

# Fire Extinguishers & Handling

## A guide for marshals & officials

### Warning

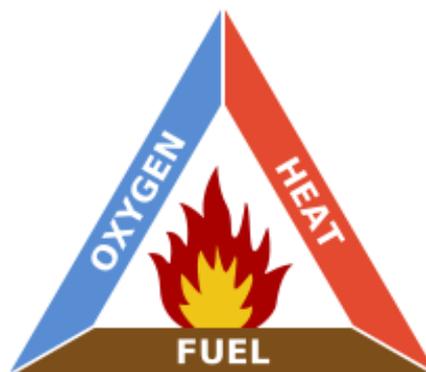
Fire and smoke can be dangerous, so do not try and tackle a large or overly developed fire on your own unless you've received the appropriate training and have the right equipment.

### Introduction

This document is to give a brief overview of fire handling and the correct and incorrect ways of going about it. Motorsport UK follow guidance from the FIA on the use of certain fire extinguishers under certain conditions. It is important that the correct extinguisher is used to tackle a fire, depending on the source of fuel, oxygen and heat.

### The Fire Triangle

All fires need *all three* of the following to begin or continue burning:



*And therefore to stop a fire, you need to eliminate at least one of the above.*

Areas rich in two or three of the above should be given consideration for marshal cover or additional controls, for example a Fueling Station or a Server Cupboard.

## Fire Classification

All fires are different. Indoor fires are different in nature to outdoor fires, and the source of fuel is often different as well. Below are the recognised classes of fire in the UK, as defined by the nature of its fuel:

**Class A:** Combustible solids and liquefied solids, including paper, textiles, wood, and plastics.

**Class B:** Combustible liquids and vapours, including fuel, oil, and battery acids.

**Class C:** Combustible gases

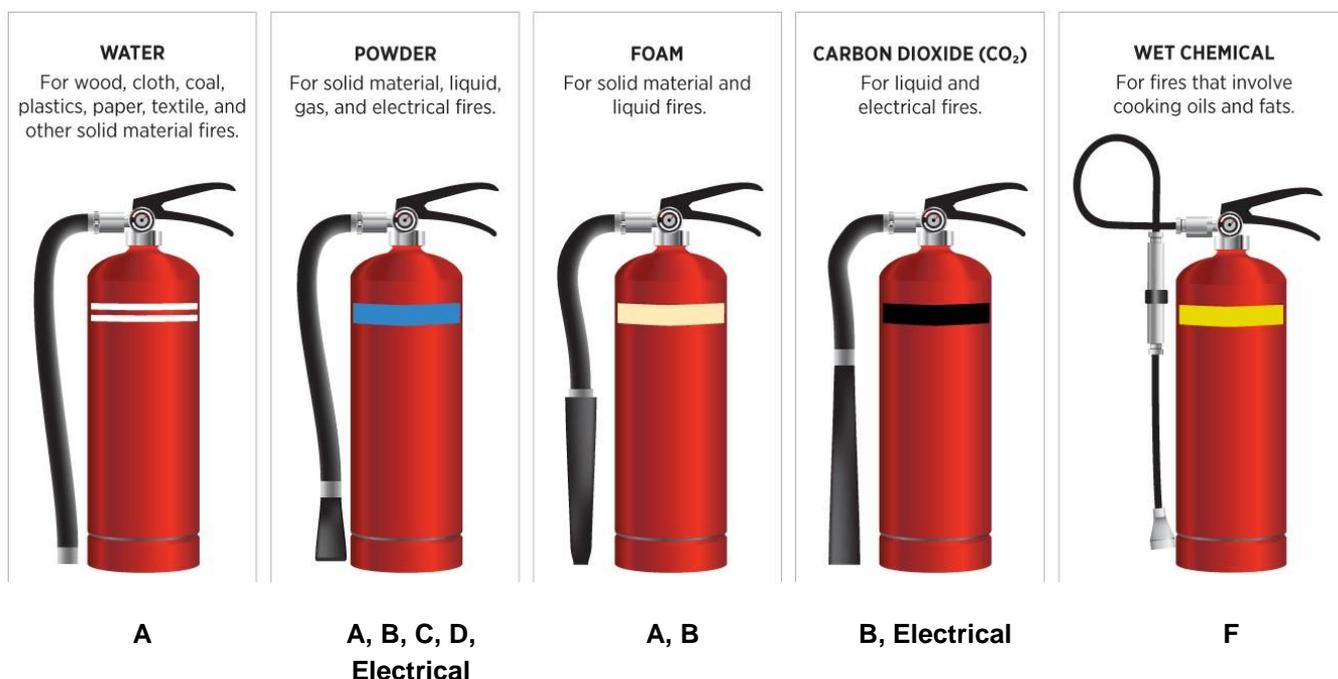
**Class D:** Combustible metals, particularly Alkali metals such as Lithium.

