One Page Write-Up for Hosting On DRDO

1,4,5,8 tetranitroso-1,4,5,8-tetraazadecalin (TNSTAD) is an off-white high energy material having molecular weight of 258 g/mol. It is a potential energetic compound for low flame temperature and high force constant gun propellants attributed by its properties like high nitrogen content, low oxygen balance and generation of large number of low molecular weight fractions upon initiation. Further, it has properties like high impact insensitivity compared to conventional compound used in gun propellant. The potential use of TNSTAD can also be explored in Fin Stabilized Armor Piercing Discarding Sabot (FSAPDS) and other composite propellant formulations.

High Energy Materials Research Laboratory (HEMRL) under the Defence Research and Development Organization (DRDO) has developed the technology for preparation of TNSTAD. Preparation of TNSTAD is a two step process involving cyclisation and nitrosation reaction. The process of preparation of TNSTAD is optimised with respect to various parameters like reaction time, mole ratio, reaction temperature, strength of acid etc. TNSTAD thus prepared is characterised with respect to different properties like decomposition temperature, ash content, particle size distribution, impact sensitivity etc.. There is large requirement of this explosive.