CLASSIFICATION OF COMBUSTIBLE MATERIALS ACCORDING TO THE LEVEL OF FIRE RISK ACCORDING TO THE FIRE PRESSURE AND THE FUNCTIONAL FUNCTION OF BUILDINGS

Namangan Engineering Construction Institute
Teacher: **YuldoshevShakhboz Khoshimjon**
NamMQI Student: **Foziljonova Gulshoda Vahidjon's**

Annotation: *The fire and explosion hazard of any gaseous substance is determined by the limits of flammability, the temperature of combustion and the average speed of flame propagation. Combustion of gas mixed with air does not happen in any case, but combustion occurs only when a mixture of a certain limit is formed.*

Key words: *Combustion temperature, combustion, explosion hazard, gas*

That is why the flammability limits of mixtures are defined as lower and upper limits. The lower limit means the situation where the smallest amount of gas can ignite, and this limit is the factor that determines the level of fire and explosion hazard of industrial and manufacturing enterprises.

If the mixture of air and gas is collected in sufficient quantity for combustion, it will ignite when heated under certain conditions, this temperature is called combustion temperature. This temperature can be very high (up to 4500-20000C) depending on the condition of the combustible mixture and other factors.

The burning speed of many gas mixtures depends on their quantity and the nature of the gas. The burning speed of gases is 0.3-0.8 m/sec. will be. Except for hydrogen and acetylene gas, their burning speed is 2.76 m/s and 5.6 m/s. Rapid combustion is called explosion. The shorter the burning time, the greater the explosive power.

The rate at which liquids burn in a gaseous environment and turn into steam depends on the physical and chemical properties of the liquid. Also, the process of turning into steam depends on the temperature of the external environment. Liquid vapor forms on the surface of a liquid at a certain temperature and pressure. This amount of steam does not increase or decrease at the same temperature. It is called saturated steam. Since the number of molecules turning into saturated steam is equal to the number of molecules turning into liquid, its amount remains the same in the air environment and determines the quantitative pressure of the mixture.

If the volume pressure of saturated steam is known, it is possible to determine the density of air at this temperature.

Combustion of gases can occur in certain air conditions. The volume of flammable gas in the air cannot be greater than the volume in the saturated state, therefore, the flammability limit of the substance can be determined only by temperature, and this volume is called the upper limit of the combustible substance. In cases where the density

of liquids and gases in air is lower than the saturation point, ignition may occur at a certain temperature. In order for any liquid to burn, it must be heated to a certain temperature, and the amount of steam released from the liquid at this time must be sufficient to fuel the flame. Based on these properties of liquids, their flash and ignition are studied. The flash temperature is the temperature at which a mixture of vapors and air forms on the surface of a liquid at a low temperature, and the mixture can burn if heated from the outside.

Based on this property, liquids are divided into two groups:

1. If the flash temperature of the liquid is 450C or less, it is called a flammable liquid. Examples of highly flammable liquids are gasoline, alcohol, and other substances.

2. Liquids with a flash point above 450 are called flammable liquids.

The ignition temperature is the state in which ignition continues as a result of the release of vapors from the liquid at a minimum temperature. For highly flammable liquids, this temperature is 1-50C higher than the flash temperature, and for flammable liquids it can be increased by 30-350C.

Combustibility of substances is understood as the formation of gaseous and vaporous substances that decompose and burn as a result of heating. The state of decomposition of combustible substances can be used to study the laws of combustion of the volatile part.

The fire hazard properties of solid substances are expressed by the amount of heat released when the solid substance burns, spontaneous ignition, burning speed and the spread of burning on the surface of the material.

The combustion temperature depends on the amount of heat generated when burning solids and the amount of air entering the combustion zone.

The long-term presence of crushed particles of solid substances in the air environment with a size of 10-9...10-7 m creates a fog-like environment with a high density. Accumulation of such small particles in large quantities will have the same explosive properties as gases and flammable liquids. Usually, the amount of dust in the air is measured in units of g/m3 or mg/l. Many combustibles have very large units of lower density for dust explosions. The lower limit for the explosion of sugar and peat dust the density is 13500 g/m3 and 2200 g/m3, and a high-power burning impulse is necessary to detonate such dusts.

