Training Solutions, Delivered!

INDUSTRIAL FIRE PREVENTION

Leader's Guide, Fact Sheet & Quiz

Item Number: 5041

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

PREPARING FOR THE MEETING

Here are a few suggestions for using this program:

a) Review the contents of the Fact Sheet that immediately follows this page to familiarize yourself with the program topic and the training points discussed in the program. The Fact Sheet also includes a list of Program Objectives that details the information that participants should learn from watching the program.

b) If required by your organization, make an attendance record to be signed by each participant to document the training to be conducted.

c) Prepare the area and equipment to be used for the training. Make sure the watching environment is comfortable and free from outside distractions. Also, ensure that participants can see and hear the TV screen or computer monitor without obstructions.

d) Make copies of the Review Quiz included at the end of this Leader's Guide to be completed by participants at the conclusion of the presentation. Be aware that the page containing the answers to the quiz comes *before* the quiz itself, which is on the final page.

CONDUCTING THE PRESENTATION

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

b) Introduce the program by its title and explain to participants what they are expected to learn as stated in the Program Objectives of the Fact Sheet.

c) Play the program without interruption. Upon completion, lead discussions about your organization's specific policies regarding the subject matter. Make sure to note any unique hazards associated with the program's topic that participants may encounter while performing their job duties at your facility.

d) Hand out copies of the review quiz to all of the participants and make sure each one completes it before concluding the training session.

5041 INDUSTRIAL FIRE PREVENTION
FACT SHEET

LENGTH: 15 MINUTES

PROGRAM SYNOPSIS:
When fire gets out of control, it can be devastating. Every year more than a million fire emergencies are reported in the U.S. Over 35,000 of them occur in industrial facilities. They cause at least one billion dollars in damage as well as hundreds of injuries and many deaths, but most fires are preventable. To keep incidents like these from happening, employees need to know how fires burn as well as how they can be extinguished. They should be able to recognize the fire hazards that are likely to exist in their workplace and understand how to control or eliminate them. Also, they need to know how they can get out safely if a fire does occur. This program is designed to provide employees with the information they need to help prevent fires from starting in their workplace, and to deal effectively with any that do occur.

PROGRAM OBJECTIVES:
After watching the program, the participant should:
- Understand how fires burn and how they can be extinguished.
- Know the four classes of fires that they are most likely to encounter and what makes them different from each other.
- Be able to recognize common fire hazards in industrial environments.
- Understand how the unsafe handling or storage of flammable materials can cause industrial fires.
- Know safe practices they can use to help prevent workplace fires from starting.
- Understand the purpose and content of their Emergency Action Plan.
- Understand what they need to know in advance so they can act quickly and safely in a fire emergency.
- Know the procedure that they should follow in using a fire extinguisher safely and effectively.

PROGRAM OUTLINE:

BACKGROUND
- **Ever since we learned to control fire, it's helped us to do a lot of good things. It has:**
— Kept us warm when we were cold.
— Cooked our food when we were hungry.
— Created light when it was dark.

But when it gets out of control fire can be devastatingly destructive to property, and lethal to people.
— Every year in the U.S., more than a million fire emergencies are reported, over 35,000 of them in industrial facilities.
— They cause hundreds of injuries, many deaths, and at least $1 billion dollars in damage.

HOW FIRES BURN
- **To burn, a fire needs three ingredients:**
— Fuel.
— Oxygen.
— Heat.
- **The "fuel" is any material that will burn. Fuels can include:**
— 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, which is why "fanning" a fire makes it flare up.
- **The third element that a fire needs is heat:**
— A "source of ignition" such as a burning match or an electric spark, that "lights" it and keeps it burning.
- **In industrial facilities, potential sources of ignition can include:**
— A grinder throwing sparks.
— An overloaded electrical circuit.

— A smoldering cigarette butt.

- **Once a fire has started, it will continue to burn as long as there is fuel and oxygen to feed it.**
- **All the fire requires is fuel, oxygen and heat, but when you remove any one of these ingredients, the fire goes out.**

— To put out most fires, you apply some type of "retardant", like water, baking soda or sand, that will reduce its heat or deprive it of fuel or oxygen.
— But not all fires are alike.

- **Depending on the types of materials that are burning and where the fire is located, using the wrong fire retardant can make a bad situation even worse.**

— For example, water does a great job of putting out burning cardboard, but if you pour water on burning liquids, it will spread the fire further.
— Since water conducts electricity, you can't use it on a fire that is burning in or around electrical equipment, because somebody could be electrocuted.

