

FIRE EXTINGUISHERS: *How & When To Use Them*

This easy-to-use Leader's Guide is provided to assist in conducting a successful presentation. Featured are:

INTRODUCTION: A brief description of the program and the subject that it addresses.

PROGRAM OUTLINE: Summarizes the program content. If the program outline is discussed before the video is presented, the entire program will be more meaningful and successful.

PREPARING FOR AND CONDUCTING THE PRESENTATION: These sections will help you set up the training environment, help you relate the program to site-specific incidents, and provide program objectives for focusing your presentation.

REVIEW QUESTIONS AND ANSWERS: Questions may be copied and given to participants to document how well they understood the information that was presented. Answers to the review questions are provided separately.

ATTENDANCE RECORD: Document the date of your presentation as well as identify the program participants. The attendance record may be copied as needed.

INTRODUCTION

Workplace fires can be catastrophic because of the number of people who can be affected and the types of materials stored on the jobsite. These fires can quickly spread out of control, causing severe damage to property and human life. Taking the proper action when first discovering a fire can save lives and reduce property damage. Often the use of a fire extinguisher can minimize the effects of a fire. You must remember, however, that just because a fire extinguisher is available does not mean it should be used. Using a fire extinguisher at the wrong time or in an improper manner can be a fatal error. The most important thing to learn about fire extinguishers is how and when to use them.

This program stresses to viewers the importance of making the right decisions when a workplace fire breaks out. In order to use a portable fire extinguisher to put out the fire, employees must determine the type of material burning and class of fire present, if they know how to use the appropriate fire extinguisher and if the fire is in its beginning stages. More importantly, they must be confident in their ability to evacuate the facility safely should they be unable to extinguish the fire.

Topics of the video include the fire triangle, incipient stage fires, classes of fires and the extinguishers used to put them out, the "PASS" system and emergency evacuation.

PROGRAM OUTLINE

HAZARDOUS WORK AREAS

- Some work areas have materials present or are configured in such a way that fighting even small fires with a portable extinguisher is too dangerous.
- Employees in these work areas will be instructed not to use fire extinguishers. They must follow the company's emergency plan and evacuate the facility in the event of a fire.
- Do not attempt to fight a fire when you are not authorized to do so. Check with your supervisor if you are unsure if it is safe to use a fire extinguisher in your work area.

SPECIFIC CONDITIONS FOR FIRE EXTINGUISHER USE

- When workers are allowed to use fire extinguishers, three very specific conditions must be met:
 - ❶ Only use a portable fire extinguisher on small fires in their incipient or beginning stages;

- ② Only use a fire extinguisher when you know what type of material is burning;
- ③ Only use a fire extinguisher when you have been trained and authorized to do so.

THE FIRE TRIANGLE

- Every fire needs three things to burn: fuel, oxygen and an ignition source.
- Fuel for a fire can be any combustible material, such as cardboard or paper.
- The oxygen needed by all fires is readily available in the air we breathe.
- This means that two of the three factors needed for a fire already exist anywhere combustible materials are stored.
- The missing element, an ignition source, can easily be provided by many things: welder's slag, the muffler of a hot tool, a careless cigarette, the heat of a chemical reaction, open flames or electrical malfunctions.
- Once these three elements are combined, a fire is born. The fire is always dependent on these three elements. When one is taken away, the fire will die.

INCIPIENT STAGE FIRES

- Fires are most easily extinguished right after they start. Fires in this stage are referred to as incipient stage fires.
- Incipient stage fires are generally confined to their point of origin and have not significantly spread to other materials.
- Quick and proper use of a portable fire extinguisher can put out an incipient stage fire and prevent it from spreading.
- Once a fire has spread beyond its incipient stage, do not attempt to extinguish it with a portable extinguisher. This type of fire is spreading too fast, is too hot and too dangerous to be controlled by a portable fire extinguisher.
- When large, spreading fires are discovered, do not attempt to fight them. Sound the alarm and evacuate according to the emergency plan.
- When you discover an incipient stage fire, you must know which type of material is burning. You must also know which type of extinguisher to select and know how to operate it before attempting to extinguish it.

