

## **Scaled-up-3 Nitro 1,2,4 Triazol 5-One (NTO) Process**

HEMRL, Pune has developed the technology NTO. NTO is a high energy material having applications in High Explosive formulations. It is one of the promising HE for insensitive munitions. Due to its high energy with low vulnerability high thermal stability, good self-binding property, NTO can be used in many types of explosive fillings: melt-cast, cast cured PBXs and presses PBXs formulations. The development of IM class of formulations containing NTO as a potential fill in admixture with TNT is being explored world –wide. HEMRL has established a cost effective, viable synthesis route for NTO technology using two-step processes. Process parametric conditions are optimized for desired particle size, and morphology. Technology to prepare the NTO is mature and meets the specification suitable for different applications.

### **Contact Details**

1. Interested companies/industries are requested to apply against this EoI to following address:-

To,

**Director**

**High Energy Materials Research Laboratory (HEMRL)**

**DRDO, Govt. of India, Ministry of Defence**

**Sutarwadi, Pune-411 021**

**[Email-director.hemrl@gov.in](mailto:Email-director.hemrl@gov.in)**

2. A copy of interest may be sent to the following address without any attachment:-

**Copy to (without attachment)**

**The Director**

**Directorate of Industry Interface & Technology Management (DIITM)**

**Room No. 447, DRDO Bhawan, Rajaji Marg, New Delhi-110 011**

**[Email-diitm.hqr@gov.in](mailto:Email-diitm.hqr@gov.in)**

### **List of Support documents to be attached with EoI**

- (a) Memorandum and Articles of Association (Should be incorporated as per Indian Companies Act, as amended time to time)
- (b) Certificates of registration as a manufacturing unit, if any.
- (c) Audited Balance Sheet for the preceding three years.
- (d) Income Tax returns for the preceding three year period
- (e) Details of shareholding/ownership pattern especially foreign partners/ shareholders, foreign employees, directors, etc. The company must adhere to the prevailing Govt of India policies and regulations on Foreign Direct Investment (FDI)/DIPP norms as applicable.
- (f) Annual budget for R&D during last three years.
- (g) Numbers and details of IPR or patents, etc., held by the company.
- (h) Number of technically or professionally qualified personnel.
- (i) Record of past performance (e.g., Supply orders executed against of Ministry of Defence orders, Public Sectors and Paramilitary Forces, if any).
- (j) Availability of adequate infrastructure (List of machines and their production capacities) and technical expertise.
- (k) List of Testing and Support equipment's
- (l) ISO/ ISI certification or any other certification
- (m) Relevant clearances form the authorities/ ministries (if any)
- (n) Capacity and capability to undertake developmental work and to accept attendant financial and commercial risks.
- (o) Capacity/capability to market the product through the marketing network, sales and service network, reliability to maintain confidentiality.
- (p) PESO and DPIIT license for explosive handling if ToT is for high energy Material, explosives, propellants, and component/ system dealing with it etc.
- (q) Under taking form company seeking ToT that none of its Directors, Independent Directors, non-executive Directors, Key management personnel are involved in any corrupt practices, unfair means and illegal activities.
- (r) Details of the industrials license for defence manufacturing be provided by the industry seeking ToTs.

