

PURPOSE/APPLICATION

Fire extinguishers are a common piece of emergency equipment that are installed on all vehicles, equipment, shops, and offices. Inspection and maintenance must be conducted on a scheduled basis to ensure proper operation in case of an emergency. The purpose of this Safe Work Practice is to protect workers from injuries associated with the improper selection, use and care of portable fire extinguishers.

PPE

- CPES Minimum Requirements

TRAINING

- WHMIS 2015
- Fire Extinguisher






HAZARDS & CONCERNS

- Fire
- Smoke Inhalation
- Burns
- Property Damage

PRECAUTIONS

- Your safety is paramount, if it is unsafe or you are uncomfortable, do not attempt to put out the fire, evacuate the area.
- Ensure that help is on the way by activating the fire alarm before trying to put the fire out.
- All fire extinguishers have fire ratings stamped on them. You should familiarize yourself with this rating. For example, a dry chemical cylinder may have 2A, 10 BC stamped on it; this means that the contents of the cylinder are enough to fight 2 square meters of a Type A fire or 10 square meters of a Type B or C fire. Higher numbers mean more firefighting power.

TYPES OF FIRES

Class	Logo and Color Indicator	Description
Class A	Green Logo 	Fires that involve ordinary combustible materials, such as wood, cloth, paper, rubber, and many plastics
Class B	Red Logo 	Fires that involve flammable liquids, combustible liquids, petroleum greases, tars, oils, oil-based paints, solvents, lacquers, alcohols, and flammable gases
Class C	Blue Logo 	Fires that involve energized electrical equipment, Electrical Panels, Motor, Wire, Etc.
Class D	Yellow Logo 	Fires that involve combustible metals such as magnesium, titanium, zirconium, sodium, lithium, and potassium
Class K	Black Logo 	Fires in cooking appliances that involved combustible cooking media (vegetable or animal oils and fats)

HOW TO CHOOSE A FIRE EXTINGUISHER

The type of fire will determine the type of extinguisher that can be used. **Not all extinguishers can be used on each type of fire.**

WATER EXTINGUISHERS

- Water extinguishers are good for Type A Fires only.
- Do not use a water extinguisher for a Type B fire as flammable liquids are lighter than water and will float on the surface. This will aid in the spread of the fire.

- Do not use a water extinguisher on a Type C fire because you run the risk of receiving an electrical shock. Water is an electrical conductor so as the water spreads out, the chance of electrocution increases.

CO2 EXTINGUISHERS

- A CO2 extinguisher is not a good choice for a Type A fire, because the force of the CO2 gas being expelled will blow the burning material around and spread of the fire. Also, the fire will usually re-ignite as soon as the CO2 gas dissipates.
- The CO2 extinguisher works well on Types B or C fires. This type of extinguisher works well on Type C fires because they do not leave a messy residue on delicate electrical equipment. The CO2 displaces the oxygen at the surface of the fire, effectively smothering the fire. However, the fire can re-ignite once the CO2 gas dissipates if the ignition source has not been removed.
- A CO2 extinguisher has a wide nozzle that locks into place. Do not hold onto the nozzle when firing the extinguisher, this nozzle will get very cold as the CO2 gas is expelled; CO2 gas has a temperature of minus 66C. If you are holding onto the nozzle, you will receive a cold burn.

DRY CHEMICAL EXTINGUISHERS

- The multipurpose Dry Chemical Extinguisher for Type A, B and C fires is what you will commonly find in industry.
- These extinguishers are good for most types of fires. A Type BC fire extinguisher contains sodium or potassium bicarbonate, and a Type ABC fire extinguisher contains ammonium phosphate.
- They have an advantage over CO2 extinguishers because they leave a blanket of non-flammable material on the extinguished material which reduces the likelihood of re-ignition.
- They do cause a mess and the fine powder will irritate the throat and lungs.
- The contents of these cylinders can pack down over time and cause the extinguisher to not fire when operated. If this happens, turn the cylinder over and tap it sharply on the bottom to loosen the compacted powder inside and try firing the cylinder again. If the cylinder will not fire - leave the area immediately.

WET CHEMICAL

- These fire extinguishers are commonly referred to as a Class K (Potassium Acetate) extinguisher.
- Class K fire extinguishers are more effective in extinguishing cooking fires.
- The NFPA revised their standard in 1998, specifying that "Fire extinguishers provided for the protection of cooking appliances that use combustible cooking media (vegetable or animal oils and fats) shall be listed and labeled for Class K fires.

HOW TO OPERATE A FIRE EXTINGUISHER – PASS (PULL, AIM, SQUEEZE, SWEEP)

1. Pull the Pin

Hold the extinguisher by the carrying handle and pull/twist the pin out. Don't place your hand on the trigger because this will make it impossible to pull the pin out.

2. Aim at the base of the fire

Aim at the base leading edge of the fire. If you aim at the flames, you will never put the fire out.

3. Squeeze the trigger

Fully depress the trigger with the palm of your hand and expel the entire extinguisher onto the fire.



4. Sweep back and forth

Sweep the extinguisher back and forth extending beyond the edges of the fire to ensure you completely cover its base.

