PRESENTER'S GUIDE

"USING FIRE EXTINGUISHERS"

Part of the General Safety Series

Quality Safety and Health Products, for Today... and Tomorrow

OUTLINE OF MAJOR PROGRAM POINTS

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The following outline summarizes the major points of information presented in the program. The outline can be used to review the program before conducting a classroom session, as well as in preparing to lead a class discussion about the program.

- **You've probably heard the best way to fight a fire is to prevent it, and that's true.**
  - But accidents do happen and fires do start.
  - When this occurs in a workplace, you or a coworker will often be the first to respond, and fire extinguishers become the first line of defense.

- **Fire extinguishers can enable you to act quickly and effectively to protect people and your facility.**
  - So you need to understand the equipment, as well as how to use it.

- **Fire extinguishers are designed to put out small fires before they grow out of control.**
  - Putting out fires with an extinguisher isn't always easy.
  - It can be hazardous if you go about it in the wrong way.

- **To use an extinguisher effectively it’s helpful to know what causes things to burn.**
  - Fire always needs three ingredients, fuel, oxygen and heat.

- **The "fuel" is any material that will burn, including:**
  - Combustible solids such as wood, paper, cardboard and some metals.
  - Flammable and combustible liquids such as gasoline, toluene and some solvents and cleaning solutions.
  - Ignitable gases such as propane and natural gas.

- **Next, a fire must be in an environment where there is oxygen that it can "breathe".**
  - The more oxygen a fire has, the better it will burn.
  - That's why "fanning" a fire makes it flare up.

- **The third element that a fire needs is heat, a "source of ignition" such as a match or an electric spark, that "lights" it and keeps it burning.**

- **The best way to put a fire out is to deprive it of oxygen or heat.**
  - That is what fire extinguishers do.

- **Though they may look more or less the same, all fires are not alike.**
  - The types of materials that are burning and the location of the fire determine how they behave, and how you should put them out.

- **Fire extinguishers work by applying substances that are called "fire retardants".**
  - They can cool a fire or deprive it of oxygen (a process known as "smothering") or they can do both.

- **But using the wrong type of retardant on a fire can make a bad situation even worse.**
  - For example, an air-pressurized water extinguisher will do a great job of putting out burning cardboard.
  - But using a water extinguisher on burning liquids will only spread the fire further.
  - Since water conducts electricity, you wouldn't want to use it on a fire that is burning in or around electrical equipment, because someone could be electrocuted.

- **To make it easier to distinguish between different types of fires and determine what type of extinguisher should be used on them, fires are divided into "classes".**

- **"Class A" fires involve everyday solid combustibles like paper, cardboard and wood.**
    - — Extinguishers that discharge water, foam and some dry chemical agents can be used on this class of fires.

- **"Class B" fires involve flammable gases, liquids and some plastics.**
    - — Extinguishers that discharge dry chemicals, foam and carbon dioxide should be used on these.

- **"Class C" fires involve electricity, and can occur in any type of electrical equipment.**
    - — Extinguishers that apply "nonconductive" substances, such carbon dioxide and dry chemicals, must be used on Class C fires.

- **"Class D" fires involve combustible metals, and are not very common.**
    - — They can be dangerous to extinguish, so don't try to put out a Class D fire unless you have received training on how to deal with them specifically.

- **The labels on fire extinguishers are always marked with the classes of fires they should be used on.**
    - Sometimes they also display "pictographs" that illustrate the classes.
    - — Many extinguishers are designed to put out multiple classes of fires.

- **It's important for you to know what types of fires could occur at your facility and what extinguishers you should use to fight them.**
    - — Talk to your supervisor if you have questions.

- **The fire extinguishers in a facility should be appropriate for the classes of fires that are most likely to occur in the facility.**
    - For example, a work area that contains wooden materials, flammable liquids and electrical machinery should be equipped with extinguishers that are rated for Class A, B and C fires.

- **Since many facilities have this combination of substances, multi-purpose dry chemical ABC fire extinguishers are by far the most popular type of extinguisher in use today.**
    - These extinguishers use a chemical called monoammonium phosphate that coats the fuel and smothers the fire.
    - But the residue that ABC extinguishers leave behind is not only hard to clean up, it's also mildly corrosive.

- **Dry chemical extinguishers rated for Class B and C fires discharge sodium bicarbonate, also called "baking soda", which is non-corrosive and easy to sweep up.**
    - So these extinguishers may be preferable when fighting B and C class fires.

- **The heat from a fire causes the baking soda to release carbon dioxide gas, which smothers the fire.**
    - Its residue also forms a barrier between the fuel and oxygen, so that a smothered fire won't reignite.

- **Carbon dioxide (CO_2) extinguishers are also rated for Class B and C fires, and they don't leave any residue.**
    - They're especially good for use in computer rooms and other areas that contain electronics or other delicate equipment.

- **But while CO_2 can smother a fire effectively, it also tends to disperse quickly into the atmosphere.**
  - — So a blaze that has not been completely extinguished could easily reignite.
  - — When using these extinguishers you need to look closely to make sure the fire is out.

  When a fire needs to be extinguished, our first instinct might be to douse it with water.
  - — Water and water-based foams are good at putting out some types of fires, but they can cause serious hazards if they are used on others.

- **While water is a convenient and effective retardant for putting out Class A fires, it cannot be used safely on:**
  - — Class B fires that involve burning liquids.
  - — Class C fires that occur in or near electrical equipment.

