

Hazardous Chemicals Hidden in Plain Sight

October 2020



▲ After sitting in a warehouse for more than six years, a stockpile of ammonium nitrate (AN) exploded and caused severe damages in Beirut, Lebanon.

On August 4, 2020, a massive explosion occurred in Beirut, Lebanon, that killed at least 160 people, injured more than 5,000, and left an estimated 300,000 people homeless (estimate at the time of writing). At this time, it is unknown what initiated the explosion and no assessment of the damages is available.

The material involved in the incident — ammonium nitrate (AN) — is a common fertilizer, but it is also used as a blasting agent in mining. Approximately 2,750 m.t. (3,030 tons) were stored in a warehouse for more than six years. Local officials were aware of the material's presence and age, but insufficient efforts were made to manage its storage. Some ports have taken steps to limit or eliminate storage of AN in response to the Beirut explosion.

We often walk by storage vessels and containers that hold chemicals and may not notice them because they have been there so long. This is more than a housekeeping or cleanliness concern. Proper storage is essential for all chemicals, especially those that can degrade.

Did You Know?

- Some chemicals have a shelf life and can degrade when they are stored too long or at improper conditions. Moisture, air, or other materials can cause degradation.
- Degradation can reduce a material's potency and make it less effective, affect additives that keep hazardous materials safe (e.g., stabilizers or inhibitors), and cause violent, potentially catastrophic decomposition. (Read the January 2006 Process Safety Beacon for more information.)
- Safety data sheets (SDS) usually provide proper storage conditions and directions for proper handling and disposal.
- Chemicals that are not needed in an area are potential sources of leaks and spills. Having excess material in the area can increase the impact of a spill or release.

What Can You Do?

- Look for drums or containers that have been in your area for a long time. Check for an expiration date and confirm the proper storage conditions.
- If you find an out-of-date container, notify your supervisor immediately. Do not try to open or move an old container — the material may be unstable or the container may be corroded.
- Even if a container is not beyond its expiration date, ask why it is there. Perhaps it was forgotten and should be sent to the proper storage area.
- When using materials, look for the date of manufacture and use the oldest material first, but only if it has not expired.

Be aware of materials stored in your area for extended periods.