SIA Solvents Industry Association

CHEMICAL SOLUTIONS, COMMON RESPONSIBILITY

Guidance Notes

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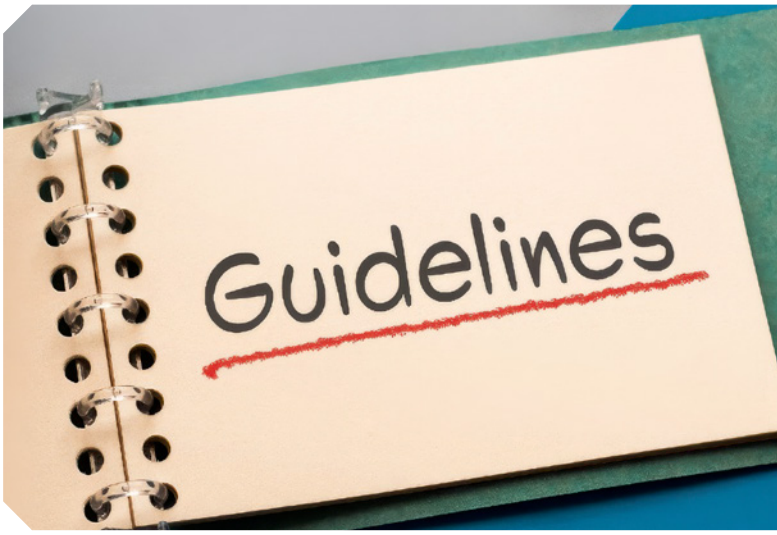
Contents

SIA Resource Centre



The Solvents Industry Association has produced a large number of Guidance Notes and Safety Films to assist those handling solvents and flammable liquids in their safe, responsible and sustainable use. These are contained within the Resource Centre on the SIA website, which also contains a range of relevant information produced by regulators and our industry partners. This includes our colleagues in the European Solvents Industry Group (ESIG): http://www.esig.org/category/publications/

Guidance for the storage of liquids in intermediate bulk containers

This guidance provides information on the hazards associated with the storage of liquids in Intermediate Bulk Containers (IBCs). It sets out practical measures on the design, construction, operation and maintenance of storage areas and buildings used for storing packaged liquids. These measures are designed to protect people at work and others who may be affected by the storage of packaged liquids.

The guidance is aimed at those directly responsible for the safe storage of such IBCs in all general work activities and has intentionally been limited to the UK land-based storage of liquids in IBCs. This guidance is not intended to cover in detail the hazards associated with filling and emptying IBCs, though some of those hazards are mentioned. This is covered by other SIA guidance documents.

Organisations, safety specialists and trade organisations may wish to use this guidance as a basis for more specific advice or training for their staff, clients and members. It also signposts to other guidance documents such as British Standards.

The objectives of this guidance are to:

- Increase the awareness of the dangers associated with the storage of packaged liquids; and especially in IBCs
- Help in the assessment and reduction of the risks associated with the storage of packaged liquids in IBCs
- Advise on safe management procedures and precautions to reduce injuries and damage caused by incidents involving the storage of packaged liquids. Health is also important, but it is not addressed specifically in this document
- Give guidance on the appropriate standards for the design and construction of storage areas and buildings used for storing packaged liquids at ambient temperature and pressure
- Advise on the need for appropriate precautions, maintenance, training and good housekeeping where packaged liquids are stored.

Find the Guidance note here: https://www.solvents.org.uk/sia-guidance-notes/

Guidance Note 65: Safe Handling and Use of Alcohol-based Sanitisers

The outbreak of the COVID-19 virus in 2019 saw an increase in the number of companies entering the market to supply hand sanitisers to meet the hygiene demands of consumers and healthcare professionals. These products can contain ethanol, isopropanol or n-propanol, which are flammable liquids and should be manufactured using suitable approved packaging, Personal Protective Equipment (PPE) and have earthing procedures in place to prevent static discharge during handling.