FIRE EXTINGUISHER INSPECTION AND MAINTENANCE

- Fire extinguishers must be inspected at least once a month and documented on the tag or Monthly Log form, by a trained worker.
- Inspection records need to be accessible and producible if requested as Part of NFPA Building Code.
- Remove, recharge/replace spent extinguishers immediately. Once the extinguishers are recharged/replaced, return them to their locations.
- Each extinguisher must have a yearly inspection completed by a certified Technician.
- To perform a monthly fire extinguisher inspection:
 - Pick up the fire extinguisher and check for labeling, overall condition, and physical defects.
 - Check if the cylinder and other external metal parts are free of corrosion, dents, and other signs of damage.
 - Check that the connection between the hose and cylinder is secure.
 - Inspect if there are cracks in the hose or leak in the nozzle.
 - Check if the locking pin goes through the holes of the discharge lever and handle, and if the pin is secured well by the seal. The pin locks the discharge lever and prevents accidental discharge.
 - Verify the extinguisher weight is within the acceptable range as per CSA rating plate/sticker.
 - Check the pressure gauge to ensure the gauge needle is in the green zone. A needle in the left red zone means that the fire extinguisher is undercharged and warrants a recharge, while a needle in the right red zone signals a danger of being overcharged.

***Note:** Dry Chemical Extinguishers mounted on power mobile equipment or stationary equipment are prone to vibrations (e.g., light tower). These extinguishers should be inverted during inspection to ensure the chemical has not been packed in the base.

GENERAL DOS and DON' TS

THE DOs

- DO** Ensure that fire extinguishers are up to date on yearly and monthly inspections.
- DO** Know where the fire extinguishers are located.
- DO** Keep a fire extinguisher readily available when performing hot work.
- DO** Keep your back to the wind if you are outside. If the wind changes direction, move around the fire.
- DO** Be conscious of where you are standing and ensure that you are not standing in the contents which are on fire or may ignite.
- DO** Always have an exit behind you. If the fire does not go out, you will need to be able to safely exit without having to go around the fire.
- DO** Be aware of the operating time of the extinguisher; most extinguishers will be fully discharged in as little as 8 seconds.
- DO** Start expelling the extinguisher at a comfortable distance. It is easier to advance on the fire than it is to retreat from it.
- DO** Close the door to a room with a fire. Leave the door unlocked for the fire fighters.
- DO** Ensure that once a fire extinguisher has been discharged, it is removed from service and sent to be recharged.

THE DON'Ts

- DON'T** Use a fire extinguisher if you are unsure how to use it.
- DON'T** Use the wrong type of extinguisher for the wrong fire. You could end up making the fire worse.
- DON'T** Leave water fire extinguishers outside during the winter because they will freeze.
- DON'T** Return to a burning area once you have left.
- DON'T** Leave the area unattended once you have extinguished a fire. Monitor the area for at least 30 minutes or until the scene has been released by supervision.

REFERENCES / ADDITIONAL INFORMATION

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

The National Fire Protection Association (NFPA) is a global self-funded nonprofit organization, established in 1896, devoted to eliminating death, injury, property, and economic loss due to fire, electrical and related hazards.

NFPA delivers information and knowledge through more than 300 consensus codes and standards, research, training, education, outreach, and advocacy; and by partnering with others who share an interest in furthering our mission. Our mission is to help save lives and reduce loss with information, knowledge, and passion.

NFPA 10: STANDARDS FOR PORTABLE FIRE EXTINGUISHERS – RECORD KEEPING

Records of the monthly inspections need to be maintained by either putting a tag or label on the extinguisher or by having it recorded on paper or electronic files (CF-S-17 Portable Fire Extinguisher Inspection Monthly Checklist). The following items need to be recorded:

- The month and year of the inspection
- The person conducting the inspection

These records need to be maintained for at least 12 months.

NFPA 10: STANDARDS FOR PORTABLE FIRE EXTINGUISHERS – LOCATION AND PLACEMENT

As defined by NFPA Code officials are charged with ensuring that occupancies are properly outfitted with fire extinguishers and that they are placed in the right locations. This resource identifies which occupancies require extinguishers and where they should be placed within them.

It also outlines related fire extinguisher requirements in NFPA® 10, Standard for Portable Fire Extinguishers. Following link is to a recent (May 2019) publication for extinguisher placement.

<https://www.nfpa.org/~media/02F81976E4484A0BB8F8D129EC403ECA.ashx>


Where and How Should Extinguishers Be Located?

Fire extinguishers that are placed correctly can be accessed more quickly to help control a fire until the fire department arrives. Fire extinguishers are not intended to be a substitute for evacuating the building safely and quickly. Two key factors for locating extinguishers are that they should be accessible and visible.

<p style="text-align: center; background-color: #e0e0e0; margin: 0;">Accessible</p> <p style="font-size: x-small;">Extinguishers should be placed where they are readily accessible in the event of a fire, which typically includes normal paths of travel.</p>	<p style="text-align: center; background-color: #e0e0e0; margin: 0;">Visible</p> <p style="font-size: x-small;">If visual obstructions cannot be avoided, then arrows, lights, or signs are needed to help indicate where a fire extinguisher is located.</p>
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If extinguisher weighs **more than 40 lb (18.14 kg) ...**

- ▶ **Top of extinguisher** cannot be more than **3.5 ft (1.07 m)** from the ground
- ▶ **Bottom of extinguisher** must be at least **4 in. (102 mm)** off the ground



If extinguisher weighs **less than 40 lb (18.14 kg) ...**

- ▶ **Top of extinguisher** cannot be more than **5 ft (1.53 m)** from the ground
- ▶ **Bottom of extinguisher** must be at least **4 in. (102 mm)** off the ground

In both cases, this includes extinguishers in cabinets, but it does not include wheeled extinguishers.



REGULATIONS

Alberta OHS Code

Part 7 Emergency Preparedness and Response Section 116, 117, 118

Schedule 10 Fire Extinguishers and Minimum Separation Distances

Saskatchewan OHS Regulation

Fire Extinguishers 463

British Columbia OHS Regulation –

Part 23 Oil and Gas - 23.10 Fire Extinguishers

NFPA Standards

Part 10 Standard for Portable Fire Extinguishers

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