Fire and Fire Extinguishers.

Fire

A fire is a chemical reaction which requires three components:

Oxygen + Heat + Fuel = Fire

Without any one of these elements a fire cannot start.

Boat fires can quickly get out of control, and because you may be some way/time from help, very distressing and dangerous. A modern GRP cruising yacht is full of problems:
The hull – GRP is a glass fibre mesh impregnated with flammable resin
The interior – is probably wooden with foam and fabric furnishings
Fuel
Heat – Produced by a stove in the galley, engine, heaters, lamps, cigarettes, faulty wiring.

Therefore it is important to:

a) Reduce the risk of fire
b) Have the correct equipment on board to extinguish them (and regularly serviced)
c) Know what to do the event of the fire

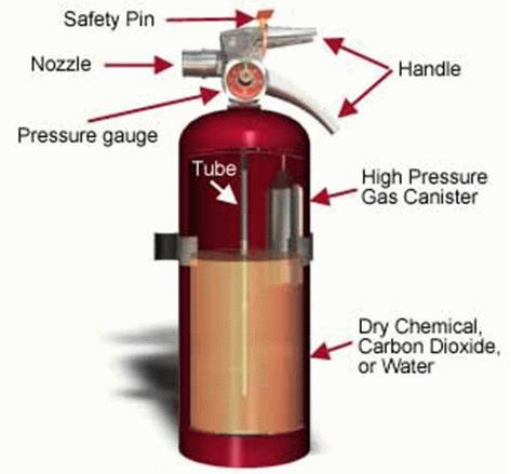
Reduce the risk of fire by:

a) Switching of gas when not in use at the bottle
b) Ensure gas bottle is stored in a well-ventilated locker on deck
c) Installing a gas alarm
d) Do not leave the cooker unattended when in use
e) Make sure there is nothing hanging over the cooker when it is in use, or nothing will fall onto the cooker when you are using it underway
f) Do not store paints or solvents down below
g) Do not smoke down below
h) Be alert to the smell of smoke or overheating that indicates the possible start of a fire
i) Ensure smoke detectors are fitted in cabins and saloon/galley area and regularly checked
j) Make sure electrical wiring is in good condition and properly installed
k) Ensuring good maintenance of fuel and gas systems and your ensure
l) Keep the bilges and engine bay clean

Have the correct equipment on board

Ideally, you should have:

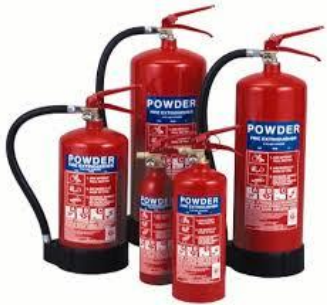
- One general purpose (ABC) fire extinguisher at the exit to each cabin
- A fire blanket in the galley
- An automatic in the engine bay
- One general purpose (ABC) in the saloon/navigation area fitted with a hose
- One general purpose (ABC) in each cockpit locker
- A bucket with lanyard in a cockpit locker



Types commonly found on a yacht:

Dry Powder:

These work by "knocking down" the flames and this causes the powder to expand and congeal to create a barrier between the fire and the air – effectively smothering the flames. There are many different types of dry powder extinguishers and they are classified according to the type of fire they are meant to be used on:



A – Wood, Cotton, Solid combustible materials

Remember A = Ash – these fires will leave an ash residue

B – Liquids i.e. Diesel, Gasoline etc.

Remember B = Boil – liquids boil

C – Electrical fires

Remember C = Current

Many dry powders are now ABC – but remember whenever possible do not use on your engine fire as they can cause damage to the engine and also leaves a layer of residue.

They are not effective on cooking oil and fat fires for this type of fire a fire blanket is best.

Automatic:

For marine use they are usually gas filled – CO2 or Halon Replacement as do not damage the engine and do not leave a residue.

Each extinguisher is fitted with a heat-activated glass bulb sprinkler head, which automatically triggers when the temperature inside the engine bay reaches 70°C, this is before pipes and electrical wires start to burn.

Fire blanket:

A blanket of fire retardant material and is great for cooking fat/oil fires. Can also be used if someone's clothing is on fire

Bucket with Lanyard:

You are on a boat – there is a big fire extinguisher out there!!

What to do the event of the fire

During your safety brief you should ensure crew know location and use of all the fire extinguishers on board your boat and the actions to take:

i. Alert all crew to the fire
ii. Get all crew into lifejackets and up on deck
iii. Close all hatches to limit oxygen reaching the fire
iv. Prepare Liferaft in case you need to abandon ship – remember it should be launched to the windward side of the boat to prevent the flames fanning onto it or smoke entering it
v. Send a DSC alert/Mayday call
vi. Try to source the start of the fire – you may need to switch off electrics or close the fuel pipe
vii. Ensure the gas is switched off
viii. Try to tackle the fire if it is safe to do so.
    - Stand about 3-4 meters away from the fire (standing to close to the fire means the pressure from the fire extinguisher could spread the fire as well as exposing you to the flames, smoke and powder), remove the safety catch, squeeze the handle and aim at the base of the fire – short bursts work best.
    - Sweep the fire extinguisher from side to side to ensure coverage of the fire

A good acronym I found is P.A.S.S.

P ull pin – this will break the tamper seal

A im at base of flame

S queeze handle – this releases the agent

S weep side to side

- If using water – again splash at the base of the fire.
- If using fire blanket -
    - Grasp the corners of one edge between thumb and fingers with palms up
    - Raise your hands so the blanket touches the backs of your hands and turn your palms away so that the blanket wraps around your hands, thus protecting them
    - Make sure the blanket is between you and the fire.

- Lay the blanket over the fire moving from inboard to out
- Leave in place until the fire has cooled (a minimum of 30 minutes)

ix. If there is an engine fire
    - Make sure the remote fuel shut off has been closed
    - Do not lift the hatch to the engine bay the automatic fire extinguisher will be activated
    - If you suspect the fire has not been put out you will need to use another extinguisher with a hose attachment which you push through the hole in the cover.

x. If you manage to put the fire out, vent and clear the compartment of smoke, do not do this to soon as by adding oxygen you may reignite the fire so make sure that someone watches and that they have another extinguisher handy.

xi. REMEMBER – it is not just the fire but the SMOKE – cannot see or breathe!