

Tradebe Bridgeport, Connecticut

December 29, 2023

Incident Summary

On December 29, 2023, at 1:45 p.m., a storage tank exploded, creating a fire at the Tradebe Environmental Services (“Tradebe”) facility in Bridgeport, Connecticut (**Figure 1**). The explosion and fire seriously injured one contractor. Tradebe estimated the property damage to be approximately \$5.8 million.



Figure 1. The tank that exploded (left). A portion of the tank after the explosion (right) (Credit: Tradebe, annotated by the CSB).

Tradebe’s investigation found that a 10,000-gallon epoxy-lined steel storage tank exploded from a chemical reaction inside the tank. At about 1:00 p.m. on the day of the incident, Tradebe workers finished transferring about 4,000 gallons of organic material containing methylene chloride, tetrahydrofuran, toluene, xylenes, trimethylbenzene, and naphthalene into the storage tank from another vessel at the facility. Chemical compatibility testing was not performed before making this transfer. Tradebe’s investigation concluded that adding 4,000 gallons of material to the storage tank agitated the existing 6,000 gallons of sludge already inside the tank, starting an unintended chemical reaction.

The sludge contained hydrogen peroxide, organic peroxides, and metal ions, including cobalt, iron, nickel, and chromium. Agitating this material likely started a chemical decomposition reaction between the organic and peroxide components in the presence of metals. This reaction produced vapor (including oxygen gas) and generated heat. At 1:45 p.m., the flammable vapor within the hot tank ignited (autoignition), and the storage tank exploded. The explosion created a fire that seriously injured a truck driver who was at the facility to make a chemical delivery into a different tank.

Tradebe did not estimate the amount of combustion products released when the storage tank exploded. To prevent a similar incident, Tradebe stated that the company plans to stop handling oxidizers in this equipment, perform compatibility testing before transferring materials, and routinely clean its tanks.

Probable Cause

Based on Tradebe’s investigation, the CSB determined that the probable cause of the incident was the mixing of reactive chemicals within a storage tank, which generated heat and oxygen. The heat from the reaction ignited the flammable vapor in the tank (autoignition), resulting in the explosion. The failure to confirm chemical compatibility before transferring material into the storage tank contributed to the incident.