

Mildew Prevention and Treatment

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It is as universal truth, every boat, no matter how carefully maintained will get a case of mildew eventually, but no one likes to talk about it. Eyeing the dark blotches on charts, under bunk cushions, or on the bulkhead, they simply hope it will go away, which it often does if the weather turns fair. The boat owner sighs with relief and forgets about it until opening the hatch weeks later to find that mildew has been very hard at work.

Mildew needs five things to grow and flourish:

- A food source. Soap scum is a real good one, for instance.
- A temperature range in which you and I would be comfortable
- Moisture.
- Darkness.
- Dead (unmoving) air.

Break any of these and the mildew will start to have a hard time.

Not only is the climate inside a boat perfect for mildew, but also there are plenty of delicacies for it to attack. Mildew thrives on the vegetable fibers found in clothing and cordage, as well as paper, leather, and any adhesives of animal or vegetable origin. The linseed oil found in oil-based paints for example is gourmet fare for mildew.

Since dampness is essential to mildew, it makes sense that you should not stow wet gear. Anchor lines and foul weather jackets are the worst offenders, since they are hard to dry even in ideal conditions. If you cannot get them dry, do not stow them. Coil the wet anchor line in the cockpit to dry, put the foul weather jackets in your garage. If you toss your damp cockpit cushions onto your settee, you can expect a mildew sandwich when you return.

Dampness, dim light, warmth, all three are found virtually everywhere on boats. Therefore, mildew is a particularly nasty boating problem. Surprisingly, the best conditions for mildew are not found during the heat of summer, but during the spring and fall when the sun is still warm, but the air has turned cold.

Mildew is one of many forms of fungus present everywhere in the world. A very primitive plant form feeds on other plants and produces microscopic seed like spores that float freely around the cabin. These spores are always present, but it takes a particular set of conditions to encourage their growth into the black and smelly blight. Unfortunately, the ideal conditions for mildew are in a dark, damp location, just like your boat.

Mildew is whitish, grayish-white or gray-green fuzz that loves to grow in warm, dark and damp places. The fuzz is really the visible portion of the fungus which makes up what we call mildew. It particularly likes to grow in natural fabrics such as cotton and linen where it leaves easily recognized stains.

Mildew is much like Count Dracula it cannot survive light and warmth. So, take everything outside and spread them in the sun. Open all the curtains and let sunlight warm the interior. Your boat may look like an old-fashioned laundry, but you will kill the mildew. Expose all sides to the sunlight, and turn items like jackets inside out for full effect. Most of us, however, are not lucky enough to have year-around sunny weather, so you will probably have to rely on man-made assistance.

To prevent the formation of mildew, you will need to reduce the humidity level inside your boat. If you have access to 110-volt AC power, you can use a household dehumidifier, several of the Golden-Rod warming rods available in marine stores, or even 100-watt light bulbs to generate warmth.

Boats can sweat. In this case, the "sweat" is really condensation caused by warm air being exposed to cold surfaces. You can see the same type of condensation on the side of a glass of iced tea during the summer.

When it comes to mildew, prevention is the best cure. Since mildew is easier to prevent than to eliminate, your first concern should be prevention. The first line of defense is to provide good ventilation throughout the boat. The second is to keep everything clean and dry, and the last is to reduce the interior humidity level. None of these projects are small tasks in the marine environment, of course, but they are not impossible.

Good ventilation means a steady flow of air through all parts of the boat, not just the main cabin. When leaving your boat for more than a day or two, it should look as though it had been looted by professional thieves. Open all drawers, lockers, and compartments. Prop up all the bunk and seat cushions so air flows freely around them, and lift out several floorboards to ventilate the bilge as well. Leave as many ports open as weather permits and, if possible, prop the lazarette hatch open about an inch. If you have fans, face some of them forward and some of them aft to produce more air circulation. For year-around protection, you should ventilate locker doors and closed areas by installing any of the wood or metal vents available in marine hardware stores.

Just like ring around the collar, there are cures for mildew, but it is preferable not to have it in the first place. A good prevention program along with regular doses of sunlight and fresh air will keep your boat mildew-free and new smelling.

A clean and dry boat is just as important as a well-ventilated one. The galley is particularly susceptible to mildew because of food crumbs and grease, so clean up completely after each use. Although man-made fibers are resistant to mildew, any form of dirt (from lint in the lockers to soap residue in the shower) can become a foothold for mildew. An essential boat-keeping chore should be a regular cleaning of the interior.

When refinishing your interior, remember that a satin or flat finish provides a home and a grip for mildew, while a glossy finish does not. Although many marine paints already contain them, you should also check on anti-mildew additives for your paint that can combat fungus just as antifouling paint prevents barnacles.

Heat, properly used, can also prevent mildew. The idea is to use a small source of heat to create convection currents in the cabin air. These currents cause the air in the cabin to circulate. Warming the air slightly also reduces its relative humidity, so the air is better able to dry up damp areas.

Very little heat is necessary. A 12-inch long Goldenrod Heater is adequate for a space up to 100 cubic feet. This type of heater is operated by 110-volt dockside power. Often, only one or two located in strategic places will dry out an entire boat.

The most common chemical used to combat moisture is silica gel, which is usually encountered as the white packets tucked into camera and stereo equipment to absorb moisture during shipment. Both silica gel and a similar product, activated alumina, are porous granules that absorb up to half their weight in moisture from the atmosphere and which can be purchased inexpensively in bulk at hardware or drug stores. Using a double thickness of nylon stocking as a container, suspend these granules in lockers and around your cabin. Best of all, they can be reused after drying for about an hour in a 300 degree vented oven. A more potent chemical for removing moisture is calcium chloride, but it is highly caustic to both skin and fabric, and requires special care.

