

Improved Manufacturing Technology of Granular IMX-104 Explosive Formulation

Objective

Develop an optimized production scale slurry coating manufacturing process to produce granular IMX-104 with consistent properties and a lower unit cost.

How It's Accomplished

- ◆ Evaluate operating parameters that affect granulation and Insensitive Munitions (IM) properties on a large scale manufacturing process
- ◆ Optimize critical operating parameters using statistical Design of Experiments (DOE) methods
- ◆ Conduct preliminary study of prilling process to determine feasibility, efficiency and effectiveness
- ◆ Identify commercially available waxes and water replacement fluids and evaluate for effects on product quality
- ◆ Evaluate alternate technologies to recover the water replacement fluids to minimize fluid loss
- ◆ Conduct testing and evaluation to confirm product quality and IM properties
- ◆ Conduct pressing study to evaluate pressability
- ◆ Manufacture confirmation batches to prove out the optimized process

Achievements

- ◆ Finalized test plan
- ◆ Expedited execution of phase II effort



Granular IMX-104



IMX-104 Explosive Flakes



M795 projectile fired from a M777A2 Howitzer



Vacuum Still

Benefits

- ◆ IM compliant product for Warfighters
- ◆ Optimize final product quality
- ◆ Ability to manufacture granular IMX-104 on a large scale
- ◆ Minimize product unit cost without compromising product quality

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