

Backflow Prevention at Beverage Dispensers to Prevent Copper Poisoning

This document provides important information for people responsible for keeping beverages safe – including restaurant owners and managers, food inspectors, and beverage distributors.

The Issue

Acidic liquids from beverage dispensers, such as carbonated liquids, can back up (backflow) into a copper water line or pipe. The acidic liquids can dissolve the copper, which can then get into the beverage. People can experience nausea, vomiting, diarrhea, and stomach cramps if they drink beverages poisoned with copper.

Regulation

Minnesota state law (Minnesota Plumbing Code, 603.5.12 Beverage Dispensers) requires the following:

Potable water supply to beverage dispensers, carbonated beverage dispensers, or coffee machines shall be protected by an air gap or a vented backflow preventer in accordance with ASSE 1022. For carbonated beverage dispensers, piping material installed downstream of the backflow preventer shall not be made of copper and not be affected by carbon dioxide gas.

About Backflow Prevention Devices

An ASSE Standard 1022 approved backflow prevention device has two check valves, with a vent between the valves. When there is no liquid flowing through the backflow preventer, both check valves remain closed. When the beverage dispenser is turned on, both check valves open to allow the liquid to flow through.

The closed valves keep liquid or gas from flowing back through the machine. If the primary valve fails, the secondary valve remains closed and the leaking gas or liquid escapes through the vent between the valves.

Some devices are enclosed within the dispenser unit, while others are easily visible from the back of the dispenser.



One example of an ASSE Standard 1022 approved backflow prevention device. Devices may vary in appearance. Devices should be labeled ASSE 1022.

Guidance

MDH recommends that restaurant owners and managers:

- Ensure the backflow preventer is properly installed and maintained
- Regularly inspect the backflow prevention device vent for leakage or plugging
- Instruct staff to immediately report any leakage or plugging in the backflow prevention device
- Instruct staff to never plug the backflow prevention device, especially if it is leaking
- If the backflow prevention device is leaking or plugged, stop using the beverage dispenser immediately and replace the device
- Consider using a service contract that specifically includes regular replacement and/or maintenance of the backflow preventer

Contacts

- To report a copper poisoning or other suspected foodborne or waterborne illness:
 - Call 1-877-FOOD-ILL (1-877-366-3455) from within Minnesota
 - Email health.foodill@state.mn.us.
 - Or submit your report using the Foodborne and Waterborne Illness Report
- MDH Drinking Water Protection (water quality): 651-201-4700
- MDH Food, Pools, and Lodging Services (restaurant inspections): 651-201-4500
- Department of Labor and Industry (plumbing code): 651-284-5005

Minnesota Department of Health
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To obtain this information in a different format, call 651-201-4700.