This Guidance Note will highlight the legal and safety requirements for companies to produce and distribute these products. These include:

- Safe manufacturing processes and procedures to adhere to
- Appropriate packaging
- Transport and labelling requirements
- Regulatory requirements and links to relevant external guidance
- UK Customs requirements
- Advice for end-users and members of the public

Find the Guidance note here: https://www.solvents.org.uk/sia-guidance-notes/

Guidance Note 64: Safe Sampling of Solvents

Many solvents are hazardous or can have harmful effects, so care must be taken in obtaining representative samples of solvents from vehicles, fixed storage tanks or during manufacturing processes.

The different methods of sampling covered in this Guidance Note will be:

1. From a road tanker
2. From a storage tank
3. Batch sampling (from a filling line or filled container).

Find the Guidance note here:
https://www.solvents.org.uk/sia-guidance-notes/

Guidance Note 63: Local Exhaust Ventilation (LEV) Procedures for Handling Solvents and Flammable Liquids

The Solvents Industry Association has issued this Guidance Note to outline some of the factors to be considered when selecting and operating Local Exhaust Ventilation (LEV) when handling solvents. This is not intended to be an alternative guide to the HSE Guidance HSG 258 (Controlling airborne contaminants at work) and is written in order to provide some additional information on mechanical ventilation selection and use.

Many solvents are flammable or highly flammable and one of the hazards when handling solvents is the possibility of a fire or explosion due to the ignition of a flammable atmosphere initiated by the release of a spark. This includes flammable solvents extracted via the LEV system. Selecting the appropriate vapour extraction system to reduce workplace emissions to below the LEL (Lower Explosion Level) should be carried out as part of a DSEAR Risk Assessment to identify zoned areas where an ignition source has the potential to ignite flammable vapours.

Solvent emissions are subject to controls under the UK's Environmental Permitting Regulations which encompass the Integrated Pollution Prevention and Control rules covering certain industrial activities and processes with regards to the EU Industrial Emissions Directive.

This Guidance Note is not intended to include specific regulations covering solvent emissions to the environment that are managed in the UK by the Environment Agency, Scottish Environmental Protection Agency, Natural Resources Wales and the Northern Ireland Environment Agency.

Information on processes subject to environmental regulation can be found on the relevant environmental agency websites detailed at the end of this Guidance Note.

Find the Guidance note here: https://www.solvents.org.uk/sia-guidance-notes/

Guidance Note 62: PPE Selection for Working in Flammable Areas

The Solvents Industry Association has issued this Guidance Note to outline some of the factors to be considered when selecting Personal Protective Equipment to be worn when working in environments that could contain a flammable atmosphere. This is not an alternative method for determining the PPE that should be worn in zoned areas, but is intended to provide some additional information on PPE selection criteria following a full risk assessment as required under DSEAR (Dangerous Substances and Explosive Atmospheres Regulations).

This Guidance Note details some of the considerations required when selecting PPE for use in areas that may have a flammable atmosphere. Further information may be obtained from the SIA's film 'Solvents and Static Electricity', and Guidance Note No 47 'Flammable Solvents and the Hazard of Static Electricity'. Both are available for download via the website www.solvents.org.uk.

Find the Guidance note here: https://www.solvents.org.uk/sia-guidance-notes/

Guidance Note 61: Handling of Solvents in Small Packages

The supply, handling and storage of small quantities of solvents requires and assessment of the hazards of the substance (classification) and this is reflected in the labelling and safety documentation - usually the safety data sheet or SDS.

The choice of packaging is dictated by the properties and hazards of the solvents.

Chemical labelling and the SDS are key to carrying out a risk assessment of potential exposure and establishing appropriate control measures. The same process is needed for smaller packages as for larger quantities of product, where the hazards are the same but the risks may be different.

This SIA Guidance Note acts as a signpost document to be used as a reference, to direct users to more detailed existing information and guidance, available via alternative documentation and web pages.

