The Swedish Civil Contingencies Agency's Code of Statutes

Myndigheten för samhällsskydd och beredskap

Published by: Anna Asp, Swedish Civil Contingencies Agency
ISSN 2000-1886

MSBFS Consultation edition
[Insert No.]
Published on
"[Insert date]"

Swedish Civil Contingencies Agency draft regulations on the handling of flammable liquids;

adopted on DD MM YY

By virtue of Section 25 of the Ordinance (2010:1075)[1] on flammable and explosive goods, the Swedish Civil Contingencies Agency issues[2] the following regulations, and adopts the following general advice[3]

Chapter 1 Introductory provisions

This statute contains the following chapters.

- Chapter 1 Introductory provisions
- Chapter 2 General handling requirements
- Chapter 3 Loose containers
- Chapter 4 Tanks
- Chapter 5 Piping and hose lines
- Chapter 6 Exemptions in individual cases

Scope

Section 1 This statute contains provisions on the handling of flammable liquids, provisions on devices for handling flammable liquids, as well as provisions on buildings and other facilities where flammable liquids are handled.

Section 2 The provisions do not apply to:

- handling of aerosol dispensers with flammable contents;
- handling on board ships regulated by other statutes; nor
- flammable liquids with a flashpoint higher than 35 °C which have obtained negative results in the L.2 Sustained combustibility test

[1] These regulations have been notified in accordance with Directive (EU) 2015/1535 of the European Parliament and of the Council of 9 September 2015 laying down a procedure for the provision of information in the field of technical regulations and of rules on Information Society services (codification) (OJ L 241, 17.9.2015, p. 1-15, Celex 32015L1535).
[2] Ordinance last amended by SFS 2022:1173.
[3] The legal status of general advice is different to that for regulations. General advice is not mandatory. Its function is to clarify the meaning of laws, ordinances and regulations and to provide general recommendations on their application.

from Part III, Section 32 of the seventh revised edition of the UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, published by the United Nations (ST/SG/AC.10/11/Rev.7).

Definitions

Section 3 The terms used in the Act (2010:1011) and the Ordinance (2010:1075) on flammable and explosive goods shall mean the same as those in this statute.

The following definitions apply for the purposes of this statute:

ADR-S	the Swedish Civil Contingencies Agency's regulations (MSBFS 2022:3) on the transport of dangerous goods by road and over land, or other statutes that have replaced or amended MSBFS 2022:3;
aerosol dispensers with flammable contents	dispensers containing flammable or extremely flammable aerosol in accordance with the Swedish Civil Contingencies Agency's regulations (MSBFS 2018:1) on aerosol dispensers, or other statutes that have replaced or amended MSBFS 2018:1;
device	equipment, loose containers, tanks, piping, hose lines and the like, intended to contain flammable liquids;
connection	point where piping or a hose line can be attached to a fixed installation or device;
diversion	barrier around the storage site intended to lead escaping flammable liquids to a place where they can be disposed of;
flammable liquids	liquids that are flammable in accordance with the Swedish Civil Contingencies Agency's regulations (MSBFS 2010:4) on which goods are to be regarded as flammable or explosive goods, or other statutes that have replaced or amended MSBFS 2010:4;
tank	container meeting the requirements of the Swedish Civil Contingencies Agency's regulations (MSBFS 2018:3) on tanks with connected piping for flammable liquids, or other statutes that have replaced or amended MSBFS 2018:3;
EI XX	fire-resistance class designation of building structures where 'E' stands for integrity, 'I' stands for insulation and 'XX' refers to the time in minutes at which the functional requirements are met in a standardised test

	(according to SS-EN 13501-2);
flashpoint	the minimum temperature at which a liquid emits vapours forming a flammable mixture with air, in accordance with one of the test methods specified in subsection 2.3.3.1 of the ADR-S;
apartment block	residential building with at least three residential apartments;
gas-free declaration	written statement that a device is emptied, cleaned and that no flammable vapours remain;
IBC	Intermediate Bulk Container, a type of loose container manufactured, checked and approved in accordance with ADR-S or RID-S as such and intended for flammable liquids at atmospheric pressure;
bund wall	barrier around the storage site intended to prevent escaping flammable liquids from spreading uncontrollably;
highly flammable material	material that can be lit with a match and which may cause a rapid spread of fire;
loose container	container for not more than 3 000 litres of flammable liquid intended to be used elsewhere than where it is filled; the definition does not include movable tanks in accordance with MSBFS 2018:3 or pressure vessels in accordance with AFS 2016:1, or other statutes replacing or amending them;
RID-S	the Swedish Civil Contingencies Agency's regulations (MSBFS 2022:4) on the transport of dangerous goods by rail, or other statutes that have replaced or amended MSBFS 2022:4;
piping	fixed line for flammable liquids which, in addition to pipes, also includes flanges, valves, and other components that conduct the liquid and its gas phase;
protective tube	a externally-mounted tube intended to protect an inner pipe from external wear and other mechanical impact;
hose line	flexible line for flammable liquids which, in addition to hoses, also includes connections and other components that conduct the liquid and its gas phase;
small dwelling	residential building containing a maximum of two

