

Operating hazardous materials stores safely

Challenges and obligations

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Find out about the daily challenges you'll face as the operator* of a hazardous materials store. We'll look at which obligations you must observe and what you must do to ensure that the protective function of your hazardous materials store does not fail, so that no damage, accidents or regulatory offences occur and so that insurance cover is not lost.

As your company's safety officer* we'll make you aware of the possible reasons for failure that can lead to a hazardous materials store no longer being able to fulfil its purpose.

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Introduction

For safety reasons, the storage of hazardous substances is subject to strict regulations and laws. So, the operation of a hazardous materials store entails a number of challenges and obligations. Regular inspection, maintenance and repair form the basis for maintaining the serviceable condition of a hazardous materials store and are required by law. Operators who fail to comply with these obligations sometimes risk heavy fines and, in the event of damage, the loss of insurance cover.

Similar to maintenance of a private home, operators also have to pay attention to certain things that are not directly prescribed by law in order to maintain a hazardous materials store. For example this includes checking the roof drainage, making sure it is not blocked and preventing rain or melt water from entering the store.

Regular lubrication of the pivot points on wing doors is also important, especially for fire-rated doors. If door closing slows down, this can have fatal consequences in the event of fire. Information on these important tasks is usually given in the manufacturer's operating instructions. If a service technician is commissioned to carry out maintenance, these aspects should be included and documented as part of his inspections.

In the following, various routine tasks are described which need to be performed and documented by the operator after commissioning. The planning and construction as well as subsequent modifications of a hazardous materials store are dealt with in separate documents.

This is not legal advice. The specialist information in this document has been compiled to the best of our knowledge and belief without any claim to completeness and is intended to provide a guide to the topic. For specific cases, please contact the appropriate supervisory authority.

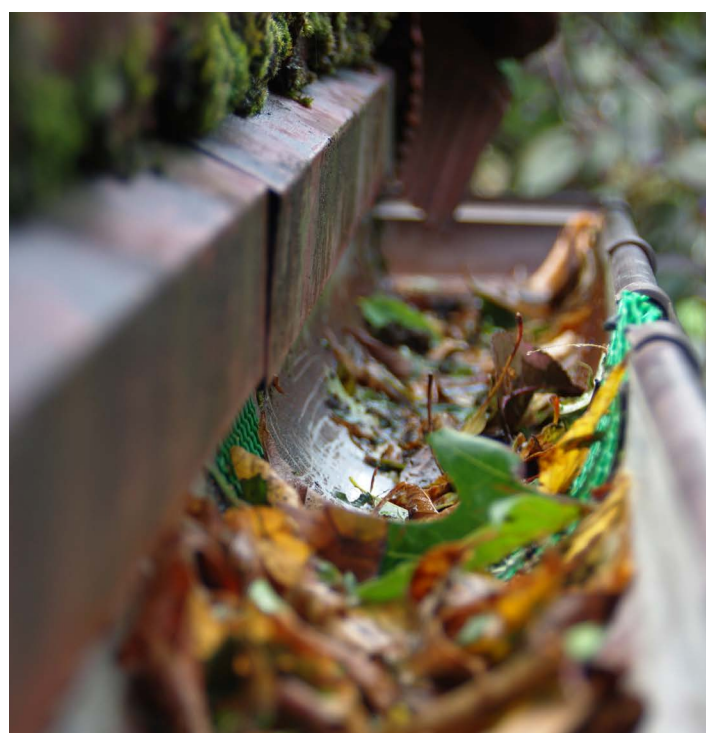
** For reasons of better readability, the simultaneous use of male, female and diverse (m/f/d) forms has been omitted.*

A hazardous materials store that no longer meets its purpose

In the worst-case scenario, a hazardous materials store designed for the storage of water-polluting and flammable liquids is no longer functional in the event of fire or leakage due to lack of inspection and maintenance:

leaves have clogged the roof drainage system and water has got inside the store. The spill pallet is filled to overflowing. One container is damaged and is leaking into the overflowing spill pallet, its contents running out of the door along with the rainwater. The wing door did not close properly after it was last used, as the door lubrication had not been checked for a long time. Inside the hazardous materials store, the operator is using a non-explosion-proof fan heater that he used to have in his office. A short circuit occurs - the catastrophe can no longer be prevented.

Don't turn your hazardous materials store into a ticking time bomb. Follow the instructions in the manufacturer's operating instructions and take your legal obligations as an operator seriously. Environmental violations and personal injury can result in severe penalties and loss of company image.



Seemingly harmless: leaves in the gutter. If, however, the drain is blocked and rainwater penetrates into the hazardous materials store and into the spill pallet, it will no longer be able to hold the legally prescribed containment volume in the event of a leak.