Find the Guidance note here: https://www.solvents.org.uk/sia-guidance-notes/

Guidance Note 60: Safe Handling of Flexible Hoses and Connections in the Solvents Industry

The Solvents Industry Association has issued this Guidance Note because of the specific risks when using connection hoses to transfer solvents and therefore covering the maintenance involved in the hoses and flexible connections. This Guidance Note is limited to scenarios associated with the maintenance of connection hoses used with solvents. It is widely recognised that connection hose assemblies should only be used in hazardous duties where permanent piped solutions are not suitable, or do not offer a safer alternative solution.

It remains the case that connection hoses are used in a number of different operations within the solvent industry, most commonly in the transfer of solvent to or from bulk vehicles, transfer of solvents around storage tanks, closed loop systems for liquid or vapour, or transfer of solvents to or from packs (drums, IBCs, etc.). The major hazard involved with the transfer of solvents through a connection hose is the build up of static electricity due to a charge separation with potential of discharge resulting in fire and subsequent loss of containment.

In addition to this Guidance Note, the SIA have produced the film, 'Solvents and Static Electricity' and the Guidance Note, 'Flammable Solvents and the Hazard of Static Electricity'. Both are available for download via the website www.solvents.org.uk.

There is no one specific regulation controlling maintenance of connection hoses, however a list of associated regulations, standards and guidance is given in the references. This Guidance Note does not replace these legal documents, but highlights the specific risks associated with solvents.

Find the Guidance note here: https://www.solvents.org.uk/sia-guidance-notes/

Guidance Note 58: Hot Work

TThe Solvents Industry Association has made the decision to issue this Guidance Note due to the specific risks involved in carrying out 'hot work' in an area that may use, store or contain solvents. This Guidance Note is limited to scenarios associated with the storage and use of solvents.

There is no legal definition for hot work; however HSE guidance states it 'is usually taken to apply to an operation that could include the application of heat or ignition sources to tanks, vessels, pipelines etc. which may contain or have contained flammable vapour, or in areas where flammable atmospheres may be present'. It is generally understood as any non-routine (i.e. maintenance) work that has the potential to cause ignition (e.g. by generating a spark such as cutting or grinding); or if work involves the use of a naked flame such as welding or cutting; or for the use of any electrical equipment which is not intrinsically safe or of a suitably protected type within a DSEAR zoned area. .

There are also no specific regulations controlling hot work, however a list of associated regulations and guidance is given in the references. This Guidance Note does not replace these legal documents, however it is designed to highlight the specific risks associated with solvents.

Find the Guidance note here:
https://www.solvents.org.uk/sia-guidance-notes/

Guidance Note 57: Confined Space Entry

The Solvents Industry Association has issued this Guidance Note because of the specific risks involved with entry into a confined space that has contained solvents. A confined space is defined as a place which is substantially enclosed (though not always entirely), and there will be a reasonably foreseeable risk of serious injury from hazardous substances or conditions within the space or nearby (e.g. lack of oxygen). The confined space could be, for example, any chamber, tank, vat, silo, pit, trench, pipe, sewer, flue, well, duct, manhole, excavation, sump.

This Guidance Note is limited to scenarios associated with the storage and use of solvents in confined spaces.

The regulations controlling the entry into confined spaces are 'The Confined Space Regulations 1997' and the Health & Safety Executive (HSE) has issued an Approved Code of Practice and detailed guidance in 'Safe Work in Confined Spaces, L101'. This Guidance Note does not replace these legal documents; however highlights the specific risks associated with solvents.

Find the Guidance note here: https://www.solvents.org.uk/sia-guidance-notes/

Guidance Note 56: Determining the Correct Ullage for Packages Containing Flammable Solvents

Solvents are distributed in a variety of packages, designed for transportation and to be strong enough to withstand the shocks and loadings normally encountered during carriage, including trans-shipment between transport units, warehouses etc.

The design specification for packaging and the tests needed to undergo approval are included in UN Manual of Tests and Criteria and implemented via modal transport of dangerous goods regulations, including ADR. This is the European Agreement concerning the International Carriage of Dangerous Goods by Road.