residential apartments and can be either a one- or two-dwelling building, which is detached or connected as a semi-detached house, a terraced house or a linked house;

open handling handling that may cause flammable gas or vapour to be mixed with air.

Chapter 2 General handling requirements

Devices

Section 1 Flammable liquids shall only be handled in devices which are:

- sealed in order to counteract leakage;
- resistant to the expected liquids, additives and contaminants;
- appropriate for the pressures and temperatures to which they are likely to be subjected; and
- resealable if the closure is so designed that it can be re-closed repeatedly without risk of the contents leaking.

General advice

Loose containers larger than 5 litres should be manufactured, checked and type-approved in accordance with ADR-S or RID-S.

Flammable liquids should not be handled in loose plastic containers more than 5 years old. The age should be calculated, in the first instance, from the container's date of manufacture and in the second instance, if the date of manufacture is not known, from the date of purchase.

Section 2 Devices containing flammable liquids shall be handled so that the risk of corrosion occurring or the risk of damage from corrosion is counteracted or prevented.

Ventilation

Section 3 A space where flammable liquids are handled shall be sufficiently ventilated to counteract the accumulation of vapours from the flammable liquid.

Spaces where natural ventilation does not provide sufficient ventilation flow shall have mechanical ventilation. The functionality of mechanical ventilation shall be ensured on a routine basis.

Air extracted by the ventilation shall lead to a suitable location. The ventilation shall be designed so that the extracted air cannot enter through other openings in buildings.

General advice

Where mechanical ventilation is used in a space for factory-sealed loose containers, the space should be considered sufficiently ventilated if the specific air flow (air change rate) does not fall below 0.5 room volumes per hour (rv/h).

If the space for factory-sealed containers is a cabinet, ventilation should be considered sufficient if the door is opened regularly.

The ventilation should be designed so that there is a distance of at least 1 metre between the extracted air openings and other openings in buildings.

Positioning

Section 4 Devices containing flammable liquids shall be protected, by means of their positioning or by physical protection, against damage caused by impacts, falling objects and other similar actions. The design of physical impact protection shall take into account the traffic circumstances of the site.

General advice

Physical impact protection for tanks above ground should be positioned at least 2 metres from the tank and should be at least of capacity class N2 in accordance with EN 1317-2.

Section 5 Loose containers, tanks and other devices shall be positioned in a safe manner, taking into account:

- the risk of fire or other harmful heating from the surroundings to the devices;
- the risk of damage to the surroundings by fire or explosion caused by leakage or ignition of the flammable liquid; and
- the possibilities of evacuating the area around the devices in case of fire.

General advice

The positioning of loose containers, tanks and other devices should be determined, in the first instance, on the basis of the operator's report on risks under Section 7 of the Act (2010:1011) on flammable and explosive goods, or otherwise comply with Annex 1.

Loose containers in and at shops should be positioned in accordance with Chapter 2 of the Swedish Civil Contingencies Agency's Handbook on flammable gases and liquids and gas appliances in shops.

Signage

Section 6 Signs indicating the prohibition on smoking and naked flames and the presence of flammable liquids shall be displayed at areas, enclosures, premises and other areas where flammable liquids are handled, if the total quantity is a large volume.

For private individuals, the requirement applies only when handling more than 100 litres.

General advice

Normally, 50 litres should be considered a large volume for flammable liquids with a flashpoint of 30°C or less. For liquids with a flashpoint above 30°C, 1 000 litres should be considered a large volume.

Section 7 Signs shall be designed in accordance with Annex 2 and made of impact-resistant material with good weather resistance. They shall be positioned and adapted to the surrounding environment so that they are easy to see even in varying light conditions.

Section 8 Signs shall be removed if the circumstances to which they refer no longer apply or exist.

Unauthorised procedures

Section 9 Loose containers, valves and other operable components for devices shall be protected against unauthorised procedures.

