

GDA Hazardous Substance Check

Protect health – be active!



Gemeinsame Deutsche Arbeitsschutzstrategie

Gemeinsame Deutsche Arbeitsschutzstrategie – GDA

The GDA is a joint, ongoing initiative between the German government, the federal states and the German social accident insurance institutions in coordination with the social partners with the objective of further improving the safety and health of workers/insured persons in the companies. This objective will be implemented in specially developed national work programmes. These work programmes are aimed at the companies in particular and are intended to support employers, managers, employees and their interest groups (works councils and staff councils), health and safety professionals, occupational physicians and other occupational safety and health experts with the specific organisation of occupational safety and health.

More information: www.gda-portal.de

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Protect health – be active!

Introduction

Purpose

The GDA Hazardous Substance Check is offered to all those who are involved in a company's occupational health and safety, to help them effectively identify carcinogenic substances in the workplace and implement effective protective measures. It is intended, in particular, for small and medium-sized enterprises, offering a self-assessment tool to anyone taking their first steps towards a risk assessment.

The GDA Hazardous Substance Check has been developed by the German Social Accident Insurance Institutions and is provided as part of the work programme *Safe Handling of Carcinogenic Substances*, set up under the Joint German Occupational Health and Safety Strategy (German: *Gemeinsame Deutsche Arbeitsschutzstrategie*, short 'GDA'). As well as supporting companies in assessing the handling of carcinogenic substances, this tool assists labour inspectors of the German federal states and the accident insurance institutions in providing active assistance to companies in the context of this programme. *Safe Handling of Carcinogenic Substances* includes inspections of selected small and medium-sized enterprises based on a special questionnaire. A company that has carried out a

GDA Hazardous Substance Check has a good starting point for the work programme, making it easier to answer the relevant questions on the special questionnaire.

Protecting employees from job-related cancer is a major challenge. The majority of job-related cancer is caused by exposure to carcinogenic substances at work, with consequences that only become apparent after many years. A large proportion of job-related cancer diagnosed in Germany today can be traced to employees working with asbestos, often several decades ago. Yet it must not be overlooked that carcinogenic substances still frequently occur in workplaces today. The prevention of job-related cancer is therefore of vital importance. By setting up the work programme *Safe Handling of Carcinogenic Substances*, the GDA member organisations want to send a strong signal against cancer and provide long-term protection for employees from carcinogenic substances at work.

What are the benefits of the GDA Hazardous Substance Check?

The GDA Hazardous Substance Check for activities involving carcinogenic hazardous substances

- ▶ helps protect the health of the workforce,
- ▶ helps small and medium-sized enterprises, in particular, to assess themselves and how well they have conducted their own risk assessments,
- ▶ offers an opportunity to identify any need for action,
- ▶ provides a step-by-step guide, ensuring that a risk assessment can be carried out, supplemented, improved or updated,
- ▶ provides specific, compact and easily understandable advice, so that special duties can be carried out and the necessary precautions can be taken,
- ▶ provides an overview of sector-specific practical assistance,
- ▶ helps the relevant persons meet their responsibilities and systematically comply with statutory health and safety requirements,
- ▶ also provides information for employees and their representatives (e.g. works councils) in order to create awareness but also to get them involved and actively benefit from their experience.




How to use the GDA Hazardous Substance Check?


The GDA Hazardous Substance Check consists of nine modules, each comprising three to five questions.

This means going through the questions in each module and assessing the situation of the company, based on the various areas of assessment. Each question comes with explanatory notes, summarising the requirements in each instance.

After going through all the modules, the protective measures can be noted that are desirable or needed within the company. Green means that no further action is required, while red and yellow mean that certain protective measures are necessary.

Areas of assessment:

-  = requirements are not met
-  = requirements are partially met
-  = requirements are met

A number of key technical terms are defined in the attached glossary. Whenever the symbol  is presented, the relevant term can be found in the glossary.

The GDA Hazardous Substance Check is also available online.

The GDA Hazardous Substance Check is available on the web, at www.gda-gefahrstoff-check.de.

The online version offers additional options:

- Protected storage of the results on the user's computer
- Overview of results and output report to provide support in deriving tasks and measures
- Detailed glossary of technical terms



In addition, each module in the online version comes with a section called "What does this mean?" providing detailed explanations of cross-industry requirements, which must be met in order to comply with the German Hazardous Substances Ordinance.

