

# Fire Extinguishers

Important recommendations  
for preparing your vessel  
for fire emergencies  
from INAMAR

**INAMAR**<sup>®</sup>

*Recreational Marine Insurance*

an ACE USA company



## **Fire Extinguishers**

Since 1792, INAMAR, through its affiliated company INA (Insurance Company of North America), has been providing insurance coverage for marine interests. This experience has taught us the importance of loss prevention and loss control.

As a special courtesy, INAMAR is providing you with this exclusive publication dealing with fire extinguishers.

We hope you will find it both interesting and informative.

# General Fire Extinguisher Information

What is there to know about fire extinguishers? You grab one and put out the fire, so why all the hoopla?

This is a common attitude but a fire at sea is one of the worst disasters you can experience. A fire will literally ruin your day and your boat, not to mention place your life in danger. Like an island, your boat is totally self-sufficient. It's not like a car where if there is a fire under the hood, you can open the door and walk away. Most of us are not able to walk on water. So we have to be prepared to fight the fire and protect ourselves.

Stop for a minute and think about what you have aboard your boat that might be a flammable material, such as fuels for the engine (gas or diesel) and cooking (alcohol, propane, CNG, charcoal and lighter fluid), cleaning solvents, paints/varnishes, and fiberglass hull, deck and interior furnishings. Most of these produce fumes which are heavier than air. This means that they will collect in the bilge until an explosive atmosphere is reached. Fires that start small get big quickly because there is so much to burn. Of course, big is relative. On small boats, any fire is big.

So what is there to know about fire extinguishers? You grab one and point it at the fire. Yes, but do you know where they are, or whether you have the right type for fires on a boat, or whether they work, or most important, how to use them in the right way to put out a fire?

## Location

It might not be unusual to hear a boat owner say, "The dealer put a couple of fire extinguishers on the boat when I bought it. I put them in a drawer to keep them out of the way. It will only take me a minute to find one."

Fire extinguishers must be at your fingertips to be of any use. If you have to go looking for them, the fire will get out of control and the boat will be lost. So, how many do you need and where do you put them?

The U.S. Coast Guard (USCG) has set requirements for what it feels is the absolute minimum number of extinguishers the average boat of any length needs. Is that enough? Neither the National Fire Protection Association (NFPA) nor the American Boat and Yacht Council (ABYC) believes that it is. They both recommend at least one more extinguisher above the USCG minimum.

Think about where a fire is most likely to occur on your boat. If you said the engine compartment or galley, you're right.

So it makes the most sense to mount your fire extinguishers in those areas. The best locations to mount extinguishers are in areas aft of the engine compartment (cockpit area); forward of the engine compartment (accommodation areas); outside the engine compartment (not inside it), in the galley area, and at the helm. By doing this, you will always be able to grab an extinguisher before you reach the location of a fire.

If you have a small boat, one extinguisher may be sufficient. On any boat over 40 feet, a good rule of thumb is one extinguisher for every 10 feet of boat length.

## Choosing an Extinguisher

Now you know where they are but do you have the right type of extinguisher for the Class fires found on boats? Class fire, what is that?

Fires are classified A, B, C, D depending on what materials are burning. Class A - wood and fabrics; Class B - flammable liquids; Class C - electrical; and Class D - combustible metals. Boats have materials that can include Classes A, B & C, but mostly include Classes B & C.

If your boat has a lot of wood and natural fabrics, you probably need at least one multipurpose (ABC) extinguisher in the accommodation area. All the other extinguishers on the boat can be Type BC.

The most common extinguisher and the best for use on boats is dry chemical. Others include carbon dioxide (CO<sub>2</sub>) and Halon. CO<sub>2</sub> extinguishers are heavy and usually found as fixed systems inside engine compartments. Halon extinguishers are very effective but are being phased out due to the effects of chlorofluorocarbons (CFCs) on the environment. Water-based extinguishers are not found on boats due to their size, weight and limitation for use on Class A fires only.

The extinguisher should be noted as usable for marine applications and must have an Underwriters Laboratories (UL) listing.

## Inspection & Maintenance

Now your boat has extinguishers that are the appropriate type and mounted in the right places. That's good but you can't just leave them there and expect them to work when you have a fire. Extinguishers need routine inspection and maintenance like everything else on your boat. You can perform the inspection as part of your spring commissioning and, thereafter, on a monthly basis.

An inspection is a quick check to visually determine that the extinguisher is properly placed and will operate. Maintenance, as distinguished from inspection, means a complete and thorough examination of each extinguisher.

An inspection should determine that the extinguisher:

1. is in its designated place;
2. is conspicuous;
3. is readily accessible;
4. has not been activated and partially, or completely emptied;
5. has not been tampered with;
6. has not sustained any obvious physical damage or been subjected to corrosion; and
7. if equipped with a pressure gauge and/or tamper indicators, that each shows the condition to be satisfactory.








A maintenance check involves disassembling the extinguisher, examining all its parts, cleaning and replacing any defective parts, reassembling and recharging. Maintenance should only be performed by fire equipment contractors. Your marina should be able to provide a list of local contractors.