For private individuals, the requirement applies only when handling more than 100 litres.

General advice

Unattended operable components and loose containers should be protected by being in locked spaces, equipped with locking devices or protected by a minimum of 2 metre high fencing.

Open handling

Section 10 Open handling that can cause an ignitable mixture of vapour and air may only take place in areas or spaces intended for this purpose.

Ventilation during open handling indoors shall be arranged so that:

- negative pressure prevails with respect to adjacent premises where open handling does not take place; or
- point extraction prevents vapour from spreading to the rest of the premises.

The air extracted from the premises where open handling takes place must lead directly outdoors to a suitable location.

Section 11 Open handling shall be separated from highly flammable material and from other handling of flammable goods.

General advice

Open handling should be considered to be separated by sufficient distance or by fire-resistant separation.

Depending on the amount handled and the layout of the premises, the need for separation may vary and should be taken into account in the risk assessment in accordance with Section 7 of the Act on flammable and explosive goods.

Section 12 In the case of open handling, the characteristics of the surface shall be such that the flammable liquid can be collected and disposed of in the event of a spill or leakage.

General advice

The floor or ground surface should be impermeable to the handled liquid and inclined towards a low point. The quantity to be disposed of should be adapted to the extent of the handling.

Spills and leakage

Section 13 When handling flammable liquids, it must be possible to remedy spills and leakages before the risk of uncontrollable spread or ignition of the spill occurs.

General advice

Clean-up equipment should be available to the extent necessary. Alternatively, spill zones linked to oil separators or options for diverting or collecting the liquid should be available on site.

If not provided on site, the availability of clean-up equipment can be ensured by organisational measures, provided that there is no risk of any spills or leakages spreading uncontrollably before action is taken.

Fire extinguishing equipment

Section 14 When storing flammable liquids in loose containers or tanks above ground, fire extinguishing equipment shall be provided to the extent necessary to quickly extinguish a minor fire which could escalate to a larger fire in the flammable liquids.

For private individuals, the requirement applies only when storing more than 100 litres.

Instructions

Section 15 Written instructions for the commissioning, operation and maintenance of devices, as well as on how to remedy spills and leakages, shall be available in the operation, unless the handling constitutes simple handling where the risks can be easily understood. The instructions shall be provided to the extent necessary to prevent the risk of fire and explosion caused by the flammable liquids.

For private individuals, the requirement applies only when handling more than 100 litres.

Loaded vehicles

Section 16 A tanker vehicle whose transport tank for flammable liquid is not emptied, cleaned and gas-free shall not be parked or set up in a garage or other indoor space if the flammable liquid has a flashpoint of 30˚C or less. The same applies to a vehicle loaded with loose containers designed to carry more than 100 litres of flammable liquid.

This provision does not apply if the vehicle is in transit.

Section 17 A tanker vehicle, other tanker or tank wagon manufactured, checked and approved in accordance with ADR-S or RID-S may be used for temporary storage provided that the location is otherwise suitable for storage.

Chapter 3 Loose containers

Section 1 An IBC used for the handling of flammable liquids shall comply with the requirements of ADR-S or RID-S and be approved for transport, and shall have undergone the periodic checks prescribed by ADR-S or RID-S.

Operations covered by subsection 13.2.1 of ADR-S during transport are excluded from this provision.

Section 2 Loose containers of more than 1 000 litres shall be equipped with level gauging, overfill protection and venting, covered by the type approval pursuant to Section 1, if they are intended to be filled from a tanker.

Section 3 An IBC may be used on a stationary basis if it is equipped with level gauging, overfill protection and venting, which is covered by the type approval pursuant to Section 1 and complies with the provisions of Chapter 4 Sections 1, 3 and 7–9. IBCs without their own fire resistance used on a stationary basis shall be isolated in a space of at least fire resistance class EI 30, unless they are protected against external fire by their positioning.

An IBC as referred to in the first paragraph is used on a stationary basis when it:

- is filled and emptied in the same place; or it
- is connected to an installation for purposes other than filling or emptying.

General advice

Before each filling, a visual inspection of the container should be carried out with regard to its condition and tightness.

Filling or emptying should be carried out without delay. Filling or emptying, as actions, should not be dependent upon other production steps.

An IBC without its own fire resistance should be considered protected against external fire if it has a distance of at least 6 metres to material with a high fire load.

Section 4 During transport in their own area of operation and during storage, loose containers shall be sealed.

Section 5 Loose containers may not be stored in the immediate vicinity of a tank containing flammable liquids.

