

Fume & Carbon Monoxide Detectors

Most boats have a gasoline or diesel-fueled internal combustion engine. Many also include gas-burning appliances for cooking or heating. Having one or more sources of fuel on board presents a potential danger, especially if you are unaware of leaks or vapor accumulation.

Many boaters have some serious misconceptions about fuel fumes in the bilge or engine compartment. One is that the engine blower will eliminate dangerous fuel vapors prior to starting a gasoline engine. In fact, any sort of fuel leak can create new fumes as quickly as the blower fan can clear them out, so the risk of explosion is always present, whether the blower is running or not. And although diesel vapors are not explosive, high concentrations can make you sick. One approach is to recognize that any fuel vapor in any part of your boat presents a risk serious enough to warrant the investment in a fume detector.

Fuel vapor detectors will detect more than just gas fuel vapors—they are sensitive to any combustible vapor — cooking fuels, hydrogen, solvents, and certain cleaning compounds. Here's how they work: a special wire in the sensor has a small electrical current passing through it whenever the unit is turned on. The presence of combustible hydrocarbon vapors causes a change in resistance in the wire, which triggers the alarm.

The Effects of Carbon Monoxide

Carbon monoxide (CO) can overcome a person quickly, and in high concentrations, can be fatal in just minutes — see the chart. The most prevalent source of CO is exhaust from gasoline engines and generators. These fumes reach boaters from leaks in the exhaust system, fumes sucked back into the boat, or from other boats. There are many ways CO can find its way aboard.

Since carbon monoxide is colorless and odorless, the installation of CO detectors aboard all recreational boats is recommended. The American Boat and Yacht Council now requires all new boats with gasoline inboards or generators to have a CO detector installed. Be sure to use a carbon monoxide detector designed for marine use. These are calibrated at a significantly different standard than household detectors.

Remember: gasoline detectors don't detect CO!

Concentration of CO to Air	Symptoms and Time
100 ppm .01%	Slight headache in 2-3 hours.
400 ppm .04%	Frontal headache in 1-2 hours. Widespread in 2.5-3.5 hours.
800 ppm .08%	Dizziness, nausea, convulsions in 45 minutes. Insensible in 2 hours.
1,600 ppm .16%	Headache, dizziness, nausea in 20 minutes. Death within 30 minutes.
3,200 ppm .32%	Headache, dizziness, nausea in 5 minutes. Death within 30 minutes.
6,400 ppm .64%	Headache, dizziness within 1-2 minutes. Death in less than 15 minutes.

DON'T MISTAKE THE EFFECTS OF CARBON MONOXIDE POISONING FOR SEASICKNESS!

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