In the initial phase of the explosion, the smallest particles in the air and large particles are ignited due to the heat released by them, after that, if the density is sufficient, the ignition becomes volumetric and an explosion occurs. Therefore, the fire and explosion hazard of dust is determined based on the lower limit of density. Dusts with a density below the lower flammability limit of 65 g/m3 are explosive (sulfur dust, flour, etc.), if the density of this limit is more than 65 g/m3, then fire belongs to the category of hazardous dust (tobacco, wood dust).

EXPLOSIVE LIMITS

The concentration limit of an explosion is defined as the mixture of flammable gas or its vapor with air in a closed container in such a way that it burns or explodes from an external source of flame.

To test this in practice, take a closed container filled with air, add flammable gas or steam to it little by little, and light it each time. At a small amount of this gas (in % or weight concentration), the mixture does not ignite, which means that the pressure inside the container does not change.

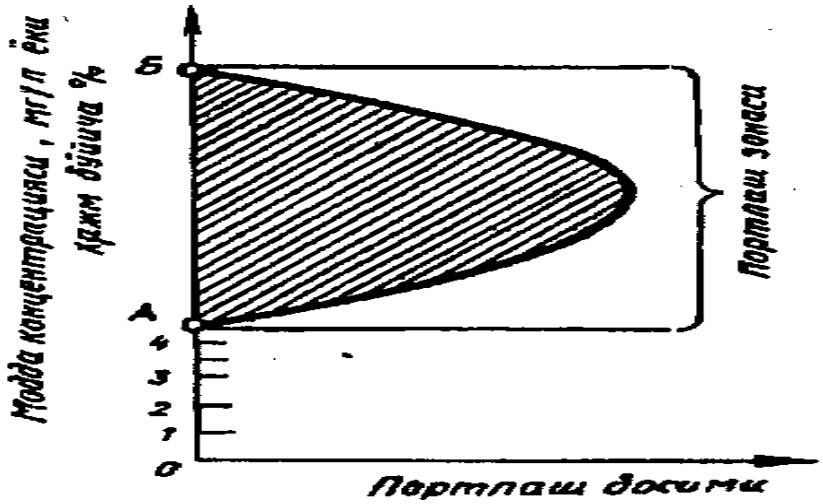

Figure 1.1. Explosive concentration limit of flammable gases and vapors.

A- the lower limit of the explosion.

B- Upper limit of explosion.

As you can see from the above picture, the ordinate axis shows the concentration of the combustible substance, and the abscissa axis shows the explosion pressure when trying to ignite the mixture inside the container. These are 1, 2, 3, 4, dots. As the concentration is increased, there comes a time when the mixture explodes weakly, barely perceptible (point "A" in diagram 9). As the concentration increases, the explosion pressure also increases and reaches its maximum point. After that, as the gas concentration increases, the explosion pressure decreases. At a certain maximum concentration, there will be no explosion at all. (point "B" in the diagram).

The minimum mixture of flammable gas or steam with air that can cause an explosion when ignited is called the lower limit of explosion.

The maximum mixture of flammable gas or steam with non-combustible air is called the upper limit of explosion.

According to the "Rules for the placement of electrical equipment" (PUE), the classification of shops and external equipment on the risk of fire and explosion has been developed.

Levels of industrial enterprises according to the risk of fire and explosion.

Taking into account the production technology of industrial and building constructions, details and materials production enterprises, the raw materials used, the

products they prepare and the project of the building in which they are located, taking into account the risk of fire, explosion, its spread in the event of a fire, as well as the complexity of the fire the explosion hazard level is determined.

Of course, the risk of fire in each industrial enterprise is first measured by the level of fire hazard of the raw materials used there and the products produced. For example, if the company uses gaseous combustible substances and the product it receives is in the state of a highly flammable liquid, then there is a possibility of fire spreading, and the company can suffer a lot of damage from this.

