

Technology for manufacturing of PBX Composition and its filling in Torpedo Warhead

Recent technological advances in the materials and design of explosive ordnance are making possible the development of a new range of munitions termed Insensitive Munitions (IM) which are less vulnerable than existing weapons when subjected to accidental stimuli. Such munitions are less sensitive than their predecessors to extreme but credible environments such as heat, shock or impact and remain effective in their intended application. Introduction of IM compliant stores into services will enhance the survivability of munitions, minimize the risk of injury to personnel and provide more cost effective and efficient transport, potential for increased munitions density in land limited storage areas and safer handling of munitions. Development of less sensitive explosive compositions requires use of materials which desensitize the overall composition. Polymer bonded explosives (PBX) binder based explosives offer such a solution to these problems. Polymer bonded explosive (PBX) is a composite material in which solid explosive is dispersed in a polymer matrix. Cast PBX charges containing high explosive and binder find applications in fragmenting charges, shaped charges, blast charges and underwater charges. HEMRL has developed various less sensitive PBX compositions which resulted in successful development of explosive filling for various Naval systems.

Application areas

PBHE 102 composition developed by HEMRL has been accepted as main filling for torpedo warhead based on performance requirements and safety characteristics of the warhead.

The warhead is designed for use against surface and underwater targets.

All the trials of the system have been completed successfully in association with certification agency and product has been accepted for induction. All the raw materials and process machinery for the preparation of explosive composition and filling of warhead system are indigenous.

Contact Details

Interested companies/industries are requested to apply against this EoI through email or by DAK to following address:-

To,

Director

High Energy Materials Research Laboratory

Govt. of India, Ministry of Defence

Pune-411 021

Email-director.hemrl@gov.in

Copy to:-

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

List of Supporting 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.