

Buoy paint hazards can be minimized

This is the first in a series of three articles on the indoor air hazards found in lobstermen's workshops. The information offered is based on a study conducted with Vinalhaven, ME lobstermen by Richard Donahue, MD, medical director of Islands Community Medical Services, and researchers from the Harvard School of Public Health.

This first installment will cover the hazards of paints and solvents. Subsequent articles will address combustion hazards and dry rope dust hazards. Each will include suggestions from lobstermen on how to reduce health risks.

Paints and solvents can be hazardous because they contain volatile organic

compounds (VOCs), carbon-containing compounds that evaporate readily. These include aromatic hydrocarbons, such as benzene, toluene, and xylene; and oxygenated compounds, such as acetone and ketone.

Oil-based paints contain significantly more VOCs than latex paints: 250-800 grams per liter vs. 0-200 grams per liter.

In the lobstermen's workshops that we tested, we found high total VOC levels. These VOCs were coming from the process of painting buoys and letting them dry indoors.

While looking for a low VOC paint for buoys at the Maine Fishermen's Forum in March, I ran across Krylon Rust Tough.

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This paint has been tested on buoys in Corea, ME and found to be very durable, not likely to crack and fade, and much less likely than other paints to slime-up.

One distributor is currently testing Krylon Iron Guard paint, a very low VOC paint, on buoys. If this paint turns out to demonstrate characteristics similar to Rust Tough, it will be a very attractive paint for lobstermen as it will reduce considerably their exposure to VOCs.

VOCs' harmful effects

Basically, VOCs target the eyes and nose, respiratory system, and central nervous system. Although solvents inhaled during short exposures do not last long in the body, long-term exposures can result in a build-up of solvents in the body and an increase in the likelihood of negative health effects.

The problem with toluene and xylene, solvents often found in paints and used for cleanup of oil-based paints, is that they are so readily inhaled.

The Occupational Safety and Health Administration (OSHA) has set a permissible exposure level of an average of 100 parts per million over eight hours per day for a 40-hour work week.

Symptoms of exposure to toluene include irritation to eyes and nose, fatigue, weakness, confusion, euphoria, dizziness, headache, muscle fatigue, and more.

Symptoms of exposure to xylene

include irritation of the eyes, skin, nose, and throat, dizziness, excitement, drowsiness, lack of coordination, staggering gait, lack of appetite, vomiting, abdominal pain, and dermatitis.

Toluene and xylene have not been found to cause cancer. However, benzene, another VOC, is known to be carcinogenic.

What lobstermen say

To reduce exposures to VOCs, lobstermen have come up with a variety of strategies.

Some said they are now painting buoys outside, under a carport for example.

Some have changed to a low VOC paint or installed a fan or ventilation hood in their shops.

Some are using chemical cartridge respirators with organic vapor cartridges.

All are good strategies worth employing.

Paint Name	VOCs grams/liter	Clean-up
Day-Glo Fluorescent	383 g/l	Solvent (has VOCs)
Clear-Flex UV	337 g/l	Solvent (has VOCs)
Flexabar	Not available	Solvent (has VOCs)
Krylon Rust Tough	250 g/l	Soap and water
Krylon Iron Guard	150 g/l	Soap and water

The table presents a comparison of VOC content for some paints suitable for lobster buoys.

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FISH SAFE:

- Choose a low VOC paint for buoys.
- Choose a water-based paint to avoid use of solvents at cleanup.
- Employ strategies to reduce the risk of exposure.
- Be alert for symptoms associated with VOC exposure and seek treatment if they persist.

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