

## Fire Safety in Preventing Incidents Civil Defense

**Avazbek Usmanov Samandarovich**

Karshi State University, Occupational Health and Safety, 2nd year student

### Abstract:

This article focuses on fires - uncontrolled combustion processes that occur outside of a specific source and cause significant material damage and casualties. In order to understand these processes and prevent them, the article examines the topics of fire hazard and fire safety of the object.

**Keywords:** *fire safety, electrical charges, lightning, flammable gas, steam, dusts, wetting agents, flammable materials, carbon dioxide.*

### INTRODUCTION

One of the measures to prevent the occurrence of fire is to understand the causes of fire and follow fire safety rules accordingly. The three main causes of fire are:

Smoking in prohibited areas, use of open flames: In these processes, the consequences of fire can occur a lot. For this reason, in prohibited areas, it is necessary to separate from non-combustible materials, full mechanization and automation of technological processes, use of hermetic containers and equipment for flammable substances, etc.

### DISCUSSION AND RESULTS

Fire hazard: In this case, the possibility of fire and the consequences of fire are understood. Types of fire hazards are indicated as harmful factors formed during combustion, for example, toxic gases, vapors, smoke, etc. These factors are evaluated by factors such as the amount of combustible products, the surface of the building, the surface of the windows and the burning rate of the substances.

Fire safety: In this case, based on the established standards and requirements, the risk of fire in the object and its dangerous and harmful factors on human life is limited, and the materials in the object are fully protected. This includes controlling the factors that may cause a fire, and being familiar with the product's materials and construction.

Fire prevention measures: These measures consist of organizational measures and technical means aimed at eliminating fire conditions. These measures include the use of special non-combustible materials, full mechanization and automation of technological processes, separation of rooms with

fire-hazardous devices from others with non-combustible materials, use of hermetic containers and equipment for combustible substances, combustible gas, steam and dust in the air of the building. including keeping the amount within the permitted level, proper use of heating equipment, and other similar measures.

**Fire prevention system:** These measures consist of organizational measures and technical means aimed at eliminating the conditions of fire occurrence. They must use machines, mechanisms and equipment that do not create a source of fire in their production, fully comply with the rules and regimes of using machines and mechanisms, use protective devices against electric static charges and lightning, heat treatment of materials and substances, chemical and microbiological methods. It is carried out by measures such as elimination of spontaneous ignition conditions, full implementation of prescribed fire prevention measures, periodic cleaning of the building boundary.

**Static electric charges:** These electric charges depend on the composition of the materials, the surface of the rubbing parts, density, relative electrical resistance, the intensity of the technological process and the microclimate of the environment. For this reason, in order to prevent these charges, measures such as normalization of the workplace microclimate, addition of antistatic materials to the main materials, ionization of the ambient air, introduction of charges of the opposite sign to the rubbing surfaces are taken.

**Failure to use protective devices against strong atmospheric charges:** During lightning, strong atmospheric charges can be generated. For this reason, the use of protective devices against these charges, steel pipes, angle steels and fittings can be used as a method of grounding.

In connection with these reasons, measures are taken to prevent the occurrence of fire, not to use open flames in prohibited places, to use protective devices against static electric charges and strong charges of the atmosphere. These activities are very important in complying with fire safety regulations, as they play a major role in ensuring the safety of the product and production processes.

The fire protection system is a set of organizational measures and technical means aimed at eliminating the impact of the dangerous factors of fire on people and limiting material damage during a fire. Fire resistance of buildings and structures and ways to increase it are determined as follows:

**Fire resistance level:** Buildings and structures are divided into five levels depending on the level of fire resistance. These levels are based on consideration of the building's construction, function, number of floors, fire hazard and availability of automatic fire extinguishers.

**Extinguishing agents and their properties:** These agents are combined with various factors that affect fire, such as water, water vapor, carbon dioxide, humectants, chemical and air-mechanical foams, halogenated hydrocarbons, etc. depends. These substances are classified according to fire extinguishing method, electrical conductivity, toxicity level and properties.

**Water firefighting:** Water is used in firefighting alone or mixed with various chemicals. The fire extinguishing property of water is based on cooling the combustible substance to a temperature below its ignition temperature.

**Extinguishing media:** Extinguishing media may be water, steam, or foam. They are conductive and non-conductive substances and are classified as non-toxic, low-toxic and toxic depending on the level of toxicity.

The fire protection system consists of measures and tools designed to reduce the impact of fire hazards on people and limit material damage in connection with these substances and other factors. These measures and tools include reducing the temperature of combustion, reducing the amount of oxygen in the fire zone, insulation, determining the level of fire resistance and installing automatic fire extinguishing devices for buildings with high resistance levels.