- **So most water extinguishers have been replaced by dry chemical "ABC" equipment.**
  - — But dry chemicals don't work well on some Class A fuels.
  - — For example, they can’t reach the burning embers that are within a mattress, stack of paper or a pile of sawdust.

- **But water can soak into these materials to extinguish the fire, so water extinguishers still have some uses.**

- **Extinguishers that discharge water-based foams are usually rated for Class A and Class B fires, though not for Class C.**
  - — Foam retardants "blanket" burning materials to cut off their oxygen supply.
  - — As a result, foam extinguishers can do a good job of putting out burning liquids.

- **Foam extinguishers can also be applied to spills of flammable liquids to <u>prevent</u> them from catching fire.**
    - So foam extinguishers can be especially useful in commercial garages and chemical storage facilities for this reason.

- **There are a number of other types of fire extinguishers that are designed to be used in specific environments, and to put out specific types of fires.**
    - Ask your supervisor about what extinguishers are appropriate for your workplace.

- **While it's important to act quickly in a fire emergency, there are several things you should do before you reach for a fire extinguisher.**
    - Make sure the fire alarm has been activated (pull it yourself, if necessary).
    - Help other people to start the evacuation process, especially anyone who has been injured.
    - Close nearby doors and windows that could feed the fire with oxygen.

- **A fire that is too large, or has spread into ceilings or walls, may already be too dangerous for you to fight.**

- **Smoky fires can be very hazardous as well.**
    - Smoke inhalation kills more people than flames.
    - In these cases, you should leave the area and let professional firefighters handle things.

- **If you feel that it’s safe to try and combat a fire, grab the nearest extinguisher.**
    - Double check its label to make sure it’s the right type to use in the situation.

- **Make sure that you have a clear escape route in case you need one.**

- **Position yourself within the "effective range" that is marked on the extinguisher's label.**
  - For most dry chemical ABC fire extinguishers, this distance will be about 6 to 8 feet.
  - Hold the extinguisher upright.

- **Even under the stress of fighting a fire, you can make sure you use the extinguisher correctly by thinking of the word "PASS".**

- **It spells out the four steps you should take.**
  - **P**ull the extinguisher's pin.
  - **A**im the nozzle at the base of the fire.
  - **S**queeze the trigger.
  - **S**weep from side to side with a slow, steady motion.

- **Remember that retardants cool and smother a fire by working on its fuel.**
  - So keep the nozzle of the extinguisher pointed at the base of the fire, not the flames.

- **If you are dealing with flammable liquids, be careful not to spread the fire by "splashing" the spill.**

- **As the fire gets smaller, step forward to stay within the extinguisher's "effective range".**
  - But don't get <u>too</u> close.
  - Be careful where you walk!

- **If fighting the fire is creating a lot of smoke, crouch down near the ground.**
  - There will be more fresh air there, and it will be easier for you to see.

- **Most portable dry chemical extinguishers provide about 10 to 15 seconds' worth of continuous spraying.**

- **Once the extinguisher is empty:**
  - Leave it in an out-of-the-way area so no one will trip over it.
  - Place the extinguisher on its side so others will not try to use it.
  - Leave the danger area, even if the fire appears to have been extinguished.

- **When a building is burning, seconds count, so fire extinguishers should be kept close by where they're easy to find.**
  - They also need to be fully charged and functional.

- **OSHA regulations, state ordinances and local fire codes require industrial facilities, offices and public buildings to place portable fire extinguishers near all potential fire hazards.**

- **The Department of Transportation requires that all commercial vehicles be equipped with extinguishers, as well.**

- **Extinguishers should be mounted on hangers or in marked fire extinguisher cabinets, where they can be clearly seen.**
  - Never store an extinguisher on the floor, in a closet, or behind furniture, plants or decorations.

- **When a fire's burning there's no time to have to search for an extinguisher that works.**
  - Regular inspections and maintenance of the equipment should be an important part every facility's fire prevention program.

- **Extinguishers should be checked at least once a month to make sure that they are in working order.**
  - Any that are located outdoors should be inspected every week.
  - The pressure gauge should indicate that it is fully charged.
  - The locking pin and plastic "tamper seal" should be in place.
  - The hose and horn should be undamaged and unobstructed.
  - All metal parts should be free of corrosion.

- **The service tag on the extinguisher will show when it is due for its next professional inspection.**
  - Fire codes require that extinguishers be inspected by an authorized service technician annually, and to have their cylinders pressure-tested at regular intervals as well.

*** * * SUMMARY * * ***

- **Fire extinguishers can provide a secure and reliable defense against fires in your workplace.**

- **Fires need fuel, oxygen and heat to burn.**
  - Take one of these elements away, and you put the fire out.

- **Fires have been organized into "classes" to help you choose the right extinguisher to use.**

- **You should know the fire hazards in your workplace, the classes of fires that are likely to occur, and the types of extinguishers you should use on them.**

- **When you're fighting a fire with an extinguisher, remember the "P.A.S.S." method:**
  - **P**ull an extinguisher's pin.
  - **A**im the nozzle at the base of the fire.
  - **S**queeze the trigger.
  - **S**weep side to side.

- **Fire extinguishers should be inspected regularly and maintained in good working order.**

- **Now that you understand how fire extinguishers work and know how to use them effectively, you can help make your facility a safer place for yourself and your coworkers if a fire ever does occur.**