

## **Carbon Dioxide Safety in your Store**

### **WHAT'S AT STAKE**

Carbon dioxide (CO<sub>2</sub>) is formed by yeast during the fermentation of juice. You can visualize this formation by looking at the airlocks on your carboys popping up and down as the carbon dioxide gas is being released.

While CO<sub>2</sub> is part of a normal fermentation process AND part of the air that we breath it does pose a potential hazard to the health and safety of people if accumulated in higher quantities.

### **WHAT'S THE DANGER**

Carbon dioxide is an odorless, colorless gas that is heavier than air and collects in lower lying areas. The water in your airlocks captures the carbon dioxide, however, if the seal of the airlock is loose some of that CO<sub>2</sub> can escape and you may find yourself breathing in above normal levels of CO<sub>2</sub>.

What are the effects of breathing above normal levels of CO<sub>2</sub>?

Short term exposures to CO<sub>2</sub> at levels less than 20,000 parts per million (ppm) have not been reported to cause any harmful effects. Most provincial Occupational Health and Safety regulations follow the American Conference of Governmental Industrial Hygienists exposure levels and they inform us that a worker should not be exposed to more than 5,000 ppm in an 8 hour shift. Carbon dioxide levels in outdoor air average 600 ppm, and 800 ppm in an office environment.

Early signs of exposure to excessive levels of carbon dioxide may include headaches, dizziness and shortness of breath. As time goes on, the symptoms may get worse, and can include a racing pulse, confusion and the feeling of sleepiness. Ultimately, a coma and death may result.

### **HOW TO PROTECT YOURSELF, YOUR WORKERS AND YOUR CUSTOMERS**

In order to protect yourself , your workers and your customers you must know the CO<sub>2</sub> levels in your store. There are a variety of monitors that will continually measure the CO<sub>2</sub> levels and notify you when they are accumulating. You will then be able to take steps to increase the ventilation in the area, such as leaving the door open or setting up a fan, and checking to ensure the stoppers on the carboys are properly aligned!

If you are continuing to experience higher levels of CO<sub>2</sub> you may need to consult with your HVAC supplier.

Finally, make sure to inform your employees of the hazards of CO<sub>2</sub>. If you have a monitoring device, show them how to use it and the actions required should your readings increase.

**FINAL WORD**

*Carbon dioxide is a natural part of fermentation. It can present a health hazard if left to accumulate to high levels. The great news is that it can easily be controlled through following good carboy management practices and ensuring adequate ventilation of your store.*