Safe Handling of Flammable Liquids Meeting Kit



WHAT'S AT STAKE

Employees may use common flammable liquids such as cleaning fluids, paints, and gasoline. If flammable liquids are not handled and stored properly, a fire or even an explosion can occur. Employees should be trained on how to stay safe when using these types of liquids to prevent serious injuries. They also need to know how to store the liquids and to understand the hazards that come with each one.

WHAT'S THE DANGER

THE HAZARDS AND DANGERS OF FLAMMABLE GAS

Flammable gases form a flammable mixture when mixed with air. The major hazard associated with the handling of flammable gas products is fire.

Another risk associated with dispensing flammable liquids is the potential for a chemical spill. When flammable vapors are released and spills occur, there is a risk that a fire or violent chemical reaction may occur if they may come into contact with ignition sources and other incompatible chemicals. Such as:

- Asphyxiation
- Severe injury
- Fatalities
- Property loss and damage
- Decrease profitability due to down time.
- Environmental harm
- Impact on the local community
- Financial liability due to non-compliance

THE MOST COMMON ERRORS MADE WHEN STORING FLAMMABLE CHEMICALS:

- Not using the right container.
- Not properly labeling the containers.
- No fire prevention plan in place.

Ignition Sources – Dangers of Working with Flammable Liquids

For a flammable liquid fire to start, a mixture of vapour and air must be ignited.

Ignition sources include:

- Sparks from electrical tools and equipment.
- Sparks, arcs, and hot metal surfaces from welding and cutting.
- Tobacco smoking.
- Open flames from portable torches and heating units, boilers, pilot lights, ovens, and driers.
- Hot surfaces such as boilers, furnaces, steam pipes, electric lamps, hot plates, irons, hot ducts, and flues.
- Embers and sparks from incinerators, foundry cupolas, fireboxes, and furnaces.
- Sparks from grinding and crushing operations.
- Sparks caused by static electricity from rotating belts, mixing operations or hot combustible liquids.

HOW TO PROTECT YOURSELF

FLAMMABLE LIQUID PROTECTION – VENTILATION

The liquids themselves do not burn. However, as the liquid evaporates, it gives off vapors that mix with the air and form dangerous gases. These gases can ignite from a small spark, open flames, electrical discharges from a light switch, or static electricity. Hot surfaces, like incandescent lightbulbs and welding torches can also cause ignition. These types of fires may burn much hotter than ones involving wood or paper. Flammable liquids should not be used near ignition points.

These liquids should only be used in areas with good ventilation. The vapors they put off are usually heavier than air so they collect in the lowest areas they can reach. Not all dangerous liquids give off vapors that you can smell. Some vapors are poisonous as well as flammable. Ventilation, through natural or forced movement of air, can help dissipate the vapors.

An assessment of the specific ways flammable and combustible liquids are stored, handled, used and disposed of is the best way to find out if existing ventilation controls (and other hazard control methods) are adequate.

Some workplaces may need a complete system of hoods and ducts to provide acceptable ventilation. If flammable vapours are likely to condense, the ducts should have welded joints. Other workplaces may only require a single, well-placed exhaust fan. Use non-ferrous fan blades and shrouds (housing), and explosion-proof electrical equipment in ventilation systems for these liquids. Regular cleaning of the ducts, filters, plenums, etc. will decrease the severity of any fires and will reduce the likelihood of spontaneous combustion if some self-heating material is present.

BEST WORKER PRACTICES WHEN WORKING WITH FLAMMABLE

Carefully read the manufacturer’s label and Safety Data Sheet (SDS). Follow all the instructions on how to use and store the liquid safely.

- Use and store flammable liquids in properly ventilated areas. This helps reduce vapor concentration and potential for fire or explosion.
- Only use approved containers and portable tanks or the original manufacturer’s container to store flammable liquids. Keep the containers closed when not in use and label containers properly.
- Use flammable liquid safety storage cabinets when possible and when required. Return flammable liquids to storage when not in use.
- Store flammable liquids away from exits or passageways, and away from potential ignition sources.

- Store flammable liquids at safe temperatures and away from non-compatible chemicals such as oxidizers.
- When in use, dispense only what is needed for the specific task. Remember to keep flammable liquids away from any open flame or spark, and never smoke where flammable liquids are present.
- Wear personal protective equipment (PPE) such as goggles for eye protection from splash hazards. Other PPE includes solvent-resistant chemical protective gloves, chemical protective aprons or overalls to protect the skin, and respirators when appropriate.

FINAL WORD

Working with flammable liquids within the workplace should not be taken lightly. Improper use and storage can lead to serious injuries and tragic accidents. Be sure your employees treat flammable liquids with respect and follow the manufacturer’s instructions for their use.