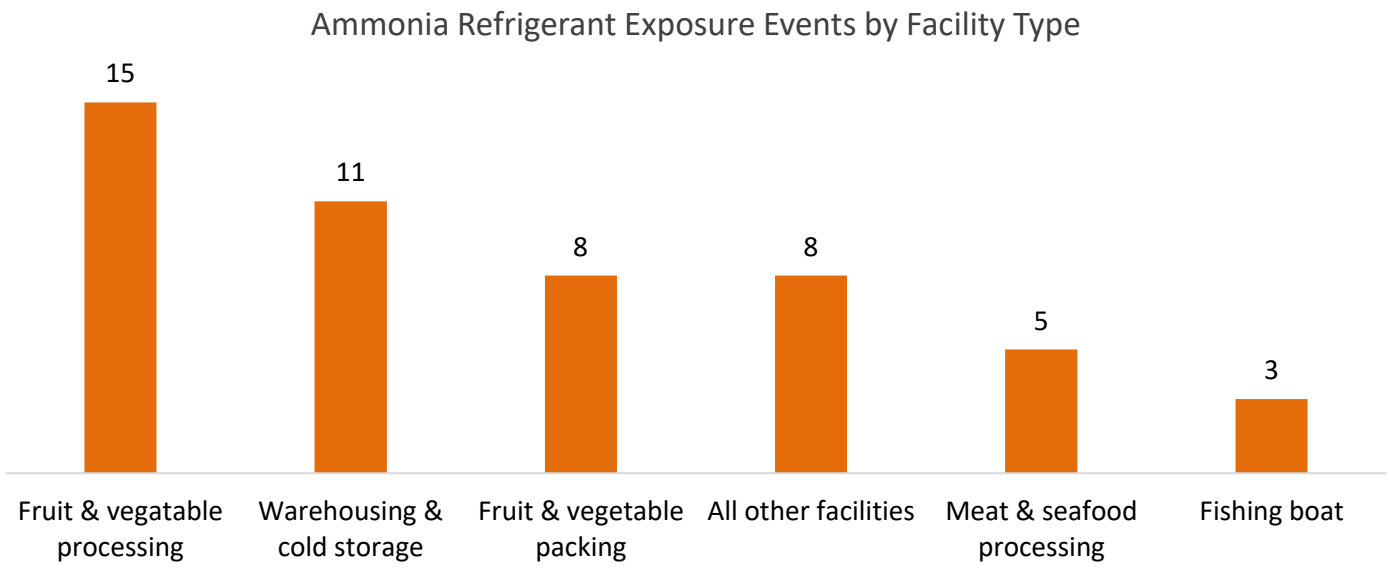
SHARP Safety & Health Assessment & Research for Prevention

SHARP Stats
Toxic Inhalation

Toxic Inhalation of Ammonia from Refrigeration Systems

Washington State Workers' Compensation Data, 2017–2023 [1]



SHARP's toxic inhalation surveillance system[1] identified 69 workers in 50 events with an inhalation exposure to ammonia between 2017 and 2023.

- Anhydrous ammonia is a high-hazard, common industrial refrigerant that is corrosive to the skin, eyes and lungs. Liquid anhydrous ammonia can be stored in large tanks and transported in pressurized pipes. Spills and line breaks can result in inhalation injuries and facility evacuations.
- The source of the exposure was not specified in a third of cases. The most common named sources were refrigerators or other machinery (17 cases), pipe leaks (9 cases), and liquid spills (4 cases).
- Most exposed workers worked near refrigeration systems and were indirectly exposed to leaked ammonia. Of the twelve workers *directly* exposed, seven were maintenance or repair workers.
- At least six refrigerant leak events resulted in facility evacuations. One facility evacuation event resulted in eleven claims.
- Facilities that stored, packed, or processed fruits and vegetables had 31 events total. Nine events occurred in potato processing facilities, and nine events occurred in apple processing facilities.
- The industries with the greatest number of ammonia exposure events per business location were 'Dried and Dehydrated Food Manufacturing' (NAICS 311423, 15 events per 100 locations), and 'Frozen Fruit, Juice, and Vegetable Manufacturing' (NAICS 311411, 10 events per 100 locations).

1. SHARP's Toxic Inhalation Surveillance Program, technical report # 64-30-2021 and appendix tables report # 64-32-2021 include toxic inhalation exposure information by industry, occupation and potential health effect. Inhalation surveillance does not include ammonia-related Injuries from skin contact, fire and explosion. Case counts from 2023 are subject to increase as more claims are coded for OIICS.

For additional information on process safety management of highly hazardous chemicals:
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