Another section, "What needs to be done?" provides specific measures for certain types of work, procedures and sectors. This also includes advice on instances where contact is required with the relevant governmental health and safety authority.

Moreover, the online version offers links to further information on each module, as well as helpful practical tools applicable to nearly all sectors. Module 1, for instance, provides an introduction and thus some idea to what extent the relevant company is affected.



Basics

Effective preventive action within a company must be based on a risk assessment. The aim is to prevent risks associated with activities involving carcinogenic substances, or, where this is not feasible, to reduce those risks to a minimum. Such a risk assessment needs to be undertaken at an early stage, before the activities are started, and must then be updated or adjusted whenever circumstances change. Risk assessments are the responsibility of the employer. A risk assessment requires expertise in a wide range of areas, and any employers who do not have this **professional expertise** themselves need to obtain suitable consultancy. Expert consultancy can be provided, in particular, by health and safety experts and by company doctors.

The GDA Hazardous Substance Check will ensure an understanding whether any of the following risk assessment activities have already been carried out and, if so, which. The following points are important:

All hazardous substances must be known

All hazardous substances must be known if they are used, manufactured or can arise or be released during activities in the company as part of the work, regardless of whether such substances are carcinogenic or not. Carcinogenic substances

of **categories 1A and 1B** and certain activities and processes which are considered to be carcinogenic are subject to special duties and protective measures, specified in the German Hazardous Substances Ordinance (*Gefahrstoffverordnung*).

Register substances in a hazardous substance list

Like all hazardous substances, carcinogenic substances and mixtures must be registered in a hazardous substance list.

Exposures within the company must be known

Any exposure to hazardous substances must be known regardless if they come from the ambient air or through skin contact. This is the only way to assess the existing risks and to define appropriate protection. Potential exposure depends on

- ▶ whether and to what extent hazardous substances – due to their properties – may be present in the air at workplaces and how easily they can be absorbed through skin contact, and
- ▶ the extent to which conditions at work or during a workplace activity either favour or prevent exposure among employees.

Information is mandatory

The provision of information to employees is mandatory, and it is equally mandatory to ensure that their representatives are involved and actively participating in dealing with specific issues (through the works council, staff committee or employee representatives). For example, employees need to receive verbal instructions, based on operating instructions, covering all existing hazards and suitable protection that can be taken.

Qualified staff must be engaged in the process

Any work that involves carcinogenic substances of **categories 1A and 1B** must only be carried out by staff who have the relevant **professional expertise** and who have been instructed accordingly.

Documentation and effectiveness must be ensured

Once the risk assessment has been concluded, the protection of the workforce must be ensured and monitored on an ongoing basis.

- ▶ The results of the risk assessment must therefore be documented,
- ▶ and the effectiveness of the protective measures must be checked at regular intervals.

Preventive healthcare must be ensured

It is important to understand any possible connections between working conditions and illnesses that might occur.

- ▶ Preventive occupational healthcare therefore continues to be important when the activities under exposures have been concluded. Preventive healthcare can minimise risks and ensure the early detection of potential illnesses.
- ▶ An exposure list must be kept that covers each employee who is exposed to hazardous levels of carcinogenic substances of **categories 1A or 1B**.

The GDA Hazardous Substance Check focuses on health risks caused by carcinogenic substances and on the relevant protection measures that should be taken. In addition, it must be ensured at each stage of the risk assessment that any hazards caused by other factors are also known, e.g. physical/chemical hazards, and particularly also fire and explosion hazards.

GDA Hazardous Substance Check

Module 1 Introduction

Are you aware of carcinogenic substances in the company and has a risk assessment been carried out?

It is important to know whether carcinogenic substances are used, manufactured or released within the company, as this makes it possible to assess the risk to employees and to take effective protective measures.



What's the situation in your company?

- 1.1 Have you checked whether hazardous substances are used in the company, i.e. substances which are labelled as follows, or does the company currently manufacture such substances?



Such hazardous substances can be identified by the
 • **hazard pictogram** GHS08 (“health hazard”) and the
 • **hazard statements (H statements)** H350 (“May cause cancer”), H350i (“May cause cancer by inhalation”) or H351 (“Suspected of causing cancer”)..



Explanation: The first step in a risk assessment is to identify any activity that involves the manufacturing, extraction or use of hazardous substances in the company. One of the most important sources of information is the labels, regardless of whether they come from the manufacturer or whether they were assigned within the company.