Permanent obligations – for good reason

As the operator, you are responsible for managing, monitoring and maintaining the hazardous material store in such a way that it is in a proper condition and can serve its intended purpose: the safe storage of hazardous substances.

For example, the operator must ensure that

1. National regulations for the storage of hazardous substances as well as for work safety, water and environmental protection are observed;
2. The hazardous materials store is always operated as intended in accordance with the company's safety and fire protection design and that the explosion protection requirements according to Directive 1999/92/EC are observed;
3. Misuse and unauthorised access are prevented;
4. Operating faults and damage are immediately and professionally repaired;
5. Regular inspection intervals are observed and documented.

If there is an operational fault, the operator is always well advised to contact the manufacturer's service department first. A telephone call can often provide important information and help to solve any problems.

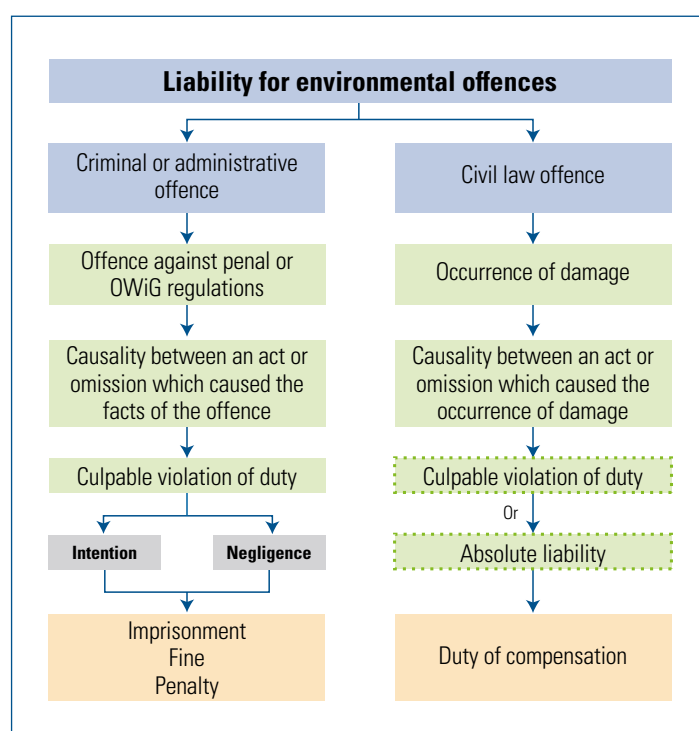


Diagram showing liability in the event of environmental violations

The 6 most important test criteria

Regular inspection of the hazardous materials store is mandatory for good reason. Even a failed fan or a blocked roof drain can have devastating consequences. The following six components of the hazardous materials store should be checked regularly.

1. Spill pallet – keep free from dirt and liquids!

The spill pallet must be kept free of liquids and contamination. To ensure this, a **weekly visual inspection** is required by law. This must be **documented**.

If a **leak** is discovered during the inspection of the spill pallet, you should act immediately and without delay. This is because you are legally obliged to guarantee the required containment volume at all times. If there is already liquid in the spill pallet, the legally-required containment volume is no longer guaranteed.

The hazardous materials store is also designed for a specific storage medium, so that in the event of a leak, the **resistance of the spill pallet** is ensured. Before storing other media, make sure that resistance also applies to these substances. While the surface protection of the spill pallet can be repaired by the operator, repair work may only be carried out by a WHG specialist company.

In the case of **particularly sensitive substances** which, for example, emit hazardous vapours, rapid action is even more important to counteract risks. Emptying of a spill pallet should be approached in the same way as the cleaning up of any other leak. As the operator of a hazardous materials store you should have an **emergency plan** for cleaning up any leaked liquids.

A drain opening for emptying the spill pallet is not legally-compliant! Instead, use a **pump** or a liquid vacuum to take up the spilled liquid (for small amounts of liquid, absorbent materials may be sufficient). Remove as much of the liquid from the spill pallet as possible and then check whether any residue remains. This can be cleaned up with absorbent materials. Afterwards, the spill pallet should be thoroughly decontaminated and cleaned.



Liquid and dirt in the spill pallet: it can't be used like this!

2. Technical ventilation – operates 24/7!

To counteract concentrations of explosive or health-endangering gases during storage of hazardous substances, hazardous material stores are equipped with **natural or technical ventilation**. The ventilation must be permanently active and must not be covered, blocked or switched off. An **odour nuisance** can be a fairly harmless consequence. Air contaminated with **health-endangering or explosive gases** represents a high safety risk and must be replaced according to a **legally prescribed air exchange rate** (see TRGS 510 Appendix 5).