General advice

No loose containers should be stored within a tank bund wall. Indoors, loose containers with a flashpoint of 30˚C or less should not be stored in the same room as a tank.

Section 6 When storing loose containers containing flammable liquids indoors that have

- a flashpoint of 30˚C or less and a combined volume of more than 500 litres, or
- a flashpoint greater than 30˚C and a combined volume of more than 4 000 litres

the space shall be separated, in terms of fire-resistance, and otherwise adapted to the storage. The fire-resistant separation shall limit the risk of

- the fire spreading from the storage site to the other premises, and
- fire spreading from other premises to the storage site.

General advice

The fire-resistant separation should be at least equivalent to EI 30 for volumes up to and including 1 000 litres, and at least equivalent to EI 60 for volumes above 1 000 litres and up to 10 000 litres.

For volumes above 10 000 litres, the risk assessment pursuant to Section 7 of the Act (2010:1011) on flammable and explosive goods needs to show an appropriate level of protection for storage.

Section 7 When storing loose containers containing flammable liquids indoors that have

- a flashpoint of 30˚C or less and a combined volume of more than 100 litres, or
- a flashpoint greater than 30˚C and a combined volume of more than 1 000 litres

a bund wall, diversion or other technical solution shall be provided to prevent the uncontrolled spread of escaping flammable liquids.

The first paragraph shall not apply if the storage site is used solely for empty, uncleaned containers.

General advice

A bund wall should be able to contain at least 10 % of the total stored volume but not less than the entire largest container size.

For volumes above 10 000 litres, the risk assessment pursuant to Section 7 of the Act (2010:1011) on flammable and explosive goods needs to show the appropriate bund wall volume.

Section 8 An outdoor storage site for loose containers with a total volume of more than 3 000 litres shall be provided with a bund wall, diversion or other technical solution in order to prevent the uncontrolled spread of escaping flammable liquids.

The first paragraph shall not apply if the storage site is intended solely for empty, uncleaned containers.

General advice

A bund wall should be able to contain at least 10 % of the total stored volume but not less than the entire largest container size.

For volumes above 10 000 litres, the risk assessment pursuant to Section 7 of the Act (2010:1011) on flammable and explosive goods needs to show the appropriate bund wall volume.

Section 9 When storing flammable liquids with a flashpoint of 30˚C or less in loose containers, they shall be kept separate from loose containers containing flammable liquids with flashpoints higher than 30˚C.

General advice

Containers should be considered to be separated by sufficient distance or by fire-resistant separation. Surfaces where spills from storage may occur should also be designed so that spills with a low flashpoint do not risk affecting containers whose contents have a higher flashpoint.

Depending on the quantity stored and the design of the storage site, the need for separation between these containers may vary and should be taken into account in the risk assessment pursuant to Section 7 of the Act (2010:1011) on flammable and explosive goods.

Section 10 When storing loose containers, the containers shall be secured against the risk of falling, if the storage height exceeds the height of drop that the container is designed and tested to withstand.

Large-scale stock handling

Section 11 Large-scale stock handling of loose containers indoors shall not take place in spaces where activities other than stock handing take place.

General advice

Stock handling should be considered large-scale when storing volumes greater than 100 000 litres.

For large-scale stock handling, the size of the bund wall should be included in the risk assessment pursuant to Section 7 of the Act (2010:1011) on flammable and explosive goods. Such a bund wall should have a capacity of greater than 10 % of the total volume stored.

Specific requirements for housing and storage for households

Section 12 In small dwellings and apartment blocks, loose containers up to and including 25 litres may be handled.

Section 13 In apartment blocks with more than one storey, loose containers up to 5 litres may be handled. However, loose containers up to 25 litres may be stored outdoors in direct proximity to the dwelling or in a special space in the dwelling which constitutes a separate fire compartment with a fire resistance class equivalent to at least EI 60 and which is ventilated directly to the outside.

Section 14 In attics, garages, basements or similar storage spaces in apartment blocks, no loose containers shall be stored, except for single containers up to and including 5 litres with a flashpoint above 30˚C.

Section 15 If several households have storage spaces or garages in a building separated from the dwellings, loose containers, with the exception of single containers up to and including 5 litres with a flashpoint above 30˚C, shall be kept in a separate fire compartment with a fire resistance class of at least EI 60.

Marketing

Section 16 When marketing flammable liquids with a flashpoint of 30˚C or less to the general public, loose containers of more than 5 litres shall be kept inaccessible to persons other than staff.