As the hazard pictogram GHS08 (“health hazard”) is also used for other health hazards, certainty about the carcinogenic effect of a substance or mixture can only be gained by looking at the actual H statement • **(hazard statements)** H350, H350i or H351 on the label or its classification as “carcinogenic
 • **category** 1A or 1B or 2” on the safety data sheet.

Pages 10 and 11 provide an overview of carcinogenic substances of • **categories** 1A and 1B that typically occur in various industries. They are subject to additional duties and protective measures, specified in the German Hazardous Substances Ordinance (see also Modules 5, 8 and 9).

<p>1.2 Have you checked whether any activities or processes in the company generate or release carcinogenic substances?</p>	
<p>Explanation: Sometimes carcinogenic substances are not released until a certain type of activity is actually carried out. Such substances are not labelled in any way. For example, welding can release carcinogenic metal dust through welding fumes, while working with stone can release quartz dust, and any work on hardwood may release wood dust.</p> <div style="display: flex; justify-content: space-around;">    </div>	
<p>1.3 Have you checked whether carcinogenic substances or processes can be substituted, thus reducing the risk to employees (🔍 Substitution)?</p>	
<div style="display: flex;">  <div style="margin-left: 20px;"> <p>Explanation: The best protection is always to prevent a risk right from the outset, i.e. to replace the carcinogenic substance with a less hazardous option or to replace the procedure with a less hazardous one. There is a duty to find such a solution, and also to document the substitution in the risk assessment.</p> <p>One example for the substitution of a process is the use of low-dust hand-held equipment where any dust that is released is collected straightaway.</p> </div> </div>	
<p>1.4 Does your risk assessment cover the fact that carcinogenic substances of 🔍 categories 1A and 1B pose special risks for young people and pregnant women?</p>	
<p>Explanation: Some groups of people, such as young people and pregnant women, are particularly vulnerable. The potential risk for pregnant women must be taken into account by the employer even if no woman has ever worked in the relevant area before. Also, young people must be given suitable instructions at least every six months..</p>	

Necessary measures:	
Responsibilities and deadlines:	

Industries where carcinogenic substances occur: overview



Work involving handheld petrol-driven two-stroke engines

- ▶ Benzene (e.g. in power saws and power scythes, unless benzene-free fuel is used).



Electroplating shops (hard chrome plating)

- ▶ Chromium(VI) compounds



Health sector

- ▶ Formaldehyde (disinfection, sterilisation and preservation)
- ▶ Cytostatic drugs (certain preparations and applications)



Wood processing

- ▶ Hardwood dusts (for example beech and oak dusts)
- ▶ Formaldehyde



Construction sector

- ▶ Asbestos
- ▶ Benzene (e.g. in power saws)
- ▶ Synthetic mineral fibres (SMFs) used for insulation
- ▶ Polycyclic aromatic hydrocarbons (PAHs), e.g. in diesel engine emissions and tar-based products
- ▶ Quartz dust
- ▶ Trichloroethylene in asphalt testing laboratories



Car repair shops

- ▶ Benzene
- ▶ Diesel engine emissions (DEE)



Chimney sweeps

- ▶ Polycyclic aromatic hydrocarbons (PAHs)



Metal production, metalworking and metal processing

- ▶ Chromium(VI) compounds and nickel (in welding fumes)
- ▶ Nickel and nickel compounds, cobalt, beryllium (while grinding, drilling or cutting metal)



Plastics processing

- ▶ Formaldehyde from polyoxymethylene (POM)
- ▶ Pyrolysis products, e.g. 1,3-butadiene, benzene

Occurrence of carcinogenic substances: overview

4,4'-Methyldianiline

- ▶ in the rubber industry
- ▶ in the leather industry
- ▶ in plastics processing and machining
- ▶ in metal production

Asbestos and synthetic mineral fibres (SMFs)

- ▶ in old brake pads
- ▶ in old heat generators
- ▶ while refurbishing or redeveloping existing buildings

Benzene

- ▶ in car repair shops
- ▶ in the construction sector
- ▶ while working with handheld petrol-driven two-stroke engines

Chromium(VI) compounds, nickel and nickel compounds

- ▶ in electroplating (during hard chrome plating)
- ▶ in the metalworking industry (e.g. grinding and welding)

