



## How does this affect your company?

Flammable liquids are used in many different operations within the workplace and create a special fire and explosion hazard. The liquid itself and the vapours generated can potentially cause significant property damage, injury and death if adequate safety measures are not implemented.

A flammable liquid is any liquid that has a closed cup flash point below

55°C and can be further sub-categorised as 'extremely flammable', 'highly flammable' or 'flammable' depending on the flash point.

Flammable liquids such as petrol, solvents and heating fuels not only provide a ready ignition source for a fire to start, but also contribute to the growth and spread of a fire once it has started. Consequently, flammable liquids require specific control measures in

relation to their safe use, handling, storage and transportation.

Tokio Marine Kiln has specialist knowledge in the field of loss prevention engineering and we would strongly recommend that you contact us if you have any questions about the safe use and handling of flammable liquids in your workplace.

## Why does this affect your company?

Many serious fires have occurred in industrial premises where flammable liquids have either been used in the production processes or stored on site. These fires could have been prevented if the company had effective procedures in place for preventing, protecting and responding to incidents involving flammable liquids.

Flammable liquids are categorised as:

- Extremely flammable
- Highly flammable
- Flammable

depending on the flash point of the particular liquid, (consult the Material Hazard Safety Data Sheet issued by the manufacturer/supplier).

### Extremely flammable

Any liquid which has a flash point below 0°C.

### Highly flammable

Any liquid which has a flash point between 0°C and 21°C.

### Flammable

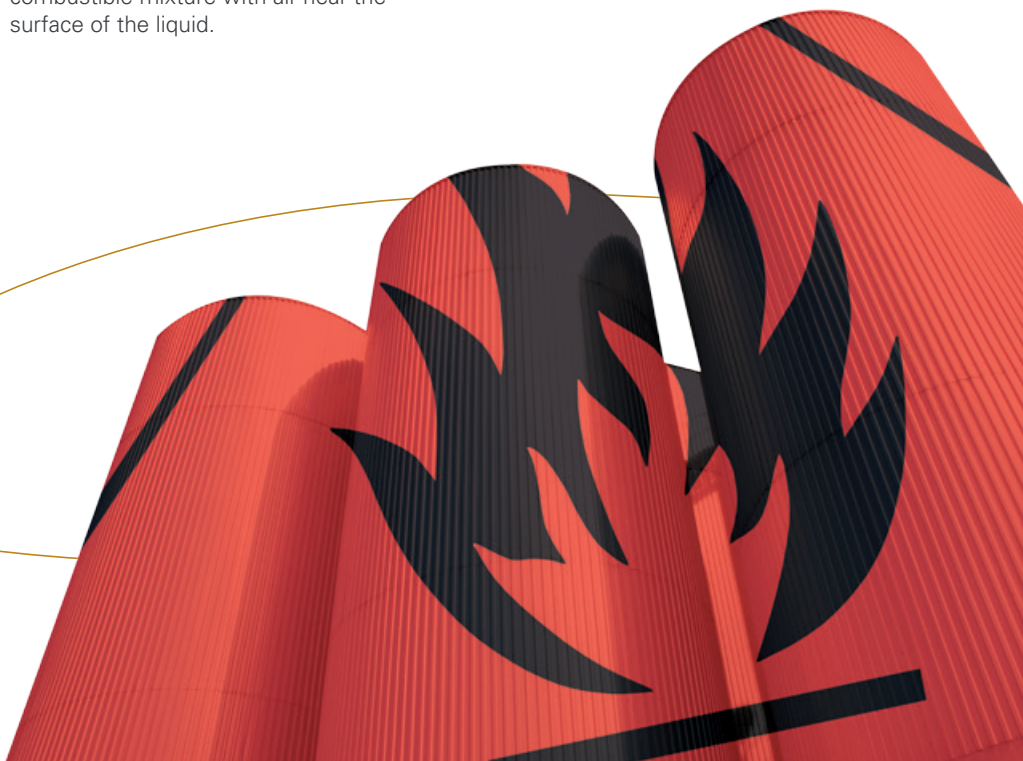
Any liquid which has a flash point between 21°C and 55°C.

### Flash point

The lowest temperature of a liquid at which point ignitable vapours are given off in sufficient concentration to form a combustible mixture with air near the surface of the liquid.

This is a direct measure of a liquid's volatility. The lower the flash point, the greater the volatility and the greater the risk of fire.

N.B. Flammable liquids with a flash point above 55°C that are handled at temperatures above their flashpoints may also present a fire and explosion hazard.



## The main considerations when dealing with flammable liquids in the workplace are:

- **Environment in which the flammable liquid is being used**  
For example, is it being heated, is it pressurised for paint, is it being used in areas prone to electrostatic discharges, is it being used in a closed environment or somewhere with adequate ventilation, or does the liquid react with other liquids badly?
- **Potential ignition sources**  
For example, naked flames, hot work, smoking, electrical lighting, power circuits, heating equipment, processes that involve friction or generate sparks, hot surfaces, static electricity.
- **Fire development**  
How the fire could start, continue to grow, spread, be controlled and extinguished.

For more information on Flammable Liquids Handling please contact your local Tokio Marine Kiln office or contact:

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London, EC3M 3BY  
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## What should your company do/have?

### Safer alternative

On an ongoing basis, reviews should be undertaken of each manufacturing process which use flammable liquids to establish whether a safer alternative could be used.

### Pre-incident fire plan

This should be developed and issued to the fire brigade to provide them with details of the building location, layout, construction, flammable liquids on site, water supplies, fire protection and detection systems, venting arrangements and emergency organisation.

### Separation and containment

Areas where flammable liquids are handled or stored should be fire separated from other areas of the building in a well ventilated area constructed to contain any accidental release of the flammable liquids. Where possible, this room should be located on an external wall with additional direct access from outside the building. Small quantities in the workplace should be kept in specially designed safety cans and stored in a 'Flammable Liquids Cabinet'.

### Emergency response

This is a written document that includes contact with the fire brigade, trained fire squad to tackle incipient fires (if safe to do so), isolation of plant and utilities safely, and evacuation of the building.

### Fire protection/detection

It is essential that all fire protection/detection systems are kept operational at all times and any impairments carefully managed to ensure minimum down time. Fire protection systems should also be designed to adequately protect flammable liquids.

### Manual fire fighting equipment

Fire hoses and hand held fire extinguishers should be readily available. This equipment should be sited in a prominent location and provided with signage to explain the type of fire that can be extinguished with the equipment. Staff should be familiar with the operation of this equipment in their area of work.

### Training

This should be provided to responsible persons on precautions that should be taken when handling, transporting and disposing of flammable liquids.

### Responsible person

For managing ignition sources, housekeeping, hot work, electrical items, etc. This person should have the training and experience to be classed as competent.

### References

Health & Safety Executive (HSE) Guidance Series publications available from HSE Books on 01787 881165, website [www.hsebooks.co.uk](http://www.hsebooks.co.uk):

- The safe use and handling of flammable liquids – HSG140
- The storage of flammable liquids in containers – HSG51
- The storage of flammable liquids in tanks – HSG176
- The spraying of flammable liquids – HSG178
- Dangerous Substances & Explosive Atmospheres Regulations 2002. Approved Code of Practice and Guidance – L138



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