Health and Safety

Highly Flammable Liquids

Minimum Standard

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1 Aims and Principles

The aim of this Government of Jersey (GoJ) Minimum Standard is to provide guidance on the arrangements which should be in place to ensure that the risks posed by the storage and use of highly flammable liquids (HFLs) in the workplace are adequately controlled to prevent harm.

Departments responsible for managing the storage and/or use of HFLs must develop their own procedures which detail the specific arrangements to be implemented. The procedures must meet the standards set out in this document or be of an equivalent or higher standard.

2 Legislation and Guidance

a) Applicable Legislation and Approved Code of Practice

Health and Safety at Work (Jersey) Law, 1989

Highly Flammable Liquids (Jersey) Regulations, 1979

b) Guidance

The storage of flammable liquids in containers (UK HSE)

Safe use and handling of flammable liquids (UK HSE)

Dangerous Substances and Explosive Atmospheres ACoP (UK HSE)

3 Definitions

Highly Flammable Liquid

Any liquid, liquid solution, emulsion or suspension which gives off a flammable vapour at a temperature of less than 32 degrees Celsius and supports combustion i.e. flash point <32^{o}C.

4 Who this Minimum Standard Applies to

- All Government of Jersey (GoJ) and States' employees
- Voluntary staff or those on honorary contracts where there is no implied contract of employment

5 Links to other GoJ Policies, Minimum Standards and Guidance

a) Policies

Government of Jersey - Health and Safety Policy

b) GoJ Minimum Standards

Control of Contractors
Permit to Work
Risk Assessment
Fire Safety Management
COSHH – Control of Substances Hazardous to Health
Personal Protective Equipment
Occupational Health – Assessment and Surveillance

6 Roles and Responsibilities

The department's arrangements must clearly set out the roles and responsibilities of those required to manage the risks to employees and others from highly flammable liquids.

Reference should be made to the Government of Jersey Health and Safety Policy for general responsibilities.

7 Overview

The Highly Flammable Liquids (Jersey) Regulations, 1979 define any liquid (or liquid solution, emulsion or suspension) with a flash point of less than 32ºC as a highly flammable liquid and are therefore subject to the requirements of the Regulations**.**

The UK HSE guidance documents referenced in this standard applies to liquids with a flashpoint of less than 23ºC but are considered to provide suitable guidance for handling HFLs as defined in the Regulations.

8 Risk Assessment

A risk assessment covering the storage and handling of HFLs should be prepared. Items to be considered include the following although this list is not exhaustive:

- The properties of HFLs and associated hazards e.g. flammable, toxic fumes etc.
- Storage requirements
- Likelihood that an ~~of~~ explosive atmosphere could occur
- Possible ignition sources
- Safe and acceptable means of transporting containers
- Manual handling risks
- Spillage and clean-up requirements
- Types of emergency e.g. leak, fire, explosion etc. and the arrangements in place
- Training requirements

9 COSHH Assessment

A COSHH assessment should be prepared for all highly flammable liquids being stored or used (Ref: Minimum Standard – COSHH).

10 Design and construction of containers

The container in which the highly flammable liquid (HFL) is stored will provide the primary safeguard in preventing release of the liquid in either liquid or vapour form.

HFLs should be kept in their original container which should have a secure and well-fitting cap or lid to prevent the escape of liquid or vapour, including in the event of the container falling over.

HFLs must not be stored in open containers as these could be easily knocked over and also allow flammable vapours to readily escape.

Individual containers should be clearly marked to clearly show they contain a flammable liquid.

11 Storage

Highly flammable liquids must be kept in suitable closed containers as described in Section 10.

Outdoors

HFLs should ideally be stored outside which will provide good ventilation. Where necessary, containers should be protected from sunlight.

The containers should be secured in a manner which prevents unauthorised persons gaining access to them.

Storage areas should be separated either by distance or a physical barrier of fire-resisting construction from the following:

- Site boundaries
- Occupied buildings
- Fixed ignition sources and other features that pose a threat
- Vehicle and pedestrian routes including emergency exits
- Combustible materials
- Other incompatible materials and dangerous substances within storage area or facility.

This helps to reduce the likelihood of an incident which occurs elsewhere, impacting on the HFLs, which would result in an escalation of the fire.

Suitable signage should be in place to show the following:

- The presence of Highly Flammable Liquids
- No Smoking
- No use of mobile phones in the area
- No sources of ignition etc.

Dedicated Storeroom

HFLs can be stored in a dedicated store room used for HFLs only, provided that it is a suitable fire resisting structure i.e. 1 hour fire resistance.

There must be adequate ventilation provided to ensure that flammable vapours cannot accumulate and give rise to an explosive atmosphere.

The store room must also be marked in some way to clearly show that it contains highly flammable liquids.

Storage in a work room

The amount of HFLs permitted to be stored in a working area must be the minimum volume required whilst still enabling productivity to continue.

Up to a maximum of 50 litres can be stored although this must be kept in a suitable cupboard or bin which is 1 hour fire-resistant.

HFLs should only be present in the working area when they are being used and should be returned to the cabinet when finished with.

There must be adequate ventilation provided to the workroom to ensure that flammable vapours cannot accumulate and give rise to an explosive atmosphere.

Containment of spillage

A means of capturing spillage should be provided in any area or cabinet where HFLs are being stored. It should be capable of containing 110% of the volume of the largest container being stored.

In enclosed spaces such as work rooms and cabinets, spillage will usually be apparent due to a strong odour from vapour release.

Any spillages should be cleaned up using a suitable media such as non-combustible absorbent granules. These must be safely disposed of, such as in a sealed bags or containers.