It a requirement in these regulations to ensure sufficient ullage is left in the packaging after completion of the filling process. Special consideration is given to low boiling point liquids where the cubic expansion of the liquid as a result of a rise in temperature can lead to distortion of the package and leaks. Selecting the correct percentage of fill to achieve the necessary ullage will prevent the unintentional release of a dangerous substance that could occur as a result of over pressure.

Find the Guidance note here:
https://www.solvents.org.uk/sia-guidance-notes/

Guidance Note 55: Overview of the Classification, Labelling & Packaging (CLP) System with respect to the Globally Harmonised System (GHS)

The products sold by member companies of the SIA are, in the main, hydrocarbons and oxy-hydrocarbons. Many of them are classified as flammable liquids. They may also have health hazards such as skin or eye irritation, acute or chronic toxicity, respiratory or skin sensitisation and aspiration hazard. Or they may also be environmentally hazardous.

Hazards of chemicals are established using the classification criteria laid down in the Globally Harmonised System (GHS), which is implemented in Europe via the Classification, Labelling & Packaging (CLP) Regulations. The UK now has its own version of CLP.

This guide provides an over-view of classification as described in detail in Annex I of the CLP regulations.

Find the Guidance note here: https://www.solvents.org.uk/sia-guidance-notes/

Guidance Note 53: Denatured Alcohols

This Guidance Note describes the various types of denatured alcohols and the regime under which they can be supplied. Denatured alcohol is defined as dutiable ethanol, which has been rendered unfit for human consumption by the addition of legally defined denaturants in proportions laid down in The Denatured Alcohols Regulations 2005 (as amended).

The Guidance Note provides an overview of the approved used of denatured alcohols. Further guidance is also available from HMRC.

Find the Guidance note here:
https://www.solvents.org.uk/sia-guidance-notes/

Guidance Note 52: Assessment of Customer Bulk Facilities

Delivering bulk volumes of solvents to a customer can present safety challenges due to the lack of familiarity with the receiving site, its layout, facilities and equipment. The safety management system and the culture that may also be different to those we already know.

Potential hazards that may be encountered when transferring solvents include the risk of fire / explosion and unintentional releases of substances classified as toxic to the aquatic environment, which may enter drains or foul sewer or otherwater courses.

It is therefore important that both supplier and customer are aligned and cooperate where possible in understanding and managing the risks. This Guidance Note covers transfers of solvents from road tanker or isotank to fixed bulk storage tanks. It is not intended for other types of transfer.

This Guidance Note is for the inspection of customer bulk receiving facilities for oxygenated and hydrocarbon solvents delivered by road tanker. It does not replace CEFIC's SULID (Site (Un)Loading Information Document) but is intended to be used in conjunction as an aide-memoire when carrying out an inspection of a customer's site. The aim is to reduce the risk of an incident during the delivery, and in particular to ensure the safety of the delivery driver whilst present at the customer's site. It is important to undertake this assessment with care, due to the variation in both customer facilities and bulk tanker design.

Find the Guidance note here: https://www.solvents.org.uk/sia-guidance-notes/

Guidance Note 51: Selection of IBCs for Handling Hydrocarbon and Oxygenated Solvents

An 'Intermediate Bulk Container' (IBC) is a container used for transport and storage of fluids and bulk materials. IBCs have become widely used in the solvents industry as they can transport and store a larger volume of material than cylindrically shaped containers in the same surface area. As the number of containers can be reduced with the use of IBCs, this in turn reduces manual handling, and they are also more resistant to weathering.

The Solvents Industry Association (SIA) has compiled this overview of the use of IBCs to increase awareness among solvent users and to promote best practice in the solvent supply chain.