CLASS A FIRES

- Fires are divided into four classes. You must understand that all extinguishers are not appropriate for each class of fire.
- Class A fires consist of wood, paper, cloth, rubber or similar materials. One type of extinguisher for Class A fire is a water-based extinguisher.
- To use a Class A water-based extinguisher, remove the extinguisher from the holder and pull the pin. Approach to a distance of about 10 feet and aim the nozzle at the base of the fire.
- To discharge the extinguisher, squeeze down on the trigger located on the top of the handle. Sweep the stream of water slowly from side to side.

- Concentrate the water stream on the base of the fire. This is where the fire's fuel supply is located.
- Saturating the fuel supply with water extinguishes the fire because the temperature required for combustion has been increased. In other words, wet cardboard requires much more heat than dry cardboard.
- After the fire is out, back away slowly. Don't turn your back on the fire; keep watch until the fire department arrives.
- Another extinguisher rated for Class A fires is the multipurpose type ABC extinguisher. Instead of water, this type of extinguisher uses a dry chemical to put out the fire.

CLASS B FIRES

- Class B fires are fueled by flammable liquids, which include gasoline, oil, kerosene and paint thinner. These fires ignite when vapors given off by the liquid come in contact with an ignition source such as a spark from static electricity.
- To extinguish a Class B fire, the fire must be smothered by removing the air supply from the fire.
- Class B fire extinguishers come in two common types: dry chemical or carbon dioxide.
- The dry chemical extinguisher discharges chemical powder that smothers the burning liquid, while the carbon dioxide extinguisher discharges gas that puts out the fire by forcing oxygen away from it.
- When using a Class B dry chemical extinguisher, first pull the pin and approach the fire to a distance of about 10 feet.
- Aim the nozzle at the base of the fire. Remember the fuel feeding the fire is at its base.
- Discharge the extinguisher by squeezing the trigger. Approach the fire slowly, sweeping the nozzle from side to side with a quick motion.
- The goal is to place a layer of powder on top of the entire surface of the burning liquid. Covering only part of the burning area will not work because fumes will re-ignite from the area that continues to burn.
- When using a carbon dioxide extinguisher, you must stand closer to the fire (about three to five feet). Carbon dioxide is expelled as a gas and will only travel a short distance.
- When using this type of extinguisher, aim it at the base of the fire and sweep from side to side in a slow, smooth motion.
- Never use a Class A water-based extinguisher on a flammable liquid fire; this will cause the fire to spread rapidly.

CLASS C FIRES

- Electrical equipment such cords, motors, tools and other devices can become overheated and cause a fire. Fires caused by electricity are known as Class C fires.
- Class C extinguishers are rated for use on electrical fires. Use only a Class C extinguisher on an electrical fire because the extinguishing agent is non-conductive, reducing the risk of electric shock while extinguishing the fire.
- Class C extinguishers use various types of agents, including halatron, dry chemicals and carbon dioxide. The multipurpose ABC type extinguisher can be used.

- No matter what agent is used, just make sure the extinguisher is rated for Class C fires. Using extinguishers not designed for electrical fires, such as the Class A water-based extinguisher, can produce deadly results.
- After sounding the fire alarm, the first thing to do before attempting to put out an electrical fire is to turn off the electricity. If the electricity is not turned off, the fire can re-ignite once the effects of the extinguisher dissipate.
- After turning off the electricity, get a Class C extinguisher and pull the pin. Aim the nozzle at the base of the fire and approach to a distance of about 10 feet, then squeeze the trigger to discharge the extinguisher.
- Approach the fire slowly, sweeping from side to side to cover the base of the fire evenly with the extinguishing agent. When the fire is out, back away slowly and stand watch until the fire department arrives.

THE “PASS” SYSTEM

- The four common steps in the use of fire extinguishers can be remembered by using the first letter of each step:

Pull the pin; Aim the nozzle; Squeeze the trigger; Sweep from side to side.

- Using the word “PASS” as a memory tool is a good way to remember these four steps.

CLASS D FIRES

- Class D fires have characteristics different from A, B and C fires. Class D fires are fueled by flammable metals.
- Some metals such as aluminum, titanium, beryllium and magnesium are flammable. Once ignited, these metals are difficult to extinguish.
- These types of metals release oxygen as a result of the burning process and cannot be smothered. These types of metals can even burn under water.
- Class D extinguishers expel a thick, wax-like substance that must be built up around the burning metal until it is completely covered. This isolates the fire until it burns itself out.
- Unless you have had special training, do not attempt to extinguish a Class D metal fire.

