Commercial Explosives Supply Chain

Background

A strong domestic commercial explosives industry is essential to the U.S. economy. Each year, the U.S. commercial explosives industry contributes over $19.1 billion annually to the economy and supports more than 60,000 jobs. Our products are fundamental to key sectors including the $121.7 billion mining industry, the $2.2 trillion construction sector, and the $812.2 billion energy market with impacts in every state. To ensure consistent production, commercial explosives manufacturers depend on stable supplies of crucial raw materials.

High Explosives

High explosives — TNT, HMX, RDX, HNS and PETN — are crucial to both the commercial explosives sector and the U.S. defense industry. The domestic supply of HMX, RDX, HNS and TNT are severely limited.

TNT is not currently manufactured in the U.S. Domestic manufacturers are entirely dependent on imports from countries such as Turkey, China, Vietnam, Australia, and India. Due to geopolitical tensions, traditional sources like Poland and Ukraine are no longer reliable. A U.S.-based TNT plant is planned but is not expected to be operational for three years.

HMX and RDX are not produced commercially in the U.S. The only production is at the Holston Army Ammunition Plant (Kingsport, Tennessee), a government-owned, contractor-operated facility focused on Department of Defense needs. The commercial sector can only access surplus production when available, which has been challenging for the past two years.

HNS is not produced commercially in the U.S. The only production is at the Naval Surface Warfare Center, Indian Head Division (Charles County, MD), run by the U.S. Navy. The commercial sector is unable to source from this facility and therefore must import its supply of HNS.

PETN is produced at three facilities in the U.S., providing relatively stable access, however PETN is still imported in significant quantities from countries in South America.

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The safety and security institute of the commercial explosives industry since 1913

Commercial Applications of High Explosives

High explosives — TNT, HMX, RDX, HNS and PETN — are crucial to both the commercial explosives sector and the U.S. defense industry. The domestic supply of HMX, RDX, HNS, and TNT are severely limited.

- **TNT:** Valued for stability and shelf life, TNT is a key component of cast boosters used in mining and quarrying.
- **HMX:** HMX is used in detonating cords and shaped charges for oil and gas production and demolition.
- **RDX:** RDX is used in shaped charges and detonating cords, much like HMX, across various industrial sectors.
- **HNS:** Like HMX and RDX, HNS is used in shaped charges and detonating cords in the oil and gas sectors. HNS is used in higher temperature applications.
- **PETN:** Sensitive but stable under normal conditions, PETN is used in detonating cords, detonators, and cast boosters.

Ammonium Nitrate (AN)

Over 90% of commercial explosives in the U.S. are AN-based, due to its safety, stability, and availability. It is used in two forms:

- **Ammonium Nitrate Solution (ANS)** – liquid form.
- **Technical Grade Ammonium Nitrate (TGAN)** – solid bead form, known as "prill."

AN is relatively inert on its own and has numerous positive uses across multiple industries, including being a fertilizer. AN becomes explosive when combined with fuel. Its stability makes it ideal for high-volume industrial use. Any new regulations on AN must be grounded in science to avoid disruption to the billions of pounds moved through multiple supply chains every year.

Uses of Ammonium Nitrate

AN is the base for products like ANFO, emulsions, water gels, and slurries — commonly used in mining, construction, and quarrying.

IME's Asks for Congress:

To maintain a secure and competitive domestic commercial explosives industry, **Congress should:**

1. Support policies that promote domestic sourcing and production of essential materials, including TNT, HMX, RDX, HNS, and PETN.
2. Ensure that any legislation or regulation affecting ammonium nitrate is science-based and does not hinder the availability of this essential product.

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