Based on norms and regulations (ONTP 24-86) taking into account the physico-chemical properties of substances used in industrial enterprises, all industrial enterprises are divided into five categories according to the risk of fire and explosion. A and B categories of these are prone to fire and explosion. Categories V and G are considered only flammable. Class D does not have the risk of explosion or fire. According to the fire risk, all technological processes can be divided into the following 5 categories:

Category A - there is a risk of explosion and fire. These include shops where liquids with a flash temperature of up to 28 oC are stored and used (gasoline depots, oil refineries). These are industrial enterprises that can create the possibility of explosion of substances that can burn and explode as a result of combining with oxygen in the air under the influence of liquid, liquids and gases with a flash temperature below 280C, and a pressure of up to 5 kP should be. This level includes enterprises that produce sulfur, carbon, ether, acetone and similar substances.

Category B - there is a risk of explosion and fire. These include shops where liquids with a flash point of 28 oC to 16 oC are stored and used (petroleum product warehouses). If they contain liquids, dust and fibers with a flash temperature higher than 280C and heated up to the flash temperature during the production process, these gases, liquids and dust can accumulate in the room *pressure more* than 5 kP and form an explosive mixture. includes industrial enterprises. An example of this is chemical plants producing ammonia.

Category C - There is a risk of fire. These include working with flammable solid materials and having a flash temperature above 61 oC

includes sections where liquids are stored and used. (textile enterprises). A, which is dangerous for fire, steam with a flash temperature above 1200C, liquids with a temperature, as well as with each other, oxygen in the air combined with water, combustible substances and solid combustible objects, and Includes industrial enterprises that do not belong to category B. Examples of this include furniture manufacturing enterprises processing wood, paper, cellulose, cardboard, ruberoid and willow production enterprises.

Category D - These are the sections with hot, scalding and molten substances, as well as gas and liquid fuels. Non-flammable bodies and materials of this level include industrial enterprises where various heat, sparks and flames can be emitted during the heating,

scalding and melting process, where solid, liquid and gaseous substances are used as fuel. This includes metallurgical industry enterprises, heat generating centers, steam plants.

Category E - Cold processing workshops of non-combustible materials are included. non-combustible objects and materials include cold processing industries. Examples include stone crushing, ceramic and cement plants.

The grouping of buildings and structures according to fire and explosion risk is determined after determining the fire and explosion susceptibility category of all rooms in them.

REFERENCES:

1. .Literature Review and Research Plan. Antifreeze Solutions in Home Fire Sprinkler Systems. Copyright Fire Protection Research Foundation June 2010

2. .Xudoev A.E. taxriri ostida. Yong'in xavfsizligi. 2- nashri. -T.: Uz.R. IIV Yong'in xavfsizligi oliy texnik maktabi. 2007. - 722 b.

3. .Yuldashev O.R. Mehnat muhofazasi maxsus kursi. Darslik.-T.: "Tafakkur-Bo'stoni", 2015. - 336 b.

a. Yuldashev O.R. va boshqalar. Hayot faoliyati xavfsizligi. Darslik.-T.: "ToshkentIqtisodiyot", 2011.

4. . A. Karaush. Teoriya goreniya i vzrыva. uchebnik. M. Akademiya, 2013.

5. Valijonovich, R. S., Axmadjanovich, T. A., & Khoshimjon, Y. S. (2021). Causes and Consequences of Floods and Floods in The Safety of Life, Measures to Protect the Population and The Territory. *International Journal of Progressive Sciences and Technologies*, *25*(1), 83-86.

6. Valijanovich, R. S., & Ahmadjanovich, T. A. (2021). CURRENT STATUS OF GROWING AND HARVESTING CORN AND CRUSHING COTTON. *Galaxy International Interdisciplinary Research Journal*, *9*(12), 1002-1006.

7. Turgunov, A. A., Yakubzhanova, Y. G., Yuldoshev Sh, K., & Mirzaliyev, Z. S. (2022). MAIZE, MAINTENANCE AND DEVELOPMENT OF WAYS TO OVERCOME DEFICIENCIES IN GROWTH FROM THE SUBSYSTE. *PEDAGOG.–2022*, *4*, 953-959.

8. Yakutkhan, Y. Khoshimjon o'gli, YS (2022). Educate the Population on the Types and Causes of Emergencies. *Journal of Ethics and Diversity in International Communication*, *2*(5), 22-26.

9. Khoshimjon, Y. S., & Mavludakhon, M. (2022). THE AMOUNT OF GRAIN LEAVING FROM THE CORE AND SHELL HOLE AND ITS REDUCTION. *Scientific Impulse*, *1*(4), 371-374.

