

Designing Cleaner and Safer Explosives

Background:

Trinitrotoluene (TNT) is a commonly used explosive and a toxic chemical. Primarily used in the preparation of new road passages and mining, TNT is prepared in sealed containers that are buried deep within the ground.

The Problem:

Occasionally, one or more units fail to explode. This leaves toxic chemicals in the ground a dangerous area at the construction site.



Our Solution:

We created a small (dog kibble size) pellet that can be added to TNT preparation at the time of manufacture. The pellet is made primarily of local bacterial spores that are known to metabolize TNT.

Through a process of bioremediation, these bacterial spores will activate and disarm malfunctioning explosives while being minimally disruptive to the local soil ecology.

The key is : this only happens in the presence of water and the absence of air, an environment which the unit will only ever encounter if it is left underground for an extended period of time.