RHENUS LOGISTICS

RHENUS WAREHOUSING

WORKING IN A DANGEROUS GOODS WAREHOUSE

whitepaper

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INTRODUCTION

Dangerous goods are essential as raw or auxiliary materials in many areas of daily life – whether for tradespeople or in industry. However, they can damage people, animals and the environment because of their chemical or physical properties – for example, because they are easily flammable, support combustion, are poisonous or pose a threat to water supplies. These risks related to health and safety make it difficult to handle them. The complexity of storing dangerous goods increases with each additional industrial material and product. As a result, this sector is subject to countless legal provisions and it is essential that warehouse operators comply with them.

The logistics framework should also take into account safety and environmental regulations to enable storage that both complies with the law and is efficient. An experienced logistics specialist makes use of tried and tested procedures and processes for this purpose. In addition to having extensive expertise, a reliable quality and certification management system guarantees health and safety at work.

Various laws, safety regulations and measures form the basis for safety. However, staying on top of things as a chemical company is anything but easy. The following guidelines should help provide an overview of the most important directives in summarised form.

GENERAL INFORMATION

There is absolutely no doubt that the topics of safety and expertise in the field of warehouse logistics play a special role for the chemical sector. This affects all important aspects – whether legal, structural, safety-related or organisational – for planning and operating a warehouse for dangerous substances. Any disregard for or improper handling of dangerous substances may lead to the following reactions, to name just a few:

- fire, explosion, the formation of poisonous gases and vapours
- contamination of soil, groundwater and surface water through polluted fire-extinguishing water,
- the release of poisonous substances or those that pose a threat to the environment.

REQUIREMENTS FOR DANGEROUS GOODS WAREHOUSES

The “Storing Dangerous Goods Safely” specialist information leaflet produced by the German Administrative Employers’ Liability Insurance Association provides information about the equipment for warehouses and the structural and technical requirements. It states, for example, that dangerous goods warehouses must comply with the building regulations in the federal state in question. There is general agreement that:

- storing dangerous substances on staircases, in hallways or in passageways is not allowed,
- the flooring of the storage area must be impervious for the goods being stored,
- the warehouse must have adequate lighting,
- any dangerous substances that are released – for example, during filling work – must be completely captured at the point where they occur by using appropriate extraction systems,
- warehouse facilities must be statically robust and stable; the goods being stored must be secured so that they do not fall out or fall down. Breakable containers must be stacked in such a way that they cannot fall out of the shelf spaces. Storing them on high shelves or shelves is permissible, if these comply with the technical standards,
- when operating a warehouse with industrial trucks, the corners of the warehouse shelves must be equipped with impact protection.

CATEGORIES OF DANGEROUS GOODS

In general terms, dangerous substances can be subdivided into three categories:

- Chemical/physical risks
- Health risks
- Environmental risks

Each category can be specified in greater detail with other dangerous goods classes:

for example, explosives, aerosols, flammable liquids and substances that automatically generate heat are included in the category of chemical/physical risks. They differ when it comes to what is needed to store them – and this also depends on the quantity being stored and the size of the containers used for the dangerous substance. When storing any flammable liquids, for example, it is essential to have an effective fire-fighting system as well as a gas warning unit and “emergency ventilation” to ensure protection against fires and explosions. Toxic substances are assigned to the “health risks” category and may only be stored under lock and key and access may only be given to expert personnel. Any substances that pose a risk to water supplies are just one example of the third category. A major priority here is to hold back the product and the fire-extinguishing water so that the environment is protected from dangerous substances, even if a disaster or an emergency takes place.

STATUTORY REGULATIONS

Very different systems are used around the world to categorise and identify chemicals. It is possible that a substance or mixture of substances is classified as dangerous in one country, but not in another one. There are generally three different sets of rules, which any operator of a hazardous goods warehouse needs to know about:

- Worldwide: GHS (Globally Harmonised System)
- Europe: CLP Regulation (Classification, Labelling and Packaging of Chemicals)
- Germany: GefStoffV (the Hazardous Substances Ordinance)

GHS (GLOBALLY HARMONISED SYSTEM)

Given the countless differences that exist, the GHS acts as a collection of rules or an attempt to establish a unified system around the globe to provide criteria to classify and identify chemicals. They must always be classified and identified before they are placed on the market. The aim is to protect people and the environment from risks and negative effects when dealing with chemicals by identifying dangerous substance properties and labelling them with hazard symbols. Whatever is poisonous or is dangerous to the environment, for example, has the same symbol wherever the GHS is used.