Cadmium, cobalt and beryllium

- ▶ in enamelling
- ▶ in battery production
- ▶ in metal production, metalworking and metal processing
- ▶ in electronic waste recycling
- ▶ in carbide machining

Diesel engine emissions

- ▶ in car repair shops
- ▶ in the construction sector
- ▶ in vehicle halls

Formaldehyde

- ▶ in the health sector
- ▶ in the production of panel materials
- ▶ in plastics processing
- ▶ in anatomies

Hardwood dusts

- ▶ in the woodworking industry and in workshops

Nitrosamines

- ▶ in the rubber industry (vulcanisation)
- ▶ in foundries, e.g. thermal decomposition of binder in moulding sand

Pyrolysis products

(especially PAHs, through thermal decomposition)

- ▶ in car repair shops
- ▶ in plastics processing
- ▶ in stack cleaning
- ▶ in the construction sector
- ▶ in fire damage restoration
- ▶ in flue gases

Benzo(a)pyrene

(lead component in pyrolysis products)

- ▶ in coking plants
- ▶ in firefighting
- ▶ in fire damage restoration
- ▶ in forging

Trichlorethylene

- ▶ in asphalt testing laboratories
- ▶ while cleaning parts in the metal industry

Quartz dust

- ▶ in construction sector
- ▶ in the extraction and processing of stones
- ▶ in the ceramics and glass industries
- ▶ in precision mechanics (dental laboratories)
- ▶ in foundries
- ▶ during repair work in people's home



Module 2 Gathering Information

Do you know where you can find information concerning the hazardous properties of carcinogenic substances?

The hazards posed by certain substances must be known, so that it then becomes possible to assess the specific risks. The hazardous substance list serves as the basis for this purpose.



What's the situation in your company?

2.1 Are the hazardous substances in your company clearly labelled as such?



Explanation: The hazardous properties of substances and mixtures are indicated by **hazard pictograms** and **hazard statements (H statements)** on the relevant containers and packaging. In this way, any hazards posed by the substances they contain are easy to identify.

It should be noted that any substances, mixtures and articles that release or give rise to hazardous substances are often not labelled as such. This is the case, for instance, for certain stainless steels that may be processed.

Examples of labels with marking elements:

Pictograms →

Nominal quantity if substance or mixture is made available to the general public →

Signal word →

Name, address, Vendor's phone number →

Name and Product identifiers →

Petrol
(Index no. 649-261-00-8)

Extremely flammable liquid and vapour.
May be fatal if swallowed and enters airways.
Causes skin irritation.
May cause drowsiness and dizziness.
May cause genetic defects.
May cause cancer.
Suspected of damaging fertility or the unborn children.
Toxic to aquatic life with long-term effects.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Avoid inhalation of vapour/aerosol.
Wear protective gloves/protective clothing/eye protection.
Avoid release to the environment.
IF SWALLOWED:
IMMEDIATELY CALL A POISON CENTRE/doctor.
Do NOT induce vomiting.

Trade name
Index number
EC number
CAS number
REACH-registration number

H-phrases, number specified in CLP Regulation

P-phrases, usually up to 6, more if required

In German within Germany, though several languages are also permitted

The following principles must be noted when placing or transferring hazardous substances into the company's own containers: here, too, it must be ensured that the labelling does not cause confusion and that it identifies the main hazards. Also accurate labelling must be checked on interchangeable containers and waste bins.

Labelling may be simplified under certain circumstances. This applies, in particular, to pipelines and laboratories.