Dry chemical extinguishers should be inspected monthly and should undergo an annual maintenance check. Carbon dioxide extinguishers are a bit trickier since weighing them is the only way to determine if they are fully charged. Semiannual weighing is advised. Halon extinguishers have the same inspection and maintenance requirements as dry chemical extinguishers. Nonrechargeable Halon extinguishers needing service should be returned to the manufacturer or a qualified servicing company for recovery of the Halon. Each extinguisher should have a tag attached with the date of the last thorough maintenance check.

Fire equipment contractors charge approximately \$5.00 per extinguisher for inspection. If your extinguishers need recharging, costs run about \$10.00 for 2 1/2-lb. dry chemical extinguishers.

5 lb. dry chemical extinguishers are several dollars more. Your marina should be able to tell you the exact cost in your locale. New extinguishers cost, at discount stores, about \$10.00 to \$30.00 for a 2 1/2-lb. dry chemical. Industrial quality extinguishers typically cost in excess of \$30.00. Carbon dioxide extinguishers can be purchased, but can be as much as six times the cost of dry chemical extinguishers.

### ABC's of PORTABLE FIRE EXTINGUISHERS

Class of Fire	Extinguishing Agent	Size	Discharge Time	Directions for Use	
 <small>WOOD-CLOTH-PAPER</small> <b>A</b> <small>COMBUSTIBLES</small> Wood, cloth, paper, rubber, many plastics, and other common materials that burn easily.	<ul style="list-style-type: none"> <li>•Tri-Class (ABC) Dry Chemical</li> <li>•Water should be used on Class A fires only!</li> </ul>	2 1/2 - 10 lb.	8 - 25 sec.	1. PULL PIN	
 <small>FLAMMABLE LIQUIDS</small> <b>B</b> Gasoline and other flammable liquids, oil, grease, tar, oil-based paint, lacquer and flammable gas.	<ul style="list-style-type: none"> <li>•Tri-Class (ABC) Dry Chemical</li> <li>•Regular (BC) Dry Chemical</li> <li>•Carbon Dioxide</li> <li>•Halon</li> </ul>	5 - 10 lb.	8 - 12 sec.	2. AIM AT BASE OF FIRE	
 <small>ELECTRICAL EQUIPMENT</small> <b>C</b> <small>EQUIPMENT</small> Energized electrical equipment, including wiring, fuse boxes, circuit breakers, machinery and appliances.	<ul style="list-style-type: none"> <li>•Tri-Class (ABC) Dry Chemical</li> <li>•Regular (BC) Dry Chemical</li> <li>•Carbon Dioxide</li> <li>•Halon</li> </ul>	1 - 7 lb. 9 - 14 lb.	8 - 15 sec. 10 - 15 sec.	3. SQUEEZE HANDLE	
				4. SWEEP SIDE TO SIDE	
Check your extinguisher frequently!				Most portable extinguishers work this way. Read and follow the directions on your extinguisher.	

## Usage

Whether or not an extinguisher is effective often depends on who is using it. Once a fire starts, there is little time for experimentation and improper use may injure the operator as well as delay putting out the fire. During your inspection and maintenance routine, read the instructions for use printed on the extinguisher. Don't assume you know how to use it because you saw someone use one 10 years ago. They might have been doing it wrong.

Dry chemical extinguishers usually have a locking mechanism which must be released. Aim the extinguisher at the base of the fire and squeeze the operating lever. Attack the fire near the edge and move toward the back of the fire while sweeping the nozzle rapidly from side to side. Do not point the initial discharge directly at the burning surface because the high velocity of the stream can splash and scatter the burning material, making things worse.

Carbon dioxide and Halon extinguishers usually require two hands to operate. Hold the cylinder upright and remove the locking pin. Squeeze the operating lever and aim at the base of the fire. Sweep slowly across the fire. Repeat in spurts several times, even after the flames are extinguished, to avoid reignition. The gas rushing out of a CO2 extinguisher is loud and may catch you off guard if you are not expecting it. Notice the difference in use of the extinguishers. Dry chemical is moved rapidly across the fire and CO2 and Halon are moved slowly across the fire.

## In Case of Fire at Sea

You are enjoying a great day of boating when someone smells smoke. How you handle the situation will affect the ultimate outcome.

Shut down all systems. Of course, there are exceptions, like when you are making a passage through a narrow, tricky channel but the quicker you can shut down the better. You are now dead in the water, so move quickly and deliberately.

Grab your extinguisher, assemble everyone on the bow with life jackets on and don't neglect to put on your own. Assign someone to immediately radio a Mayday. It's best if the Mayday procedure is posted near the radio. Give your position, name of vessel, type of vessel, number of people aboard, and the status of the situation. Keep giving continual updates on your situation until you no longer need assistance.

When you go looking for the fire, feel all hatches before opening. If hot, do not open.

Discharge the extinguisher through the fire extinguisher access, usually a small 3" to 4" opening, or the smallest opening available. If you are not sure the fire is out, discharge another extinguisher before opening the hatch. Once you open the hatch, the fire will have access to all the oxygen it needs. Always try to be on the outboard side of the hatch when you open it. This way, if it does flash or explode, you are closest to the water. Remember, you are wearing your life jacket.

Many fires on boats are small and can be contained easily but never take chances. Every fire at sea is dangerous.

## Bibliography

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Standards and Recommended Practices for Small Craft, American Boat and Yacht Council (ABYC), Edgewater, MD, 1991.

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