Chapter 4 Tanks

Loading and unloading sites

Section 1 Sites for setting up tanker vehicles or tanker wagons for connection to a tank shall be designed such that:

- tanker vehicles can leave the site without the need to reverse in the event of an emergency;
- spills can be safely disposed of;
- the outlet of the venting line can be viewed during filling or another solution is available for monitoring and correcting any overfilling;
- it is possible to quickly stop the filling or emptying of the tank; and
- there is a connection to ground for tanker vehicles if the flashpoint of the flammable liquid is less than 60˚C.

Section 2 At each tank filling connection for tanker vehicles, tanker wagons or ships, there shall be a sign indicating the relevant information for safely filling the tank with the appropriate flammable liquids.

The requirement does not apply to depot or refinery tanks.

General advice

The sign should contain at least the following information:

- the address of the property to which the tank belongs or the tank number at the facility;
- the volume of the tank; and
- the liquid for which the tank is used;

and, for rectangular tanks,

- the maximum permissible filling or emptying flow, i.e. maximum flow rate (volume flow) when filling or emptying.

Unauthorised procedures

Section 3 Lids or hatches for

- connection for filling;
- gas return;
- emptying;
- draining;
- sampling; and
- sounding devices

shall be kept locked or otherwise inaccessible to unauthorised persons when no filling, emptying or sampling is taking place.

Uncontrolled discharge and fire-resistant separation

Section 4 An above-ground tank shall have a bund wall, diversion or other technical solution to prevent the uncontrolled spread of escaping flammable liquids if the tank:

- is placed outdoors and is intended for more than 3 m^3 of flammable liquid with a flashpoint of 30˚C or less;
- is placed indoors and is intended for more than 1 m^3 of flammable liquid with a flashpoint of 30˚C or less; or
- is placed indoors and is intended for more than 10 m^3 of flammable liquid with a flashpoint higher than 30˚C.

The bund wall, diversion or other technical solution shall be capable of handling the entire volume of the tank.

Section 5 Multiple tanks may share a bund wall. The bund wall shall then be able to handle at least the volume of the largest tank and 10 % of the total volume of the other tanks within the bund wall.

General advice

Liquids with flashpoint of 30˚C or less should be within a separate bund wall from liquids with a flashpoint above 30˚C.

Liquids within the same bund wall should be capable of being extinguished using the same extinguishing medium and the same extinguishing methodology.

Section 6 An indoor tank for flammable liquids with a flashpoint of 30˚C or less shall be separated in its own fire compartment equivalent to at least EI 60. Several tanks may be housed in the same fire compartment. The same applies to one or more indoor tanks for more than 10 m^3 of flammable liquid with a flashpoint higher than 30˚C. Different tanks whose contents have different flashpoints may be housed in the same fire compartment unless the risk of fire and explosion and the consequences of a fire and explosion increase more than little.

Section 7 A tank's overfill protection or level alarm shall be set to protect the tank against the risk of exceeding the maximum intended volume.

General advice

The maximum intended volume should not exceed 95 % of the nominal volume. It may be lower if, for example, authorisation is only held for a lower volume than the tank holds.

Section 8 Before filling a tank with flammable liquid, the quantity of the liquid shall be determined in such a way that the trigger level of the overfill protection device and level alarm are not reached during filling.

Decommissioned tanks

Section 9 A tank permanently withdrawn from service shall be emptied, cleaned and declared gas-free. Connections shall be removed or measures taken so that they cannot be used and that the tank cannot be filled.

Chapter 5 Piping and hose lines

Section 1 It must be possible to close off the flow in piping or hose lines manually. In the event of an emergency, it must be possible to close off the flow quickly.

General advice

Non-pressurised piping or hose lines should be regarded as closed when the pump is taken out of service.

'Quickly' should be understood as being as fast as technically possible while retaining safety.

Section 2 Culverts, casings or other devices with an equivalent function shall be ventilated, as well as resistant to the liquid and external heat.

Section 3 Piping that runs inside or through walls, ceilings, roofs or floors, or that is otherwise concealed in a building, shall either be seamless or have welded or brazed joints. Such lines shall have casing to prevent wear and tear and to prevent leaking liquid from spreading inside the walls, ceiling or floor of the building.

These requirements do not apply to piping that is accessible without the aid of tools.

Section 4 Hose lines shall not be built into walls, ceilings or floors or be otherwise concealed in a building.

Section 5 Connections for piping and hose lines that may be confused with other connections shall be designed or marked to prevent confusion.

Section 6 Measures shall be in place to ensure there are no discharges from open-ended piping if valves are accidentally opened.

