

Write-up on
Development of HE Composition including its Filling Technology
and Pyros for VIBHAV Munition under New Family of Munitions (NFM)

Description of Technology:

Anti-tank (A/T) munition is a potent and vital armament in the armoury of the Army. These munitions are used to incapacitate / neutralize the advancing enemy tanks. A/T point attack mine, currently available with the Army is blast type mine initiated with a pressure-actuated fuze. The TNT filling in the mine is relatively less powerful and is associated with other inherent drawbacks. The Army projected a requirement to design and develop a point attack A/T munition under NFM having features of reduced or same weight of munition with better safety features and similar performance compared to the existing in-service mine.

DRDO has developed a new point attack A/T munition VIBHAV under NFM eliminating the above limitations and which would also be effective against the futuristic tanks. The performance and safety aspects have been enhanced in the munition. Exhaustive studies were carried out to finalize a HE and its filling weight for the munition to realize a performance similar to the existing mine. A relatively more powerful RDX/TNT (60/40) composition HE filling widely used as filling in warheads, ammunition, some of the land and sea mines, etc. has been selected for the munition thus reducing HE filling weight to achieve comparable performance to that of the existing mine. The melt cast technology for filling the VIBHAV munition has also been established. The other explosive components developed for the VIBHAV munition are RDX and RDX/Wax 95/5 composition based stemming charge and booster charge respectively for the fuze, RDX/Wax 95/5 composition based augmenting charge for the explosive train. These components are prepared / filled by pressing method. Two types of pyro squibs [Squib-I (Flash cum shock) for TSIU Housing & Squib-II (Flash) for Indicator] have been developed to improve the safety. Two types of developed detonators, Detonator 100mg LZ and Detonator 135mg LZY have been selected for the explosive train of VIBHAV munition.

Application Areas:

VIBHAV is point attack anti-tank munition which will be employed to incapacitate / neutralize the combat vehicle / enemy tank during hostility.

Its USP – such as Certifications and test results etc.:

All the trials including User trials of VIBHAV munition have been completed successfully. VIBHAV munition having features of reduced mass of HE filling, similar performance and weight of the existing mine with improved safety features will replace the existing in-service point attack A/T mine.

The selected explosives/detonators for the explosive components and filling of the VIBHAV munition are established ones and are indigenously available. Two types of developed pyro squibs are used in TSIU and indicator units to improve the safety and two types of developed detonators are used for the explosive train of VIBHAV munition. Existing standard facilities, machinery and equipment required for preparation of explosives and filling of the munition is indigenously available in India.



VIBHAV Munition