FOUR CLASSES OF FIRE

- **To make it easier to distinguish between different types of fires and determine how they should be extinguished, they have been divided into "classes".**
- **"Class A" fires involve everyday solid combustibles like paper and wood.**

— These can be extinguished with water.

- **"Class B" fires involve flammable gases, liquids and some plastics.**

— They are usually extinguished by applying chemical foams.

- **"Class C" fires involve electricity, and may occur in any type of electrical equipment.**

— They are fought by smothering them with "nonconductive" substances, which deprives them of oxygen.

- **"Class D" fires involve combustible metals.**

— Class D fires are not very common, and can be dangerous to extinguish.
— If you do encounter one, don't try to put it out unless you have been specifically trained to do so.

SPRINKLER SYSTEMS & FIRE EXTINGUISHERS

- **When a fire starts, seconds count.**

— The burning has to be slowed down as much as possible as soon as possible, in order to protect lives and property.

- **The first line of defense in most buildings is a sprinkler system, which is triggered automatically by the heat of a fire.**

— Sprinkler systems can be designed to soak a fire with large quantities of water, foam or dry chemicals, whichever is appropriate.
— While these retardants may extinguish the fire, they also beat down flames and slow the burning process, so people can evacuate and fire department personnel can do their job.

- **Fire extinguishers provide another line of defense in a fire emergency.**

— Extinguishers may discharge water, carbon dioxide or dry chemicals to fight specific classes of fires.

- **Before using an extinguisher you need to make sure that it is compatible with the class of fire you are fighting.**

— If the label indicates that it's the wrong type of extinguisher for that fire, don’t use it.

- **Many fire extinguishers are marked "A, B and C" on their label.**

— This shows that they are multipurpose units and can safely be used for all three classes of fire.

USING FIRE EXTINGUISHERS

- **When you use a fire extinguisher, remember to follow the "P.A.S.S." method:**

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

- **Most extinguishers will empty in less than 15 seconds.**

— If you can’t put a fire out in that amount of time, you should evacuate the area immediately.

- **Place the empty extinguisher out of the way, on its side, so no one will trip over it or try to use it again.**

FIRE PREVENTION PRACTICES

- **Many industrial fires occur because flammable materials are handled or used incorrectly.**

— Flammable substances must be kept well away from all sources of ignition, and stored in containers approved for industrial use.

- **Gasoline and other flammable liquids should be stored in cans that are equipped with flash arresters that prevent flames and sparks from getting inside and igniting the substances.**
- **Special care should be taken with substances that are:**

— Spontaneously combustible.
— Shock sensitive.
— Chemically reactive.

- **"Spontaneously combustible" materials, including varnishes that contain linseed oil, produce heat as they dry.**

— Since rags soaked with these materials can burst into flames, they must be disposed of in sealed metal containers designed to handle ignitable waste.

- **"Shock sensitive" substances can detonate and start a fire when they are shaken or dropped.**

— They require careful handling and storage procedures.

- **Some substances can undergo vigorous chemical reactions when they are exposed to certain other materials.**

— Calcium carbide, for example, is a "water-reactive" substance that generates flammable vapors when it gets wet.
— Materials like these must be stored in sealed containers and isolated so that they don't react with other substances.

- **The best way to "fight" fires is to keep them from starting in the first place.**

— You can help to prevent fires in your facility by learning to recognize potential fire hazards and doing what's needed to reduce or **eliminate them.**

- **Clutter such as discarded packing materials, piles of paper and boxes can be fires waiting to happen.**

— Police your work area regularly and dispose of all waste.

- **Wood shavings, grease and other ignitable materials that build up on machine parts that get hot can lead to a fire as well.**

— So remember to keep all equipment surfaces clean.

- **Careless smoking causes many fires, by providing a source of ignition for any fuel that's present in the area.**
- **If you smoke, be sure to follow your company's smoking policy.**

— Smoke only in designated areas.
— Make sure cigarette butts are extinguished before discarding them.
— Place butts in proper containers (do not throw them in the trash).

HOT WORK FIRE SAFETY

- **One in five industrial fires occur when welding, cutting and other operations that can provide a source of ignition are being performed.**

— These tasks are known as "hot work", and they are strictly controlled at your facility by a permitting system.

