

Lessons Learn



The summer is coming, how to store the chemicals?

March. 2021

1、 Why do hazardous chemical fires mostly occur in the hot season?

1、 The increase in temperature increases the volume pressure of hazardous chemicals

The expansion coefficient of flammable liquids is generally large. When stored in a closed container, the volume expands after being heated. At the same time, the vapor pressure increases, which increases the internal pressure of the container.



If the pressure exceeds the pressure that the container can withstand, it will cause the container to malfunction or even rupture. In the hot season, the "drum barrel" phenomenon of iron drums containing flammable liquids and the explosion of glass containers are all caused by the thermal expansion of the stored liquid. If the container is open, the liquid will overflow if it expands beyond its capacity.

2. The increase in temperature accelerates the evaporation of liquid

The evaporation rate of different liquids varies with temperature, boiling point, specific gravity, and pressure. The higher the temperature, the faster the flammable liquid evaporates, the higher the vapor concentration on the liquid surface, the greater the possibility of forming an explosive mixture with air, and the greater the risk of fire and explosion. The difficulty of evaporating a flammable

liquid is expressed by its boiling point. The lower the boiling point, the stronger the evaporation of the liquid. Therefore, when the ambient temperature exceeds the boiling point of the flammable liquid, it is prone to danger.



3. Increased temperature accelerates oxidative decomposition and spontaneous combustion

Affected by environmental factors such as temperature and humidity, many dangerous chemicals are easily decomposed after being heated, releasing oxygen and even oxygen atoms, oxidizing other substances, and releasing a lot of heat. If the ventilation is not good, the heat will not accumulate, which will increase the temperature, and will accelerate the oxidation rate, produce more heat, and promote the temperature to continue to rise. When the temperature reaches the spontaneous ignition point of the substance, it will spontaneously ignite.

2、 What are the safety measures for the storage of hazardous chemicals in summer?

1. The storage warehouse must be qualified

Hazardous chemical warehouses should use non-conducting refractory materials as the insulation layer of the roof and walls, and the eaves should be appropriately lengthened to prevent sunlight from entering the warehouse; the walls of the warehouse should be appropriately thickened, keep the windows open, and indirect ventilation holes should be used. Double doors, double roof; window glass should be painted into blue or use frosted glass.

2. Hazardous chemicals should be stored separately

Hazardous chemicals should be stored in categories, warehouses, pieces, and shelves. It is strictly forbidden to mix items that conflict with each other, have different fire-fighting methods, and easily cause spontaneous combustion.

When storing items, the stacks should not be too high, too large, or too dense.

Keep a certain distance between stacks, stacks and walls, columns, roof beams, and electric lights, and leave fire-fighting passages. Excessive storage should not be allowed.

3. Control the temperature strictly

Install water storage roofs for warehouses or install cooling water pipes on warehouse roofs, spray water to cool down when the temperature is above 30°C, and keep the temperature in the warehouse below 28°C.

Laying stone sacks on the roof of the warehouse can increase the insulation performance of the roof. The roof, exterior walls and window glass of the warehouse can also be painted white to reduce the absorption of radiant heat and achieve the effect of cooling.

According to the nature of the goods and the packaging, you can also pour well water, put ice cubes on the warehouse floor, and install air conditioners to cool down if possible. Some warehouses can open windows for ventilation in the morning, evening and night, let in cold air, and close doors and windows at noon to prevent hot air from entering.

4. Take cooling measures for open storage yards and storage tanks

Flammable liquids in barrels should be placed in buildings to prevent direct sunlight. In special circumstances where temporary storage is required in the open air, non-combustible materials should be used to build the awning, and sometimes a leather hose should be used to spray water regularly to cool down.

The top of the storage tank should be equipped with a cooling device. When the temperature reaches 30°C or higher, the cooling water pump is turned on for spray cooling. The storage tank should not be filled too full, and 5% to 10% of the volume space should be left, so as to prevent the dangerous chemicals in the drum from being heated and expanding and causing combustion or explosion accidents.

5. There must be lightning protection facilities

Hazardous chemical warehouses are generally located in the fringe area of the unit or city, and keep a certain distance from other surrounding buildings. In this way, an open area is formed around the warehouse and is vulnerable to lightning strikes. Therefore, the warehouse must install lightning protection devices to prevent lightning strikes from causing fire accidents.

6. Strengthen personnel management

The personnel who manage hazardous chemical warehouses must undergo safety training and pass the assessment, and hold certificates to work. The chemical warehouse management personnel shall inspect the warehouse regularly to solve the problems in time to ensure safety.

The above content is taken from Shantou Emergency Management Bureau

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Nothing we do is worth getting hurt for !