**Electrical:** Fires usually started as a result of poorly maintained electrical appliances and / or heat.

**Class F:** Cooking fats and oils, commonly found in catering areas such as barbeques and kitchens.

## Fire Extinguisher Identification

Most, if not all, fire extinguishers have clear instructions written on them, however it is useful to have an awareness of which is which so you may be able to react more efficiently if a fire breaks out:



## General Usage

- “PASS”            **P**ull, **A**im, **S**queeze, **S**weep
- Check the extinguisher’s pressure is in the green or ‘good’ zone.
- Pull out the pin at the top of the extinguisher.
- Aim the nozzle at the base of the fire.
- Squeeze the handle to discharge, standing between 6 – 8 feet away.
- Sweep the nozzle back and forth across the lower part of the fire. Watch for re-ignition.
- Unless needed to extinguish a fire, do not test squirt, as a full replacement of the contents is necessary after discharge, no matter how small.
- If the fire starts to spread quickly and/or uncontrollably, give up and walk away, being sure to assist people to safety.

**Most of the extinguishers you will encounter will be Dry Powder or AFFF Foam as these are suitable on most fires.**

Please note: Fires on electrical vehicles are dealt with under separate guidance.

## How To Use – Dry Powder

- Powder extinguishers to be used on all classes apart from Class F (cooking fats, oils, fuel).
- Powder fire extinguishers do not cool the fire down or reduce the temperature, so fires are likely to start again.
- After extinguishing a fire with powder, it is advised to lay down a layer of foam to cool the area to prevent re-ignition.
- For fires involving fuels and oils, aim at the base of the nearest point to you, then sweep side to side, moving forwards.
- If the fire involves a flowing liquid, direct the jet at the flame source nearest you and sweep towards the source of fuel.
- These are best used in well ventilated areas due to the amount of powder produced.
- Before tackling an electrical fire, disconnect the power supply or turn off the generator.
- When the fire is out, allow the area to clear of powder and then check for any return of flames.
- When not in an emergency, check the powder by inverting the cylinder; listen for the powder falling freely inside.

### How To Use – AFFF Foam

- When using on a pool or puddle of burning liquid, do not aim directly into the liquid as this will cause the flammable liquid to splash, and spread the fire.
- Foam used to cool down any hot solid or liquid, usually (but not always) after use of the Powder extinguisher.
- Where a burning liquid is inside a container, direct the jet at the inside edge of the container or a connecting vertical surface. This breaks the jet and allows the foam to roll into or over the fire, smothering it.
- If this isn't possible, extinguish from a greater distance and in a sweeping motion to ensure that the jet does not 'spread' the fire as above.

### How To Use – Water

- Spray over papers, textiles, wood, etc. so smother the flame.
- DO NOT USE ON ELECTRICAL FIRES.

### How To Use – CO<sub>2</sub>

- For use on electrical fires and flammable liquids.
- Do not give a test 'squirt' as the flow of CO<sub>2</sub> should be continual.
- Do not hold the discharge horn when in use – this gets very cold and can cause a cold burn and they can be quite loud.
- Do not use in confined spaces with little or no ventilation.

### How To Use – Wet Chemical

- For use on cooking oils / fats only.
- Check the cannister pressure regularly – being a less common extinguisher it is easy to forget.
- Switch off the source of heat (eg. Barbeque or oven) if possible.
- Spray a film over the area, making sure there is no one nearby as grills can spit / splash.

### General Housekeeping

- Fire extinguishers need to be inspected on a regular basis and will have a date sticker on as proof. If there isn't one or it is out of date then please report it.

- Regularly check the labels as out of date fire extinguishers are defective and will present a significantly higher and unnecessary risk in the event of a fire.
- Check the pressure gauge. Low pressure can be dangerous and will be defective.
- Check that the safety pins are in and secured in the handle.
- Check the discharge nozzles are free from splits and obstruction such as mud etc.
- Being in a motorsport environment, please be aware that car fires can cause elements of the car to act in an unforeseen way. Eg. tyres can explode when subjected to extreme heat, and pressurised containers such as shock absorbers and suspension elements.
- Tackle fires with the wind coming from behind you.
- Before you start to tackle a fire, make sure there is safe means of escape. Do not allow the fire to block your only exit route.
- Be careful when running to not slip or trip over. Fire extinguishers can be heavy.
- Where possible, take another person with you for assistance.
- Some cars with magnesium alloy wheels or similar when burn very brightly, so keep any spectators or operatives nearby to look away if practical to do so.

## Useful Resources

Motorsport UK Safety Team	<a href="mailto:safety@motorsportuk.org">safety@motorsportuk.org</a>	T: 01753 765041
HSE Guidance: Fire & Explosion	<a href="http://www.hse.gov.uk/fireandexplosion/index.htm">http://www.hse.gov.uk/fireandexplosion/index.htm</a>	
HSE Guidance: Fire Hazards	<a href="http://www.hse.gov.uk/toolbox/fire.htm">http://www.hse.gov.uk/toolbox/fire.htm</a>	
HSE: Managing Health & Safety at Motorsport Events	<a href="http://www.hse.gov.uk/pUbns/priced/hsg112.pdf">http://www.hse.gov.uk/pUbns/priced/hsg112.pdf</a>	
Motorsport UK Yearbook 2019	<a href="https://www.motorsportuk.org/News-Publications/Publications/Yearbook">https://www.motorsportuk.org/News-Publications/Publications/Yearbook</a>	