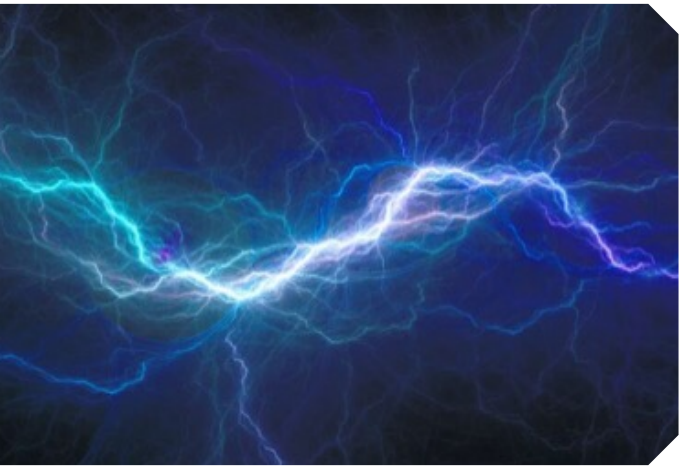
It covers the criteria for the use of IBCs for filling, storing and transportation of both oxygenated and hydrocarbon solvents. Not all solvents can be used safely with every type of IBC and so it is important to take care when selecting the right IBC to use with a particular solvent. IBCs have also been involved in some recent incidents, such as stacks collapsing, the ignition of contents due to static electricity and leakage leading to serious fires or risks to the environment.

This guidance should not be used in isolation and reference should be made to other Standards and Codes of Practice. In devising its methodology for the safe selection of IBCs, the SIA has sourced the classification of solvents into conductive / semi-conductive / non-conductive from existing Codes of Practice, but as their recommendations with respect to the selection of IBCs for low-flash solvents are not universally agreed, the SIA has based its recommendations on the experience of the Solvents Industry in the UK environment.

Find the Guidance note here: https://www.solvents.org.uk/sia-guidance-notes/

Guidance Note 47: Flammable Solvents & the Hazard of Static Electricity

Most organic solvents are generally combustible under the right conditions. Exceptions include those that are heavily halogenated. There are certain criteria that have to be met before ignition will occur.



1. For a vapour ignition, the air and vapour must be present within certain concentrations and an ignition source present.
2. For a liquid fire sufficient air and high enough temperature have to be present to ignite the liquid. The temperature may be from the ignition source such as a static spark or from the liquid itself being above its auto-ignition temperature.

An explosion can occur when vapour is present within the explosive limit range for the solvent at or above the flash point and an ignition source is introduced to the vapour/air mixture.

One such ignition source can be a spark produced from the build up of static electricity by the pumping of materials or by any other means of motion.

These hazards and measures to prevent the build-up of static electricity are discussed within this important Guidance Note.

There is also an updated training video on static electricity available on the SIA website.

Find the Guidance note here: https://www.solvents.org.uk/sia-guidance-notes/

Guidance Note 43: Portable Tanks Used for Storage of Flammable Solvents

The Solvents Industry Association has issued this Guidance Note because the use of Portable Tanks for the temporary or permanent storage of flammable solvents. Such use inherently changes the original purpose of the Portable Tank and so further consideration of safety, health and environmental concerns should be taken. For the purpose of this Guidance Note a Portable Tank is a Road Tanker or Tank Container rather than an IBC or a drum.

There is very little Guidance to the use of Portable Tanks in the public domain and this Guidance Note was intended to address this and to help assess the risks of carrying out this operation. There have been a number of incidents concerning the use of Portable Tanks and so it important that the risks are understand and an effective risk assessment is carried out beforehand.

Find the Guidance note here:
https://www.solvents.org.uk/sia-guidance-notes/

Guidance Note 27: Vapour Return on Road Tankers

The advent of the Solvents Directive, LAPC and IPPC led to an increase in local EA inspectors demanding that road tankers have vapour return as part of a site's VOC reduction strategy. In this guidance note the SIA lays out its position on vapour return for road-tankers for most VOCs

The amount of vapour lost from storage tanks due to breathing is far in excess of the vapour lost on average due to a delivery. The amount of vapour lost will depend on the vapour pressure of the solvent, any agitation (e.g. mixing) and frequency of filling and emptying.

The SIA therefore recommends the use of vapour return on tankers.

The Guidance Note also lists some site specific options which should be considered as possible alternatives to vapour return on vehicles.

Find the Guidance note here: https://www.solvents.org.uk/sia-guidance-notes/

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If you would like to become a member, or would like to learn more about the Association, contact Bill Atkinson, Chief Executive for more details:

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