



3080 Beta Avenue  
Burnaby, BC  
V5G 4K4 Canada  
[www.TraneCanadaWest.com](http://www.TraneCanadaWest.com)

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### **Ice Rink Update**

Technical Safety BC's recent report on the Fernie Arena tragedies underlines the safety risks inherent with ammonia ice plants. A small leak in a chiller tube caused a 9 lb. release of ammonia into the mechanical room which quickly overcame those working there.

To quote TSBC, "Ammonia releases from refrigeration systems can cause injuries to employees, emergency response personnel, any public using the facilities and those living in communities surrounding the facilities. When released from a refrigeration system, ammonia vaporizes into a toxic gas. It is very corrosive, and exposure to it may result in chemical-type burns to skin, eyes, and lungs. It may also result in frostbite, since liquid ammonia's boiling point at atmospheric pressure is -28°F. Ammonia has a high affinity for water and migrates to moist areas like the eyes, nose, mouth, throat, and moist skin. Exposure to low concentrations can cause headaches, loss of the sense of smell, nausea, and vomiting. Higher concentrations result in irritation to the nose, mouth, and throat causing coughing, wheezing and damage to the lungs. Very high concentrations of ammonia can be immediately fatal.

Ammonia is flammable and extremely reactive as it readily combines with other chemicals to form other potentially harmful substances or explosive mixtures. Material commonly found in refrigeration machinery rooms such as oils can react with ammonia increasing the fire hazard. In addition, strong oxidizers, such as chlorine or bleaches, can form explosive mixtures when they come into contact with ammonia."

Work Safe BC calls ammonia levels of 300 ppm or more to be, "Immediately dangerous to life and health".

The attached Trane white paper on Ammonia-Free Ice Rink Refrigeration, shows a leak of just a half pound is enough to raise the ammonia concentration in a typical equipment room above the 320 ppm RCL (Refrigerant Concentration Limit). Also notice it would require 718.8 lbs. of Trane's R513A synthetic refrigerant to reach our 72,000 ppm RCL (well above the charge we have in our entire system).

Trane packaged chiller systems dominate the air-conditioning marketplace. As well our chillers are used in many institutional, industrial, laboratory, and critical cooling and heat recovery applications. Trane has built chiller systems for over a hundred years – it's our bread-and-butter.

We are here to help you transition to safer, cost-effective and efficient ice rink chilling systems.

Walter B. Linck  
Recreation Markets – Team Lead  
778-227-8812 (mobile)  
[wblinck@trane.com](mailto:wblinck@trane.com)