CLP (CLASSIFICATION, LABELLING AND PACKAGING OF CHEMICALS)

Based on the GHS, the CLP has been the only valid legislation for classifying, labelling and packaging substances and mixtures within the EU since 1 June 2015. The CLP Regulation is legally binding in all member states and is directly applicable to all branches of business. It is mandatory for manufacturers, importers and users further downstream. The goal is to provide a high level of protection for people's health and for the environment and guarantee the free movement of substances, mixtures and products.

If a substance or mixture meets the classification criteria (risks, prevention, countermeasures, storage and disposal), it is assigned to a particular hazard class and category. They refer to physical, health and environmental hazards as well as additional risks that must be communicated to those involved in the supply chain, including consumers. This works, for example, by using identification labels and safety data sheets. This information also needs to be made available to the European Chemicals Agency (ECHA) at least one month after the substance has been placed on the market – and for each legally independent company unit, regardless of any announcements already made by parent or affiliated companies.

THE GERMAN HAZARDOUS SUBSTANCES ORDINANCE (GEFAHRSTOFFVERORDNUNG)

The ordinance for protection against hazardous substances extensively regulates the protective measures for employees who work with hazardous goods. It is geared towards the German TRGS (Technical Rules for Hazardous Substances). They reflect the current state of safety-related, occupational medical, hygiene and occupational requirements for dangerous substances with regard to placing them on the market and handling them. They do not have to be implemented, but make it possible to deal with regulations and standards in the best possible way – always bearing in mind the relevant company or area of responsibility. A risk assessment forms the basis for individual measures or activities in line with the TRGS.

These criteria must be met when classifying items in the hazardous goods register of the German Hazardous Substances Ordinance:

- A clear description of the dangerous substance or the article
- Assignment to a safety data sheet must be possible
- Details about the manufacturer or distributing company, normally the publisher of the safety data sheet
- A clear name/clear identification of the associated safety data sheet
- Categorising the dangerous substance or providing details about its hazardous properties, e.g. by using pictograms and signal words
- Details about the volumes used within the company
- A description of the work areas where employees may be exposed to the dangerous substance

There are nine different hazard pictograms that can be registered, for example, using their description (e.g. “flame”, “fish and tree”) or their coding (GHS01 – GHS09). Signal words according to the CLP Regulation are “Danger” or “Warning”.

SAFETY REGULATIONS

INFRASTRUCTURE

Protective and safety measures always depend on the hazardous substance and its quantity. In line with this, particular equipment and structural arrangements therefore need to form part of the infrastructure.

Here are some examples:

- Separation to protect against fire
- Safety margins
- A coherent warehouse concept
- Fire alarms
- Fire-fighting water retention
- Explosion-proof electrical operating equipment
- Disaster measures and protective gear
- Door closing mechanisms
- Smoke and heat extraction units
- Excess pressure ventilation equipment
- High-performance sprinkler units
- Oxygen reduction equipment
- CO2 fire-fighting equipment

Dangerous substance warehouses must be planned, constructed and operated in such a way that the risks for people, the environment and material assets are kept as low as possible. They may only be built or modified with the permission of the responsible public authority. Any changes in usage are subject to approval as well. Structural measures should also be used to prevent any joint storage of hazardous and flammable substances with other materials, articles or products. The Technical Rules for Hazardous Substances (TRGS 510) provide support here.

EMPLOYEES

Trained personnel are one of the most important assets at a dangerous goods warehouse. Training courses for specific hazardous goods are normal here and are based on the classification of the dangerous substance. The courses cover fire protection and first-aid measures as well as handling chemicals and storage conditions. Various measures, such as measuring pollutants, are designed to ensure that employees work in a healthy environment. Managers must use a risk assessment to analyse whether any risk potential exists and how serious it is.

RISK ASSESSMENT

A risk assessment should be made before any work starts. The employer is obliged to decide whether employees should perform any work with the hazardous substances or if hazardous substances are created or released during any activities. In order to determine the risk levels, all the substances and mixtures used within the company must be recorded in a hazardous substance list.

The assessment relates to their physical/chemical properties, toxic features and special properties, which may develop during particular activities. The necessary information consists of pictograms on the product's packaging and this must be documented on the safety data sheets.

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For more information on our services relating to dangerous goods in logistics, click here:

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