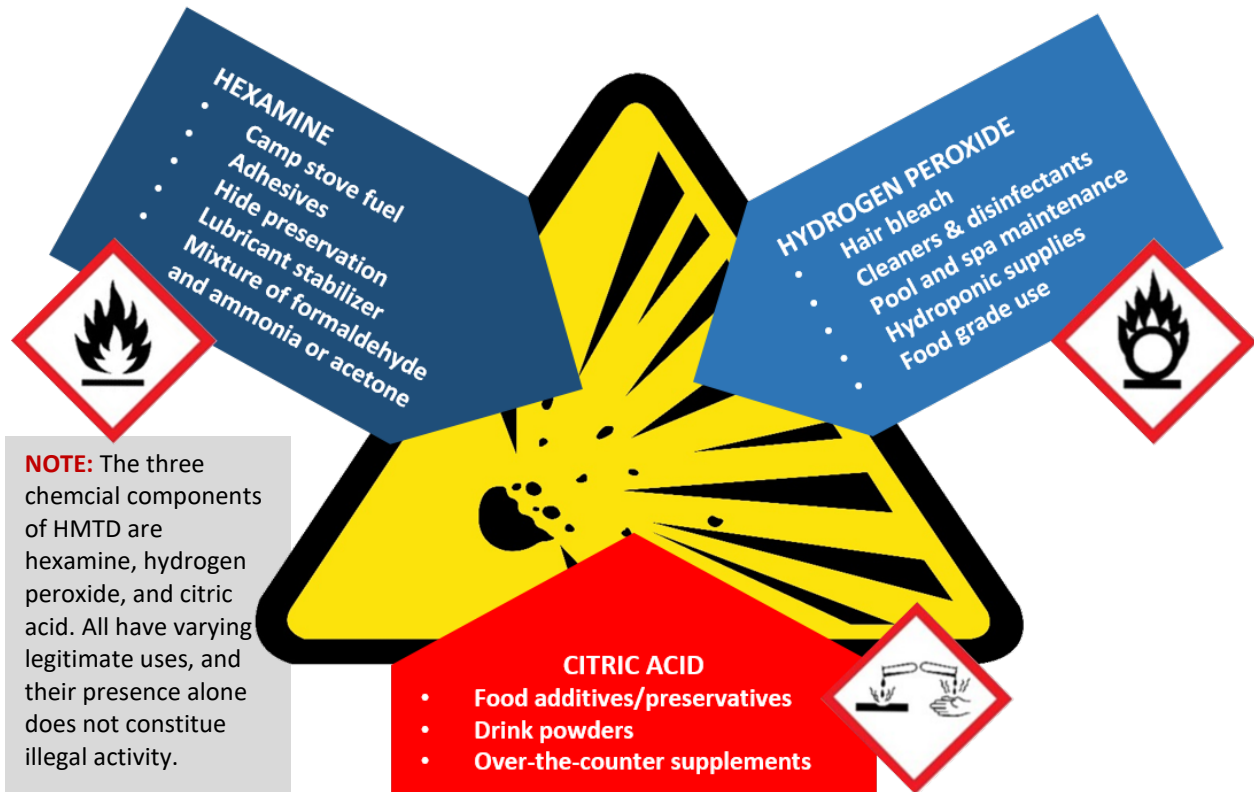


Hexamethylene Triperoxide Diamine: Indicators of Acquisition, Manufacture, and Considerations for Response

Hexamethylene triperoxide diamine (HMTD) is a highly sensitive explosive compound that is of interest to terrorists. Currently, HMTD does not have commercial, industrial, or military applications, and the precursor materials associated with it are readily available and inexpensive. Terrorist messaging includes instructions, available in print and online, for its production. All of these factors may result in a potential threat to public safety.

SCOPE: First responders may encounter clandestine manufacture of homemade explosives (HME) during the course of their normal duties, making the ability to recognize precursor chemicals, associated equipment, and efforts to mix and synthesize HME critically important.



WARNING: Many compounds developed in clandestine labs are similar in appearance. Upon discovery of suspicious chemicals, evidence of an unauthorized or suspicious chemical process, or the presence of any HME and precursors, personnel should immediately follow established organizational procedures, contact the bomb squad, and establish standoff distances. Certain precursor chemicals, materials and components and even the most rudimentary of explosive devices are inherently dangerous and should be treated accordingly until rendered safe by certified subject matter experts.



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Hydrogen peroxide, hexamine, and citric acid

IMPORTANT: The following indicators of acquisition and manufacturing may be innocuous or constitutionally protected activities. Instances without a reasonable explanation should be evaluated while considering the totality of the circumstances, additional indicators, or observed behaviors reasonably indicative of terrorism before being reported as suspicious activity.