The combination of technical ventilation with a **gas warning device** cannot be implemented for every substance and must be checked beforehand.

Air extraction monitoring must be provided from an air exchange rate of 2-times upwards. This can also be retrofitted. Technical ventilation and air extraction monitoring are subject to an **annual inspection requirement**. Ex-fans must be replaced approx. every 3-5 years or after 20-40 thousand hours in accordance with the manufacturer's operating instructions or if an assessment shows that heat or noise has become perceptible.



3. Door(s) – ensure sufficient lubrication!

The pivot point of the door(s) must be greased regularly! Otherwise, there is a risk that the door will no longer close properly within a legally prescribed time window. This is particularly critical in the case of F 90 doors: if the proper door closing process fails, the hazardous materials store cannot withstand a fire.



4. Fire protection flaps – regular operation prevents them getting stuck!

Operate the fire protection flaps manually at least once a month. Otherwise there is a risk that the spring will rust. The flap can then no longer close - with fatal consequences in the event of a fire.



5. Electrical components – eliminate faults immediately!

Before delivery, the manufacturer checks all electrical components of the hazardous materials store. Supply cables and connections must be provided by the customer. In accordance with DGUV V3/BetrSichV/ VDE, the entire electrical system must then be inspected by an electrical specialist at regular three year intervals.



6. Roof drainage – ensure rainwater drainage!

For outdoor installation, the gutters must be kept free of leaves, dirt, snow and ice. If the rainwater can no longer run away in a controlled manner, there is a risk of water penetrating the hazardous materials store. This can lead to considerable damage to the hazardous materials store and render the spill pallet unusable.



Test institutes specifically advise the operator that an annual inspection of spill pallets, ventilation equipment, fire barriers etc should be carried out annually by the manufacturer. Also take note of the relevant sections in your DIBt General Technical Approval. Contact your manufacturer or service technician to obtain an inspection and maintenance plan.

Health and Safety at Work Act 1974

General duties of employers to their employees

(1) It shall be the duty of every employer to ensure, so far as is reasonably practicable, the health, safety and welfare at work of all employees.

(2) Without prejudice to the generality of an employer's duty under the preceding subsection, the matters to which that duty extends include in particular—

(a) The provision and maintenance of plant and systems of work that are, so far as is reasonably practicable, safe and without risks to health.

Care of Substance Hazardous to Health Regulations 2002 - COSHH

Regulation 9 states that in the case of plant and equipment, including engineering controls and PPE that it is maintained in an efficient state, in efficient working order, good repair and in a clean condition. In the case of the provision of systems of work and supervision and of any other measure, it is reviewed at suitable intervals and revised if necessary.

In addition, employers must ensure that whoever carries out maintenance examinations and tests are competent to do so. People carrying out examinations and test on control measures of which safety cabinets are, must have adequate knowledge, training and expertise in methods and techniques.

Dangerous Substances and Explosive Atmospheres Regulations 2002 - DSEAR

DSEAR refers to maintenance throughout the regulations. The employer, having carried out all the required assessment and subsequent implementation work, should continue to ensure that the control measures they have created are maintained both in terms of hardware (plant etc) and software.

The workplace, including the location of equipment, should be designed, constructed and maintained to prevent releases of dangerous substances accumulating in sufficient quantity that ignition could result in a fire and/ or explosion or 'other events' that may lead to injury.

The Provision and Use of Work Equipment Regulations 1998 - PUWER

Puwer requires that equipment provided for use at work is safe for use, maintained in a safe condition and inspected.

In order to ensure work equipment does not deteriorate to the extent that it may put people at risk, employers, the relevant self-employed and others in control of work equipment are required by PUWER to keep it maintained in an efficient state, in efficient order and in good repair'.

The frequency and nature of maintenance should be determined through risk assessment, taking full account of

- the manufacturer's recommendations
- the intensity of use
- operating environment (such as the effect of temperature, corrosion, and weathering)
- user knowledge and experience
- the risk to health and safety from any foreseeable failure or malfunction

