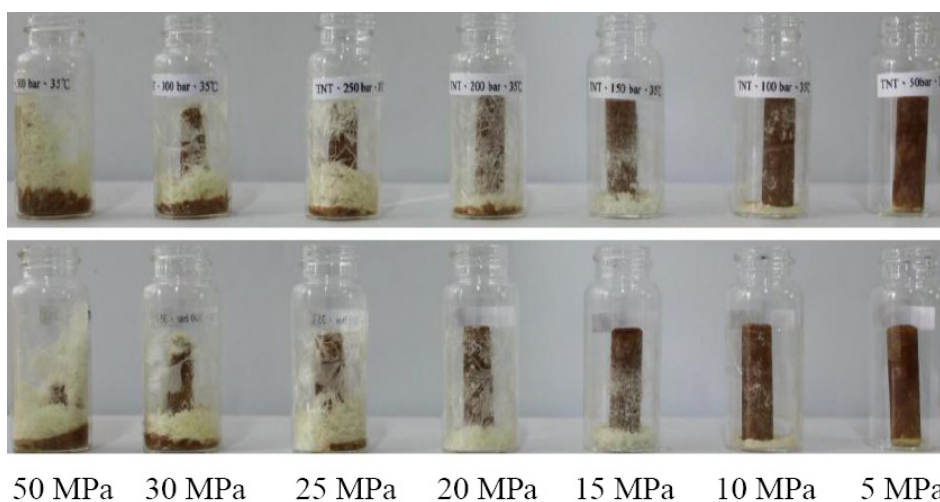


Figure S1. Morphological changes of cylindrical TNT pellets after the experiments at a constant temperature of 35 °C and pressure range 5-50 MPa

Figures S2-S4 show the experimental results at constant temperatures of 45 °C, 55 °C and 65 °C, respectively, and the melting phenomenon was observed in the pressure ranges of 15-50 MPa, 10-50 MPa and 10-50 MPa, respectively.

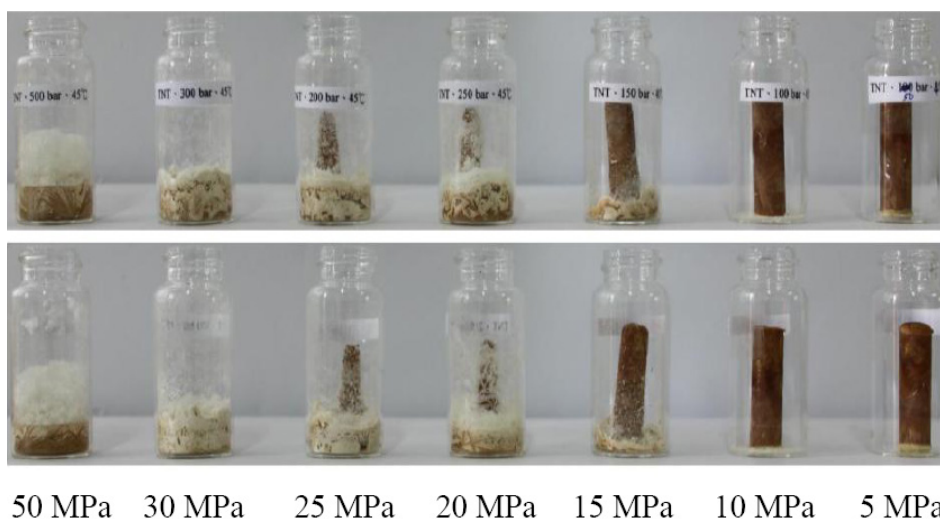


Figure S2. Morphological changes of cylindrical TNT pellets after the experiments at a constant temperature of 45 °C and pressure range 5-50 MPa