HMTD yield before drying



Final HMTD yield

HMTD IDENTIFIERS:

- HMTD is a highly sensitive explosive compound with physical properties (low vapor pressure) that may limit some field detection techniques.
- HMTD is generally easy to detonate and may be used in improvised detonators.
- HMTD is manufactured from easy-to-obtain precursor chemicals, such as hydrogen peroxide, hexamine, and citric or another weak acid; each with legitimate uses, and their presence alone does not constitute illegal activity.
- Heat, shock, friction, and reaction with most common metals may cause HMTD to detonate.
- Indication of HMTD production includes the presence of nonmetal mixing containers and filtering equipment.
- HMTD is found in an ice bath, cooler, refrigerator, or freezer to slow its decomposition or stored in water to reduce its sensitivity.
- HMTD releases a “fishy” odor as it decomposes.



INDICATORS OF ACQUISITION:

- Purchase of abnormally large quantities of precursor chemicals that is inconsistent for intended use.
- Missing or stolen precursor chemicals.
- Combined purchase of associated chemicals, protective equipment, and tools, particularly by someone exhibiting noteworthy behavioral cues or lack of familiarity.
- A chain of chemical precursor purchases spread across multiple stores.

INDICATORS OF MANUFACTURE:

- Requests for medical treatment, such as for blast injuries, inhalation, and/or chemical exposure.
- Evidence of makeshift laboratories inside apartments, homes, sheds, garages, or other residential structures, often in the presence of other precursors or a finished HME.
- Signs of damage, corrosion, or discoloration, including bleaching, caused by precursor chemicals or chemical processes.
- Installation and use of makeshift exhaust and ventilation systems.
- Presence of store-purchased or makeshift laboratory equipment and tools, including glassware (beakers and flasks), thermometers, mixers, filtration systems, or distillation equipment in unusual locations.
- Precursor chemicals or chemical processes kept in ice baths and refrigerators.
- Evidence of common items (refrigerators, chemicals, materials, containers, tools) used in a manner inconsistent with a legitimate purpose.
- Suspicious number of chemical containers and personal protective equipment (PPE)-type consumables (rubber gloves, respirators) discarded in the trash.
- Improper disposal of chemical precursors or waste byproducts from chemical processes.
- Evidence of testing, such as unexplained explosions, damage, or injury.

RESPONSE CONSIDERATIONS:

- Proper PPE and breathing apparatus are suggested to prevent inhalation and exposure burns.
- If the presence or manufacture of energetic materials is suspected, consult with your explosive ordnance disposal team or bomb squad immediately.
- **DO NOT** expose suspected HME to shocks, heat, or friction.
- A suspected HME laboratory may contain other explosives and booby traps. **DO NOT** touch, move, or remove suspicious chemicals or materials because handling may cause injury, damage and contaminate forensic evidence.
- Certain illicit narcotics may resemble HME. Before field-testing, conduct a thorough threat assessment of the scene to help rule out HME.
- If field-testing suspects illicit narcotics, carefully follow instructions and procedures using the minimum amount of a sample required for testing, using personal protective equipment, and keep other personnel at a safe distance.



GENERAL CONSIDERATIONS FOR ANY HME:

- Many HME are similar in appearance. Always seek expert assistance in identifying suspected HME and associated hazards.
- The effectiveness of instructions found in books and magazines and online are highly dependent on the accuracy of those instructions and the competence of the would-be explosives maker.
- Efforts to manufacture an HME may result in specific, recognizable exposure or injuries requiring medical treatment, which if reported as suspicious, may result in further investigation.
- Most HME chemical precursors have legitimate commercial uses and are legal, inexpensive, and unregulated; therefore, they may not require identification or licensing or raise concerns when purchased.
- Establishing a relationship with businesses selling large quantities of precursor chemicals in your jurisdiction may encourage the business owners and operators to report suspicious activity.
- Understanding the typical quantities of noncommercial precursor chemical purchases may help identify abnormal purchase amounts.
- Interagency coordination and joint training can ensure a unified and effective response to an HME incident.

RESOURCES:

- **DHA OFFICE FOR BOMBING PREVENTION:** <https://www.cisa.gov/bombing-prevention-training>
- **BOMBMAKING MATERIALS AWARENESS PROGRAM (BMAP):** <https://www.cisa.gov/bmap>
- **TECHNICAL RESOURCE FOR INCIDENT PREVENTION (TRIPwire):** <https://tripwire.dhs.gov>
 - HMTD Profile: <https://tripwire.dhs.gov/profiles/136040>
 - Emergency Responder Note - Hexamethylene Triperoxide Diamine (HMTD): <https://tripwire.dhs.gov/reports/225569>
- **NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH; Searchable Pocket Guide to Chemical Hazards:** <https://www.cdc.gov/niosh/npg/default.html>
- **1-855-TELL FBI (835-5324)** will direct callers to specially trained WMD operators; nonemergency use.
- **DHS & DOJ BOMB THREAT STANDOFF CARD:** <https://tripwire.dhs.gov/reports/220482>
- **DEPARTMENT OF TRANSPORTATION EMERGENCY RESPONSE GUIDEBOOK (ERG):**
 - **English:** <https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2020-08/ERG2020-WEB.pdf>
 - **Spanish:** <https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2020-07/GRE2020-WEB.pdf>
 - **French:** <https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2020-07/GMU2020-WEB.pdf>





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ADDITIONAL COMMENTS, SUGGESTIONS, OR QUESTIONS.

WHAT TOPICS DO YOU RECOMMEND?