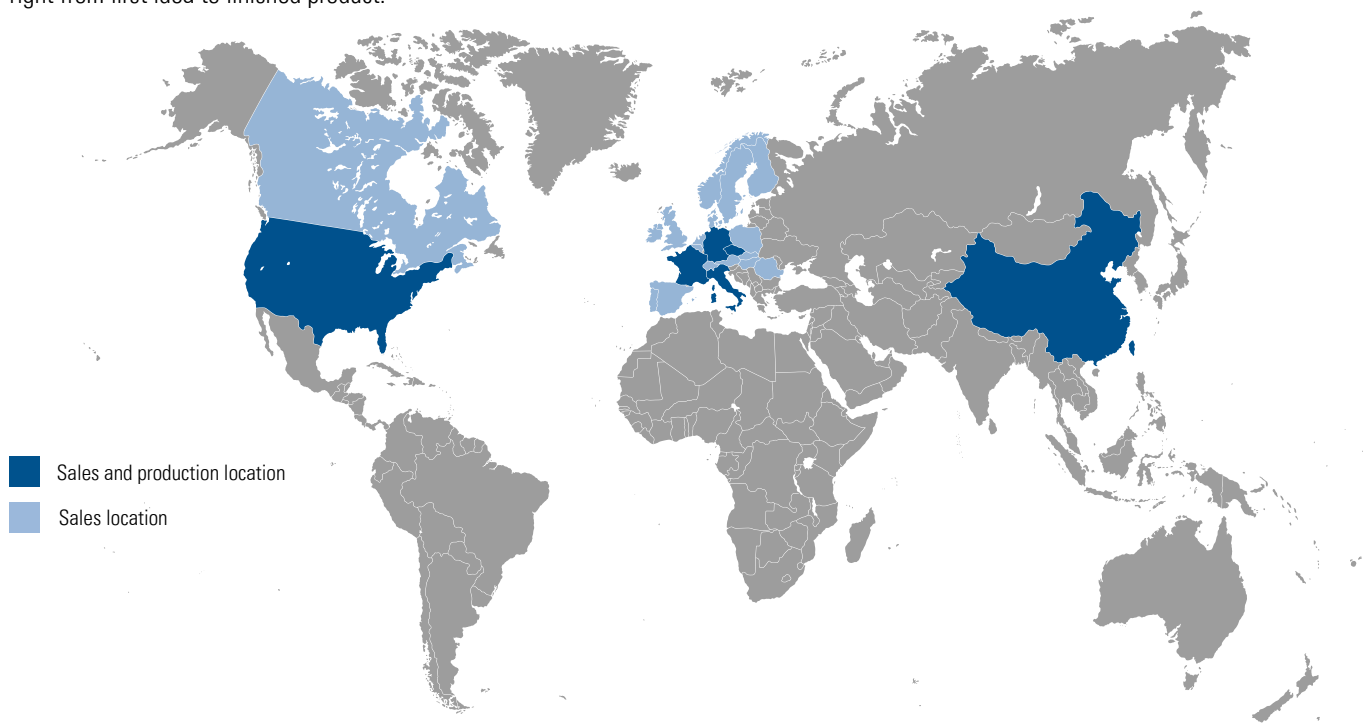
Maintenance on a less frequent basis than the manufacturer's recommendation should be subject to careful risk assessment and the reasons for doing so should be reviewed at appropriate intervals.

Maintenance work should only be undertaken by those who are competent to do the work. With high-risk or complex equipment, these demands may be significant and, in some cases, may be best undertaken by the manufacturer or specialist contractors.

There is no requirement for you to keep a maintenance log, although it is recommended for high-risk equipment. Maintenance logs can provide useful information for the future planning of maintenance, as well as informing maintenance personnel of previous action taken. However, if you have a maintenance log, you must keep it up to date.

We are your international partner.

Our competence as a manufacturer is valued worldwide. DENIOS AG is represented at 25 sales locations and six production sites. And we speak 23 languages in our online shop. We are your global partner and problem solver, we understand your local legislation and we'll support your project right from first idea to finished product.



DENIOS AG, based in Bad Oeynhausen, Germany, has been a developer and manufacturer of products and solutions for the safe storage and handling of hazardous materials and work safety for more than 30 years.

Intensive and customer-oriented advice and training on all aspects of legally-compliant storage and handling of hazardous substances play a central role: on the one hand, because regulations and guidelines are constantly changing and the successful and smooth planning and development of a hazardous materials store can only be ensured if the local legislation to be observed is taken into account from the outset. On the other hand, the operator must ensure and document that all regulations are complied with during commissioning.

As maintenance and servicing may only be carried out by certified and approved service personnel, DENIOS invests in the ongoing training and further education of its employees, thus ensuring a professional and legally compliant service offering.

Advice from DENIOS. Professional and individual.

Are you unsure whether you are meeting the operator obligations? Do you know whether your hazardous materials store complies with current legislation, would pass an official inspection or if the insurance cover still exists? We are here for you and can always carry out an on-site review. Just get in touch!



Service from DENIOS. For safety and maintaining value.

When it comes to the storage of hazardous substances, as a customer you need to feel fully protected. Only regular maintenance and repairs by the manufacturer guarantee the retained value of your product and therefore the safety and protection of your employees and the environment. Our experienced professionals are always available whenever you need them.