- **Hot work fire safety measures include:**

— Preventing the throwing of sparks or slag.
— Removing or protecting flammables in the area.
— Posting a "fire watch" to make sure no secondary fires occur.

PREVENTING ELECTRICAL FIRES

- **Electricity is involved in many industrial fires, as well.**

— Electrical fires can be caused by overloaded circuits, damaged equipment and unsafe work practices.

- **"Overloads" occur when too much power is being drawn through an electrical circuit, which can cause the wiring to heat up and catch fire.**

— Before you plug in a power tool or piece of equipment, make sure the circuit can handle its power requirements.

- **This "overload prevention" also applies to any extension cords you plan to use.**

— They should be rated for the amount of power that the equipment they are connected to will be drawing.

- **Never install an extension cord as a "permanent" power-supply solution.**

— They're for temporary use only.
— Over time they can deteriorate and become

a fire hazard.

- **Avoid using power strips or other "adapters".**

— This can result in plugging too many devices into a single receptacle.

- **Check power cords for damage like cracked or frayed insulation.**

— If you find problems, don't use them.

THE EMERGENCY ACTION PLAN

- **We can all help reduce the risk of fires occurring in our workplace by taking precautions and eliminating hazards, but accidents can still happen.**

— So it's important to know how to respond if and when a fire does occur.

- **The groundwork for this has already been laid out in your facility's "Emergency Action Plan".**

— The plan details the steps that should be taken if an emergency occurs.
— That includes mapping out escape routes and explaining how everyone in the building can evacuate safely.

- **You should take the time now to familiarize yourself with the plan and identify at least two paths of escape from the areas where you work.**

— That way if one path is blocked, you'll be able to evacuate quickly using the other route.
— Remember to always keep escape routes and emergency exits clear so everyone can get out safely.

EVACUATING THE PREMISES SAFELY

- **During a fire, smoke can make it difficult to see where you're going.**

— Learn how to navigate through your evacuation routes with your eyes closed. It could save your life.

- **When a fire alarm rings, it's your signal to leave the building.**

— Don't delay because you think it's "just a drill".
— Do not stop to pick up any of your personal possessions.
— Just go.

- **Remain calm and follow your evacuation route.**

— Walk, don’t run.
— Never push past people in front of you.

- **Do not use an elevator to travel between floors.**

— You could be trapped inside if the power fails.
— Use the stairs instead.

- **Inhaling the smoke from a fire could kill you.**

— Since smoke rises you can avoid breathing it by staying as close to the floor as possible.
— Cover your face with a wet cloth if you can.
— Take short breaths.

- **When you approach a closed door, make sure that it's cool before you open it.**

— Check the temperature with the back of your hand (It is more sensitive to heat than your palm).

- **A door that is hot probably has flames behind it, so don't open it!**

— Use an alternate route instead.

- **If you work in a "high-rise", you may be instructed to evacuate to a "safe area" inside the building.**

— Otherwise, proceed to the ground floor and leave the building immediately.

- **When you get to the assembly area that's specified in your company's Emergency Action Plan, report yourself as "safe", and remain there until you're told that it's okay to leave.**

INDUSTRIAL FIRE PREVENTION

ANSWERS TO THE REVIEW QUIZ

1. a
2. b
3. b
4. a
5. a
6. b
7. b
8. a
9. a
10. a

INDUSTRIAL FIRE PREVENTION
REVIEW QUIZ

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

Name_____Date_____

1. Once a fire has started, it will continue to burn as long as there is fuel and oxygen to feed it.

a. True
b. False

2. All classes of fires can be extinguished safely by applying large quantities of water to them.

a. True
b. False

In a fire emergency, any available fire extinguisher can safely be used to fight the fire.

a. True
b. False

4. Most fire extinguishers will run out of fire retardant after less than 15 seconds of continuous use.

a. True
b. False

5. Many industrial fires occur when flammable materials are handled incorrectly.

a. True
b. False

6. Varnishes that contain linseed oil are considered to be "shock sensitive" substances.

a. True
b. False

7. Extension cords are safe to use as permanent electrical connections, as long as they are taped down.

a. True
b. False

8. One in five industrial fires occurs when welding, cutting or other "hot work" operations are being performed at a facility.

a. True
b. False

9. Machine operators can help to prevent fires by keeping equipment surfaces free of wood shavings, grease and other ignitable materials.

a. True
b. False

10. All employees should learn at least two routes that they can use to escape from their work area if a fire occurs.

a. True
b. False