Sources of ignition

HFLs can give rise to flammable vapours which can be ignited if they come into contact with a source of ignition. Controlling the risk of leaks is the primary means of preventing flammable vapours from being released during the storage of HFLs.

However, any storage of HFLs has the potential to give rise to flammable vapours and therefore sources of ignition also need to be controlled.

Typical causes of ignition include:

- Naked flames, including hot work such as welding and cutting equipment;
- Smoking and smoking equipment
- Electrical lighting, power circuits and equipment
- Personal electrical equipment including mobile phones, computers and tablets
- Mechanically powered plant
- Processes that involve the generation of sparks
- Hot surfaces
- Static electricity

Storage areas for highly flammable liquids should be located away from potential ignition sources and arrangements should be in place to control the risk of ignition sources being introduced into the area e.g. hot work.

Some materials, such as cotton cloths that have been contaminated with HFLs can spontaneously combust, turning them into an ignition source and therefore should be disposed of appropriately e.g. in a metal container.

Inspecting storage areas

Any areas used for storing HFLs should be regularly inspected to check for the following:

- Only HFLs are being stored
- Any racking or shelves are in good condition
- Containers are in good condition e.g. no corrosion
- No spillage or evidence of spillage is present

12 Working with HFLs

All work with highly flammable liquids should be risk assessed. Guidance on the risks and control measures is available in the UK HSE document, Safe use and handling of flammable liquids.

When deciding on suitable control measures, the hierarchy of controls should be referred to (Ref: Minimum Standard – Risk Assessment).

Consideration should be given to using alternative, safer products where the risks are reduced.

As vapour will be released during most uses of HFLs, inhalation should be prevented. This should be achieved by either using in a well-ventilated area (preferred) or using an appropriately designed mechanical means of extraction e.g. mechanical extraction in the room or local exhaust ventilation.

Where the level may still exceed the exposure levels set out for the substance (Ref: Minimum Standard – COSHH), respiratory protection should be provided (Ref: Minimum Standard – Personal Protective Equipment).

Particular attention should be paid to work methods which include decanting, use of open containers or spraying as these often result in high levels of vapour being released which can give rise to explosive atmospheres.

Other factors, such as potential ignition sources must also be considered when developing safe working procedures.

Any rooms where HFLs are used or manipulated must be constructed in accordance with the requirements of Section 13.

13 Fire Safety

A Fire Safety Risk Assessment should be carried out where highly flammable liquids are being stored, handled and used.

Ensuring that the storage area is designed and sited in an appropriate place as described in Section 11 will significantly reduce the risk of fire occurring or the HFL containers being affected in the event of a fire in close proximity.

Any room where flammable liquids are used or manipulated shall have a means of escape which remains safe and effective at all times and any exit must open outwards.

Details of the locations where HFLs are present should be readily available to the emergency

services in the event of a fire occurring on site.

14 Emergency Procedures

If HFLs are handled and stored correctly, then the risk of an emergency situation arising will be significantly reduced.

However, the risk cannot be discounted and arrangements should be in place to deal with such an event.

The types of emergency which could occur and the controls to be implemented should be detailed in the risk assessment referred to in Section 8.

Items which should be considered when developing emergency procedures are set out in Appendix A.

Any emergency procedures put in place should be tested at suitable intervals, where reasonably practicable to do so.

15 Training

Any persons involved with the storage, handling or use of HFLs should receive suitable training which should be recorded.

The scope of the training required will depend on the role of the individual and should be tailored accordingly.

The training should ensure that the employees understand the following:

- The properties of the HFLs being used
- The correct storage arrangements
- Safe working methods
- Possible incidents which could occur
- Emergency procedures

16 Personal Protective Equipment

Work with HFLs may require personal protective equipment (PPE) such as gloves, overalls, respiratory protection etc. to be provided.

Reference should be made to the Safety Data Sheet for the product and the COSHH assessment (Ref: Minimum Standard – COSHH)

Any PPE provided must be suitable for the material being worked with and should be stored and used correctly (Ref: Minimum Standard – Personal Protective Equipment).

17 Health Surveillance

Health surveillance may be required for work with some types of highly flammable liquids.

For further information, contact the department's Health and Safety Advisor(s) or the GoJ Occupation Health Service Provider (Ref: Minimum Standard – COSHH).

Emergency Arrangements

Factors to be taken into account when assessing the requirements for emergency arrangements include:

- The properties of the HFLs, the quantities kept and the way they are being used or stored
- The foreseeable types of accidents, incidents, emergencies or other events that may occur, and the level of risk that may be present
- Precursors to the end emergency (fire or explosion) involving the HFL (e.g. unignited leaks, spills and releases of the HFL, or the potential for these arising)
- Means of detecting events, e.g. the selection and effectiveness of the means of detecting a leak, spill or release of a HFL and hence the speed and nature of the emergency response will depend on such matters as location, size of release and potential escalating events
- The trigger events for alarms and warnings, e.g. where mechanical exhaust ventilation is provided to ensure a safe atmosphere, it might well be considered reasonable that critical reduction in its flow should cause an alarm or suitable warning to be given, so that emergency actions can be taken to isolate the release of the dangerous substance and take other remedial action as necessary
- Specific procedures that employees and others should follow if an accident, incident or emergency occurs (e.g. clearing up spills of HFLs or, for more serious incidents, moving to a safe area or complete evacuation of the workplace);
- The role, responsibilities and authority of employees who may be allocated specific duties (e.g. people responsible for shutting down equipment, checking that specific areas have been successfully evacuated, contacting the emergency services etc)
- The provision, where necessary, of suitable safety equipment or personal protective equipment
- Procedures for assisting particular groups of people, such as members of the public or other visitors on site (who may be unfamiliar with the workplace and the risks from HFLs that are present) or disabled employees.