However, even the best preventative measures sometimes are not enough, and you have to rid your vessel of mildew. There are two ways to approach the problem: with natural cures and with man-made products.

To rid yourself of mildew in a damp climate, you should start with a complete cleaning and airing. Be wary of strong laundry detergents, however, since phosphates are a delicacy for mildew. Any residue left after you scrub the mildewed area will only bring back an increased growth. Use low-phosphate soap for normal scrubbing and a mild alkali, such as washing soda or trisodium phosphate, for stubborn mildew, but be sure to rinse the area thoroughly.

Most traditional remedies rely on sodium hypochlorite (household bleach) to remove mildew. You can add TSP (tri-sodium phosphate, available at most hardware stores) to the formula to make it more effective. A good, strong, all-around solution is:

1/2 cup (4 oz.) Clorox per gallon of water

Do not use liquid detergents in combination with bleaches.

Scrub the affected surfaces, using rubber gloves and eye protection. Rinse thoroughly.

Special "mildew removers" are available in the house wares section of most supermarkets. Some marine stores also carry these products. If you cannot find a commercial mildew remover, you

can make your own by mixing 5 1/2 tablespoons of calcium hypochlorite into a quart of water. Spray this mixture onto the affected area, and then rinse with fresh water.

Always put the calcium hypochlorite into the water, never the other way around. Pouring water onto the chemical can cause a rapid, almost explosive reaction, so be sure to keep it away from children. Test this solution on an inconspicuous portion of the affected material to be sure it will not discolor. Do not use on clothing.

There are a number of commercial anti-mildew solutions on the market, and a little testing will show which works best for your boat and climate. One product favored by many boatmen is MDR's Mildew Spray (Marine Development & Research, 116 Church St., Freeport, NY 11520), both to eradicate mildew and to protect against future attacks. Fungicidal chemicals, such as Endew, can be placed in closed lockers, but you will have to live with a mild mothball scent.

The most popular mildew remover is household chlorine bleach (sodium hypochlorite) sold in the U.S. in 5.25% solution. Manufacturers recommend diluting it further. Tilex® and other "mildew removers" are sodium hypochlorite solutions of about 3%.

DO NOT EVER MIX BLEACH AND AMMONIA. The mixture forms phosgene gas that killed and disabled thousands in the First World War.

Lysol® household disinfectant is an effective fungicide and inhibitor. Some health and environmental agencies prohibit the use of stronger fungicides.

Anything you use to kill or remove mildew will wash or wear away in a relatively short time.

One particular problem area is the crease in upholstered boat seats or cockpit cushions. Use a solution of a quarter cup of ammonia to four cups of water, and scrub the seams with an old toothbrush, followed by gentle drying with a hair dryer. For tougher stains on white synthetic cushions, soak the surface in a mixture of 1 teaspoon of ammonia, 1/4 cup of hydrogen peroxide, and 3/4 cup of distilled water. If you have colored vinyl cushions, try the solution in a small test area first.

To remove old mildew stains from the white cotton underside of cockpit or bunk cushions, soak the affected area in chlorine bleach, and then dip it in a weak solution of white vinegar and water to counteract the bleaching action.

Mildew in curtains can be a problem. Try washing the curtains in your home laundry. Add a little bleach to the wash water. Before you do, be sure the material is color-safe in bleach or you may not like the results.

The shower and head compartment can usually stand a good misting of undiluted bleach in a spray bottle, but you must thoroughly rinse afterwards with household ammonia. Always use gloves, and do not ever mix bleach and ammonia, they produce deadly chlorine gas.

Leather, particularly when damp attracts mildew, but you can remove it by wiping with a cloth wrung in a weak water/alcohol solution. Regular washing with saddle soap also reduces mildew, and drying the leather completely is necessary.

Mildewed wood surfaces, particularly in the bilges or hard-to-reach areas can be cleaned and protected with a rag dipped in a bucket of water seasoned with a shot glass of kerosene.

Mildew can be a serious problem in V-berths, head compartments and other closed spaces. There are many spaces at the ends of the hull that receive virtually no ventilation even from cowl vents. Power ventilation is often an absolute necessity in these situations.

Removing mildew from unvarnished wood such as teak can usually be done with mild soap and water. Some people report that wiping the affected wood with a rag dampened in mineral spirits removes the mildew and "sterilizes" the wood, preventing return problems.

Products that could be used are:

Canvak - Water Resistant Canvas Preservative

Canvak is perfect for heavy-duty cotton canvas. It is a petroleum based water repellency treatment. Great for cotton canvas tents, tarps, covers, and other cotton canvas products. Increases product life and restores water repellency. One gallon covers approximately 80-100 sq. ft.

Note: Canvak is not recommended for use on vinyl finishes or synthetic fabrics. Canvak is not for Sunbrella, Tempotest, or Acrylic Fabrics.

THE ABOVE ARTICLE WAS WRITTEN BY TOM KENNY. TOM IS A MEMBER OF THE PHILADELPHIA CHAPTER (www.acbsphl.org) OF THE ANTIQUE AND CLASSIC BOAT SOCIETY (www.acbs.org). PLEASE CHECK THEM OUT ON THE WEB. NEW MEMBERS ARE ALWAYS WELCOME.

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