Carbon dioxide (carbon dioxide) and carbon dioxide are substances that form heavy gases in the fire environment. They are used to extinguish fires of flammable and combustible liquids in containers, fires of electrical equipment, and fires in buildings where the use of water and foam is not appropriate, such as museums and archives. These substances stop oxygen entering the combustion zone, reduce the temperature and extinguish the fire.

Wetting agents are designed to increase the wettability of combustible materials. They include soap, synthetic compounds, amylsulfate alkylsulfonate and other compounds. These compounds form heavy vapors and gases in the fire environment, stop oxygen from entering the combustion zone, reduce the temperature and extinguish the fire.

Foams Foams are fire-extinguishing substances with low thermal conductivity, sufficient mobility, high heat return efficiency, properties of reducing smoke density, and low mechanical strength. They are divided into chemical, air-mechanical and high-performance foams.

Chemical foams are created by transferring separately stored mixtures (alkaline and acidic) to the fire zone or by mixing foaming powders. Foam powder is a mixture of ammonium sulfur and sodium bicarbonate, which allows you to get 40-60 liters of foam from 1 kg of powder and 10 liters of water.

Fire extinguishers are used to extinguish fires and are selected based on the properties of fire-fighting substances. They are divided into basic, special and auxiliary tools.

Basic tools: These tools are used to spray herbicides (water, foam, powder, carbon dioxide gas, etc.) on the fire. Includes cars, tankers, motor pumps, switches and more.

Special Tools: Used to perform special tasks during ignition shutdown. These include trucks and cranes, lighting and communication equipment, as well as express vehicles.

Auxiliary equipment: Used to create adequate conditions for extinguishing the fire. These vehicles include water dispensers, trucks, buses, tractors and other vehicles.

Primary fire extinguishers are used to stop and extinguish the spread of fire when a fire starts. The demand for primary means of transport necessary for production enterprises and agricultural machines is based on the decision of the Ministry of Agriculture and Water Management of the Republic of Uzbekistan dated June 12, 1998 No. 44 No. 3-5-21 is determined.

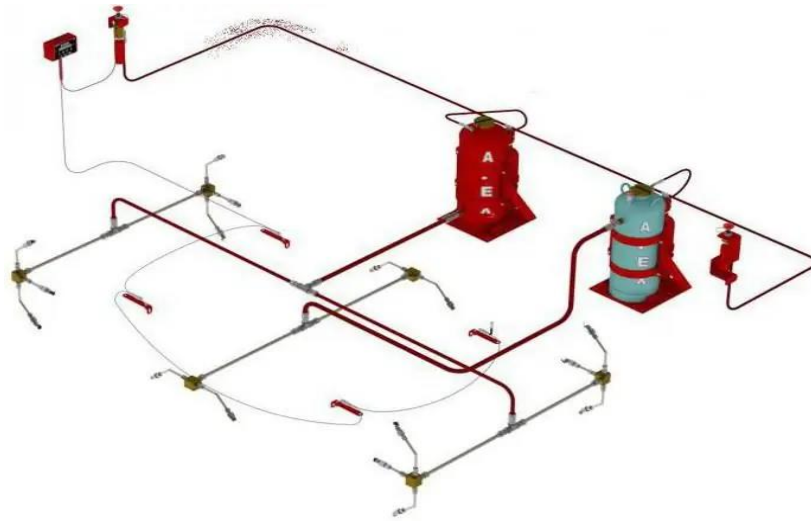
Fire extinguishers are used to put out a fire when it starts. According to the composition of fire extinguishing agents, fire extinguishing agents are divided into foam, gaseous, liquid and powder groups.

Foam keys: They are divided into chemical foam and mechanical-air types. OXP-10 chemical foam fire extinguisher is used to extinguish solid materials that have started to burn and various flammable liquids. It has a rubber valve attached to the spring of the stock, and when the handle is tight, it presses the valve against the mouth of the acid glass.

OVP-5 and OVP-10 air foam hand switches: Designed to extinguish various substances and materials in case of fire. They are not used to extinguish combustible metals, substances, airless combustibles and electrical devices under current. The practical application of the neutral charge is that it is harmless to objects around the fire extinguisher.

Carbon Dioxide Incinerators: Carbon dioxide (SO<sub>2</sub>) is the ignition charge. Switches are designed to extinguish live electrical equipment and non-floor fires.

Powder Turf: Industrially produced and used to extinguish various substances and materials. Powders replace oxygen in the combustion chamber and extinguish the flame mechanically. Their disadvantage may be low cooling properties.



**Figure 1. Installation of automatic fire extinguishing systems**

## CONCLUSION

Carbon dioxide gas burners are used to extinguish various substances and materials. It is designed to extinguish switches, combustible metals, substances, airless combustibles and electrical devices.

Powder lawn mowers are used to extinguish solid materials and fires. They are designed for liquid and mechanical fire extinguishing. They can handle cars, alkaline earth, metals and other substances.

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