General advice

Open-ended piping should be protected with a blind plate, an additional manual valve or sealing lid. Small-dimension sampling valves that are opened frequently should be self-closing and should then be considered adequately protected.

Section 7 Piping in the ground shall be traceable by pipe surveys. The survey shall be documented.

General advice

The survey should mean that you know, with sufficient precision, where the pipes in the ground are located, in order to be able to excavate a pipe if necessary.

The documentation should include the presence of piping on an record drawing for the operation.

Section 8 Piping in the ground shall be protected from being accidentally dug up by ensuring:

- there is marking tape that provides information regarding the presence of piping for flammable liquids along and above the route of the pipe;
- there is a sufficient distance between the piping and other ground installations; and
- there is a sufficient distance between the piping and buildings, unless the piping connects to the building.

For directional drilling, no marking tape is needed.

Section 9 Piping in the ground shall be surrounded by material that cannot damage it.

Section 10 A ship connection shall be electrically insulated between the connection and the land-based piping.

Section 11 Hose lines may only be used as a temporary solution or when their flexibility is needed. The length shall be adapted to needs. Above-ground hose lines shall be regularly inspected for wear and, if necessary, replaced.

Decommissioned piping and hose lines

Section 12 Piping and hose lines permanently removed from service shall be emptied and cleaned. Piping shall also be declared gas-free. Connections shall be removed or measures taken so that they cannot be used.

Chapter 6 Exemptions in individual cases

Section 1 The Swedish Civil Contingencies Agency may grant exemptions from this statute in individual cases if there are special reasons for doing so.

General advice on requirements for assessments and supervisors

This section contains general advice relating directly to the Act (2010:1011) on flammable and explosive goods (LBE).

Requirements for assessments
Under Section 7 of the LBE, those who run operations that are subject to licence requirements shall ensure that there has been a satisfactory assessment of the risks of accidents, injuries, damage to health, the environment or property which may result from a fire or explosion caused by flammable or explosive goods as well as the consequences of such events.

General advice

An assessment of the risks of handling flammable liquids should identify and evaluate risks that may arise from handling and, if necessary, propose measures to reduce the risk of accidents, incidents or their consequences. The assessment should be updated in the event of changes in the operation or the surroundings that may affect the risk conditions. The scope of the assessment should be adapted to the size of the operation. An assessment of the risks associated with the handling of flammable liquids should include the following, as relevant:

- description of the operation;
- characteristics of the flammable liquids, including flashpoints;
- risk of high or low temperatures;
- risk of high or low pressure;
- risk of spills or leakage;
- risk of external influences;
- risk of overfilling;
- risk related to human factors;
- ignition sources in the vicinity of handling;
- description of devices, including materials of devices, in contact with flammable liquids;
- topographical conditions in the operation;
- activities, buildings and other property in the vicinity of the handling and the distance thereto;
- accident prevention and damage mitigation measures; and
- how safe handling is maintained over time.

For service stations, the assessment should consist of a description of the handling, risks and measures as referred to above, with references to the relevant parts of the Swedish Civil Contingencies Agency's Manual on the handling of flammable gases and liquids at service stations, supplemented, if necessary, by assessments for matters not covered by the manual.

For shops, the assessment should consist of a description of handling in the shop, risks and measures as referred to above, with references to the relevant parts of Chapter 2 of the Swedish Civil Contingencies Agency's Manual on the handling of flammable gases and liquids and gas appliances in shops,

supplemented, if necessary, by assessments for matters not covered by the manual.

Supervisor requirements

In accordance with Section 9 of the LBE, those who run operations that are subject to licence requirements shall designate one or more supervisors for the operation. The second paragraph states that the task of a supervisor is to make efforts to ensure that the operation is run in accordance with the duty of care requirements and in compliance with the other obligations imposed by the LBE or regulations issued pursuant thereto. Additionally, said paragraph also states that the licence holder shall ensure that a supervisor is given the powers and discretion otherwise necessary for them to be able to accomplish their tasks.

General advice

A supervisor for handling flammable liquids should have knowledge of:

- how roles, responsibilities and powers are allocated in the operation;
- the properties and risks of the flammable liquids;
- the legislation that is relevant to the fire and explosion risks;
- accident prevention and damage mitigation measures;
- conditions of the licence;
- the structure, function and operation of the facility; and
- documentation that is relevant to the safety of the handling.

The scope and complexity of the handling should determine the depth of knowledge in the different areas required.