10. Gulomjonovna, Y. Y. Khoshimjon o'glu, YS (2021). CAUSES OF FLOOD AND FLOOD DAMAGE ALSO PREPARE TO DO THE RIGHT ACTION IN THIS EMERGENCY SITUATION. *International Journal of Development and Public Policy*, *1*(5), 158-161.

11. G'ulomjonovna, Y. Y. Xoshimjon o'gli, YS (2022). Influence of the Shape of the Working Surface of the Screed on the Grain Quality Mixture on the Performance of the Shell. *International Journal of Development and Public Policy*, *2*(2), 43-47.

12. Ahmadjanovich, T. A., Gulomzhanovna, Y. Y., Khoshimjon, Y. S., & Saidulla, M. Z. (2022). MAIZE, MAINTENANCE AND DEVELOPMENT OF WAYS TO OVERCOME DEFICIENCIES IN GROWTH FROM THE SUBSYSTEM. *PEDAGOG*, *1*(4), 939-946.

13. Khoshimjon, Y. S., Turgunovna, A. S., & Umarjonovna, D. D. (2023). PREPARING THE POPULATION FOR PRACTICAL TRAINING ON CIVIL PROTECTION AND CONDUCTING IT. TRAINING THE POPULATION ON THE CONTENT OF POLITICAL-EDUCATIONAL ACTIVITIES AND PRACTICAL TRAINING CONDUCTED WITH THE UNITS OF CIVIL PROTECTION IN EMERGENCY SITUATIONS. *JOURNAL OF INNOVATIONS IN SCIENTIFIC AND EDUCATIONAL RESEARCH*, *2*(15), 97-103.

14. Khoshimjon, Y. S., Olimjonovich, M. K., & Ibrahim, H. (2022). ASSESSMENT OF THE SEISMIC RESISTANCE OF BUILDINGS AND STRUCTURES AND METHODS OF CREATING ELECTRONIC TECHNICAL PASSPORTS. *Scientific Impulse*, *1*(5), 163-166.

15. Khoshimjon, Y. S., & Olimkhan, I. I. (2022, December). GEOLOGICAL HAZARD EVENTS, EARTHQUAKES AND THEIR CONSEQUENCES. In *Proceedings of International Educators Conference* (Vol. 3, pp. 546-557).

16. Khoshimjon, Y. S., & Nurmirza, M. M. (2023). EFFECTS OF HARMFUL AND TOXIC FACTORS OF PRODUCTION ON THE HUMAN BODY. PEDAGOG, 6(4), 476-483.

17. Атамирзаева, С. Т. (2023). ҲАЁТ ФАОЛИЯТИ ХАВФСИЗЛИГИНИНГ КОМФОРТ ШАРОИТЛАРИ, ИШЧИ ЎРНИНИ ЭРГОНОМИКАСИНИ ЎРГАНИШ ВА ЎҚИТИШ ТИЗИМИ. PEDAGOG, 6(4), 465-475.

18. Мамадалиев, Ш., & Юлдошев, Ш. (2021). СЕЛ ВА УНИНГ ОҚИБАТЛАРИ ХАМДА ЮЗАГА КЕЛИШ САБАБЛАРИ КЕЛИБ ЧИҚИШИ ВА РИВОЖЛАНИШИ. Экономика и социум, (4-2 (83)), 144-148.

19. Khoshimjon, Y. S., & Ravshanbek's, A. M. (2023). METHODS OF KEEPING CITIZENS IN PROTECTIVE FACILITIES RADIATION PROTECTION FACILITIES. *JOURNAL OF INNOVATIONS IN SCIENTIFIC AND EDUCATIONAL RESEARCH*, *6*(4), 587-592.

20. Xoshimjon o'g'li, Y. S. (2023). QISQA TUTASHUV NATIJASIDA ELEKTR QURLIMANING YONG 'INGA BARDOSHLILIK HISOBI. *JOURNAL OF INNOVATIONS IN SCIENTIFIC AND EDUCATIONAL RESEARCH*, *6*(4), 593-596.

21. Khoshimjon, Y. S. (2023). PROTECTION OF POPULATION AND FACILITIES FROM EMERGENCIES. *Scientific Impulse*, *1*(9), 1261-1267.