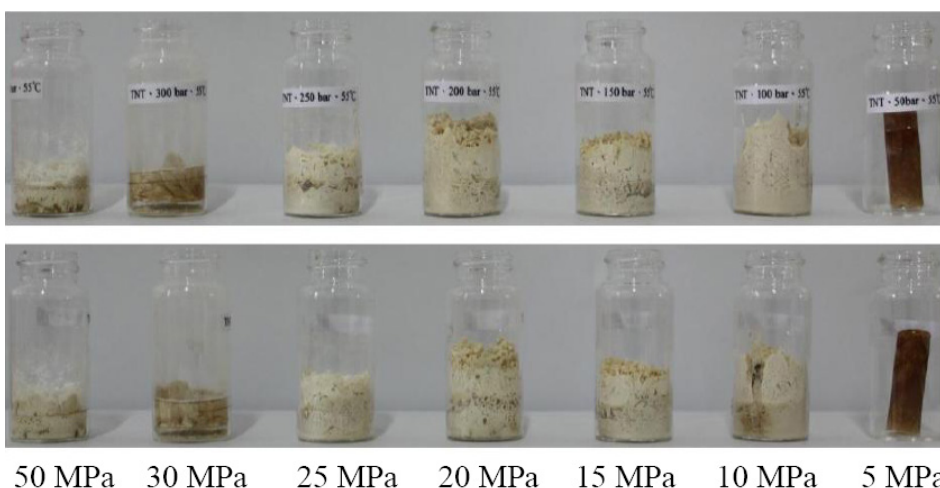


Figure S3. Morphological changes of cylindrical TNT pellets after the experiments at a constant temperature of 55 °C and pressure range 5-50 MPa

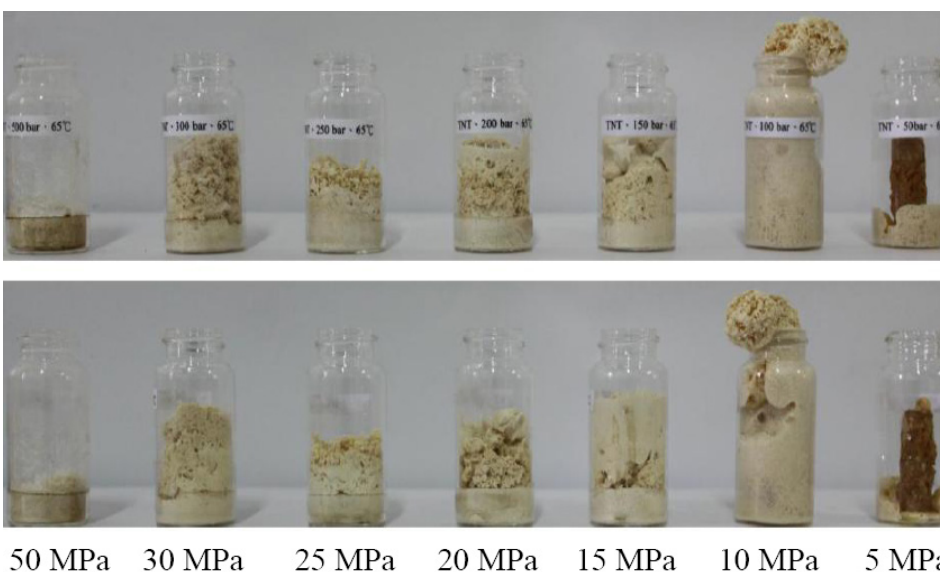


Figure S4. Morphological changes of cylindrical TNT pellets after the experiments at a constant temperature of 65 °C and pressure range 5-50 MPa

Figure S5 shows the removal efficiency of TNT for the simulated warhead with a weight loading of 1 kg of TNT under the set operating conditions. TNT was also completely removed from the simulated warhead.

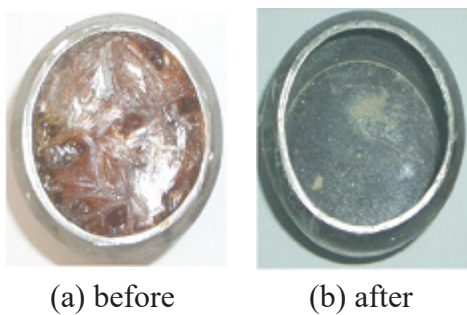


Figure S5. Removal efficiency of TNT for the simulated warhead with a weight loading of 1 kg of TNT at a residence time of 30 min under the operating pressure and temperature conditions of 25 MPa and 55 °C