1. This statute enters into force on X Month 202X. At the same time, the following statutes shall cease to apply in their entirety:

   a. the Swedish National Inspectorate of Explosives and Flammables regulations (SÄIFS 1990:2) on the handling of flammable gases and liquids in connection with certain modes of transport including general advice;

   b. the Swedish National Inspectorate of Explosives and Flammables regulations (SÄIFS 1996:2) on the handling of flammable gases and liquids at points of sale;

   c. the Swedish National Inspectorate of Explosives and Flammables regulations (SÄIFS 2000:2) on the handling of flammable liquids including general advice and

d. the Swedish Rescue Services Agency's regulations (SRVFS 2005:10) containing certain provisions on flammable liquids including general advice.

2. The provisions of Chapter 4 Sections 4 and 6 need not be applied before

   a. 30 June 2028 for facilities operating before the entry into force of this statute; or

   b. the end date of the licence period for facilities licensed before the entry into force of this statute.

   Until then, existing bund walls and fire-resistant separations may continue to be dimensioned in accordance with the general advice for SÄIFS 2000:2.

3. The provisions of Chapter 5 Section 3 only apply to pipes installed after this statute has entered into force.

4. The provisions of Chapter 5 Sections 7-9 apply only to pipes buried after this statute has entered into force.

Swedish Civil Contingencies Agency

Charlotte Petri Gornitzka

Johannes Forsberg
Civil Protection Department

Annex 1 provides general advice for Chapter 2 Section 5 of this statute

Positioning of loose containers or tanks containing flammable liquids above ground

Definitions

The following terms are used in this Annex:

flammable activities	activities that can create sparks or involve naked flames, e.g. welding work or a barbecue area;
large amount of combustible material	e.g. tyre dump, lumber yard, tanks above ground containing flammable gas or liquid (including filling connection), loose containers containing flammable gas or liquid with a total volume more than 600 litres;
difficult-to-evacuate premises	premises from which an evacuation can be expected to take a long time due to the operations on the premises or the type of building;
autoignition temperature (AIT)	the temperature at which a substance can self-ignite in air.

Tanks above ground or loose containers

Table 1 below shows the recommended minimum distance between loose containers or tanks above ground outdoors and their surroundings. Table 1 is intended to be used when the operation lacks the resources to itself calculate appropriate distances. In the first instance, its own risk assessment should be used to determine safe distances on its own site.

There may be situations where conditions deviate from what the tables assume, which may result in other distances. In such a case, the operation's risk assessment in accordance with Section 7 of the LBE shall record those circumstances. The same applies to volumes larger than those indicated in the table. The specified maximum volume refers to the volume of a tank limited by the setting of its overfill protection. The distances are calculated from the jacket surface of the tank. The distances are set based on being able to protect the flammable liquid from a threatening fire in the surroundings and being able to protect the surroundings from a fire in the flammable liquid. Having fire-resistant separation equivalent to EI 60 between the tank and other property listed in the table may result in shorter distances as shown in the table. If the outside of the tank is insulated with at least 50 mm of stone wool, it can be considered protection equivalent to EI 60 for incident thermal radiation. Please note that any opening in an EI-rated

wall/façade can compromise the fire-resistant separation. It is therefore necessary to consider whether the EI separation is sufficient with respect to wall/façade openings such as windows, doors or ventilation openings.

The distances in the table have been developed using Drivkraft Sverige's calculation program for fire spreading risks in depot operations, with some adaptations to provide a sufficient safety margin, including in applications other than those for which it was originally intended. It is therefore likely that a self-calculation using the same software may give slightly shorter distances than those indicated in the table. It is therefore possible to achieve other distances through an own assessment, if the operation, with access to the program or other comparable scientific calculation bases, can calculate/simulate the outcome of a fire. The calculation program has the thermal ignition temperature of the stored substance/product as a critical parameter. The autoignition temperature (AIT) will be the first limiting parameter in the event of an imminent fire from the surroundings, i.e. the jacket surface on the inside of the tank is heated to such a high temperature that self-ignition can occur.

Plastic tanks and piping above ground have limited or no fire resistance of their own and shall therefore be protected against external fire influences[4]. Protection against external fire influences can be at least EI 30 separation around the tank or that the tank is in an at least EI 30-spearated room. If the tank or piping contains flammable liquid with a flashpoint of 30˚C or less, fire-resistance separation equivalent to EI 60 shall be used. For plastic tanks above ground, the primary risk is not that of reaching the thermal ignition temperature in the jacket surface, but that the mechanical and strength properties of the plastic are affected by the thermal radiation such that the product can leak out. With EI 60 separation, the distances given in the table can be reduced by half, for EI 30 separation the distances are not reduced at all.