BECOME FAMILIAR WITH FIRE EXTINGUISHERS

- Your company has selected extinguishers rated for the types of fires that are most likely to be found in your workplace. These extinguishers are labeled for the class of fire for which they are designed.
- Many companies choose a multipurpose extinguisher rated for Class A, B and C fires. Take note of the types of fires your extinguishers will put out.
- The time to find out what type of extinguishers are readily available is before a fire breaks out. If you have any questions about the fire extinguishers, the type of fire most likely to occur in your work area or your facility’s emergency action plan, ask your supervisor.
- Keep in mind that extinguishers come in different sizes. Some work areas have small ones that weigh about three pounds, while other areas use larger extinguishers weighing up to 30 lbs.
- Try to lift the extinguishers in your work area. If the extinguisher is too heavy for you, do not attempt to use it.

PREPARE FOR THE SAFETY MEETING OR TRAINING SESSION

Review each section of this Leader's Guide as well as the videotape. Here are a few suggestions for using the program:

Make everyone aware of the importance the company places on health and safety and how each person must be an active member of the safety team.

Introduce the videotape program. Play the videotape without interruption. Review the program content by presenting the information in the program outline.

Copy the review questions included in this Leader's Guide and ask each participant to complete them.

Make an attendance record and have each participant sign the form. Maintain the attendance record and each participant's test paper as written documentation of the training performed.

Here are some suggestions for preparing your videotape equipment and the room or area you use:

Check the room or area for quietness, adequate ventilation and temperature, lighting and unobstructed access.

Check the seating arrangement and the audiovisual equipment to ensure that all participants will be able to see and hear the videotape program.

Place or secure extension cords to prevent them from becoming a tripping hazard.

CONDUCTING THE PRESENTATION

Begin the meeting by welcoming the participants. Introduce yourself and give each person the opportunity to become acquainted if there are new people joining the training session.

Explain that the primary purpose of the program is to stress not only how to use various types of fire extinguishers, but also when it is safe and unsafe to attempt to put out a fire with an extinguisher.

Introduce the videotape program. Play the videotape without interruption. Review the program content by presenting the information in the program outline.

Lead discussions about the fire extinguishers that are located in your facility and situations where it would be safe or unsafe to use them. Use the review questions to check how well the program participants understood the information.

After watching the videotape program, the viewer will be able to explain the following:

- Specific situations where it would be unsafe to use a fire extinguisher to put out a fire;
- The four classes of fire and the types of extinguishers used to put them out;
- The importance of becoming familiar with the extinguishers in your work area;
- The "PASS" system and other firefighting procedures.

FIRE EXTINGUISHERS:
How & When To Use Them

Name _____ Date _____

The following questions are provided to check how well you understand the information presented during this program.

1. Before attempting to use any fire extinguisher, you must be trained and authorized by your company.
 - a. true
 - b. false

2. Every fire needs a heat source, fuel and _____ to burn.
 - a. hydrogen
 - b. nitrogen
 - c. oxygen
 - d. carbon dioxide

3. Which of the following situations would make it unsafe to fight a fire with a fire extinguisher?
 - a. the fire has spread beyond the incipient stage
 - b. you don't know what type of material is burning
 - c. the extinguisher is too heavy for you to lift
 - d. all of the above

4. You should never use a Class A water-based extinguisher on fires fueled by flammable liquids or ignited by electricity.
 - a. true
 - b. false

5. The first thing you should do after sounding the fire alarm when attempting to extinguish an electrical fire is get a Class C extinguisher and pull the pin.
 - a. true
 - b. false

6. Which type of extinguisher requires you to stand closer to the fire than usual because its contents will only travel a short distance?
 - a. water-based
 - b. dry chemical
 - c. carbon dioxide
 - d. halatron

7. If the fire extinguisher you are using runs out of extinguishing agent, you should immediately go for another one and continue fighting the fire.
 - a. true
 - b. false

8. Which class of fires is fueled by flammable metals and is difficult to extinguish?
 - a. Class A
 - b. Class B
 - c. Class C
 - d. Class D

ANSWERS TO THE REVIEW QUESTIONS

1. a

2. c

3. d

4. a

5. b

6. c

7. b

8. d