[4] MSBFS 2018:3, Chapter 2 Section 24.

Table 1. Minimum distance in metres when positioning loose containers or tanks above ground outdoors (whether in own operation or in relation to other operations)

Distance in metres between		Building made of non-combustible material, without openings	Building made of combustible material or large amount of combustible material [c]	Flammable activities	Parked vehicles (passenger cars/heavy goods vehicles)	Escape route from difficult-to-evacuate premises
Steel tanks	$V^a \leq 10\ m^3$, $TTP^a < 300^\circ C$	--[d]	20[b]	25[b]	6/8[b]	50[b]
	$10\ m^3 < V^a \leq 100\ m^3$, $TTP^a < 300^\circ C$	--[d]	18[b]	25[b]	6/8[b]	100[b]
	$V^a \leq 10\ m^3$, $TTP^a \geq 300^\circ C$	--[d]	15[b]	20[b]	6/8[b]	50[b]
	$10\ m^3 < V^a \leq 100\ m^3$, $TTP^a \geq 300^\circ C$	--[d]	15[b]	20[b]	6/8[b]	100[b]
	Plastic tanks	--[d]	35[b]	35[b]	10/15*	100[b]
	Filling connection for tanker vehicle	5	25	25	6/8	50
	Loose containers $500\ l < VS^a \leq 4000\ l$	0	15[b]	20[b]	6/8[b]	50[b]
	Loose containers, $4000\ l < VS^a \leq 10\ 000\ l$	3	18[b]	25[b]	6/8[b]	100[b]

a) V is the volume of the tank, VS is the total volume of the loose containers, TTP is the thermal ignition temperature of the liquid.
b) With fire-resistant separation equivalent to EI 60 or higher, the distance can be reduced by half.
c) The tank above ground is not included. For distances between tanks see Table 2.
d) Minimum distance based on the need for controllability (MSBFS 2018:3) and maintenance needs and safety aspects based on risk assessment.

Table 2 shows the minimum recommended distance between tanks containing different types of flammable liquids. Table 2 is intended to be used when the operation lacks the resources to itself calculate appropriate distances. In the first instance, its own risk assessment should be used to determine safe distances on its own site.

Table 2 must be read twice to determine the necessary distance between two tanks with different contents. The first time with one tank considered to be the threat and the other being threatened. Then a second time the opposite way around. The reading of the table that gives the longest distance shall then determine the position. Please note that this table only provides advice for tanks greater than 20 m^3 containing diesel, diesel substitute fuels, petrol and ethanol (pure substance). For other liquids and smaller volumes, own calculations must be used as the basis for the necessary distances.

Table 2. Minimum distance in metres between tanks above ground

Distance in metres between tanks			Threatening tanks containing		
			Diesel [b]	Petrol [b]	Ethanol
Threatened tanks	Steel tanks	20 m^3 < V[a] ≤ 300 m^3, TTP[a] < 300˚C	25 [c]	25 [c]	30 [c]
		20 m^3 < V[a] ≤ 300 m^3, TTP[a] ≥ 300 ˚C	20 [c]	20 [c]	30 [c]
		Plastic tanks	35	35	35

a) V is the volume of the tank, TTP is the thermal ignition temperature of the liquid.
b) Or equivalent fuel type of renewable origin.
c) With fire-resistant separation equivalent to EI 60 or higher, the distance can be reduced by half.

If the tanks are in a group of up to and including four tanks containing only diesel or diesel substitute fuel and there is no risk of an external fire influence from anything other than the tanks within 30 metres, the distance may be reduced to the distance necessary for the accredited checking, inspection and maintenance of the tanks. This is based on the assumption that a fire occurring in a tank containing diesel is usually considered relatively unlikely.

Annex 2

Prohibition and warning signs

Prohibition on smoking and naked flames

The sign must be designed in accordance with Section 3.1 of Annex 2 to the Swedish Work Environment Authority's regulations (AFS 2020:1) on signs and signals.

Warning for flammable goods

The sign shall be designed as hazard pictogram GHS02 in accordance with Regulation (EC) No 1272/2008 of the European Parliament and of the Council (the CLP Regulation)[5].

[5] Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (the CLP Regulation).

Ordering address:
Norstedts Juridik, 106 47 Stockholm
Tel.: +46 (0)8-598 191 90
E-mail: kundservice@nj.se
Website: www.nj.se/offentligapublikationer