2.2 Does your company have safety data sheets for hazardous substances?



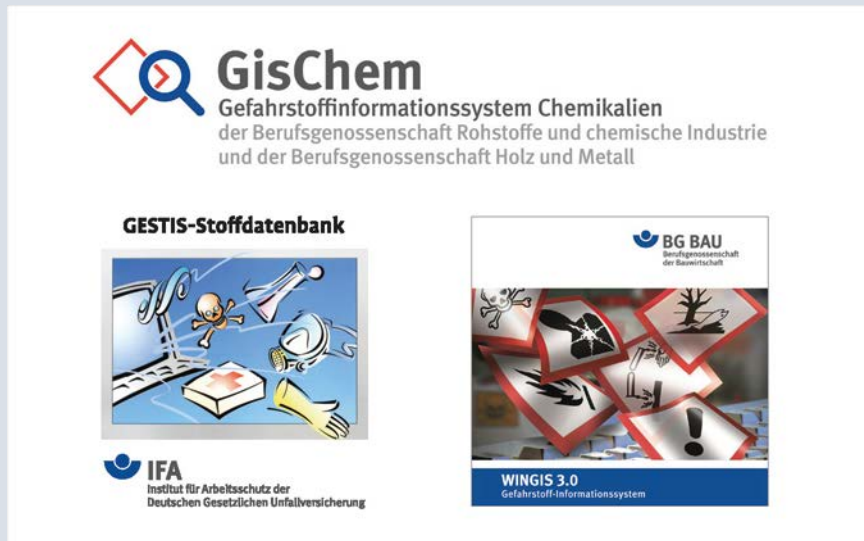
Explanation: Safety data sheets (SDBs) provide the necessary information about the properties and safe handling requirements of a substance or mixture. They should be included with every substance that is purchased. If this is not the case, they must be requested. SDBs must be provided by suppliers in the relevant country's language.



In addition to the details provided on safety data sheets and concerning hazardous substances which only occur during operational activities, other sources can be consulted, such as (links are available in the online version of the GDA Hazardous Substance Check):

- ▶ Labels on packaging, instructions for use, technical leaflets specifying information gained from registration, risk assessments or authorisation procedures
- ▶ Sector-specific or job-specific guidelines (e.g. rules and information from the German Social Accident Insurance Institutions (German: Deutsche Gesetzliche Unfallversicherung, DGUV), instructions on good working practice, protection guidelines)

- ▶ Sector-specific hazardous substance assessments and product assessments from the German Social Accident Insurance Institutions, such as GisChem, WINGIS online/GISBAU
- ▶ Free information on substances from the German federal states and from the German Social Accident Insurance Institutions (DGUV), e.g. GESTIS substance database and other databases provided by IFA (Institute for Occupational Safety and Health, an institute of DGUV) and the Hazardous Substance Information System (*Informationssystem für gefährliche Stoffe, IGS*) of the state of North Rhine Westphalia.



If no information is available on a given hazard, it must be assumed that this hazard exists and appropriate protective measures must be taken.

2.3 Do you keep a hazardous substance list within your company?



Explanation: A hazardous substance list is a list of hazardous substances that occur within the company, specifying their hazardous properties. It ensures a very good overview as a basis for assessing the hazards posed by such substances. It also permits further steps in the risk assessment, such as deriving suitable protection for employees.

The photograph shows a handwritten table titled 'Gefahrstoff-Verzeichnis'. The table has columns for 'Substanz', 'Menge', 'Lagerort', 'Verwendung', 'Gefahrstoffkennzeichen', 'Gefahrstoffnummer', 'Gefahrstoffkennzeichen', 'Gefahrstoffnummer', 'Gefahrstoffkennzeichen', and 'Gefahrstoffnummer'. The table contains several entries, including 'Acrylnitril', 'Acrylnitril', 'Acrylnitril', and 'Acrylnitril', with various hazard symbols and numbers.

Necessary measures:

Responsibilities and deadlines:

Module 3 Exposure

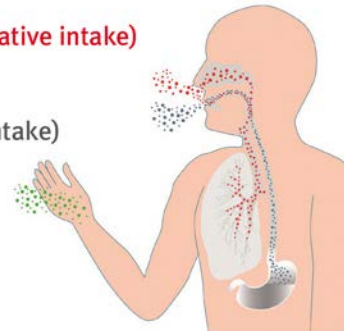
Is there a risk for you or your employees of inhaling carcinogenic substances or having skin contact with them?

The risk depends on the potential absorption of carcinogenic substances into the body through skin contact, ingestion or the respiratory tract.

Breathing in (inhalative intake)

Swallowing (oral intake)

Via the skin
(dermal intake)



What's the situation in your company?

- 3.1 Have you checked whether carcinogenic substances in the company can create dust or whether they can vaporise?



Explanation: To judge whether employees can inhale hazardous substances, it must first be ascertained whether those substances can become airborne. This happens when solids are processed or handled while dry, when they become dusty and when liquids are sprayed or evaporate. For example, dust can be released while drilling or grinding a stone. It may also include carcinogenic quartz dust. Vapour can be released from liquids with sufficiently high vapour pressure as well as from hot liquids and from liquids touching hot surfaces.



- 3.2 Have you checked whether carcinogenic substances may be inhaled in the company and whether there may be skin contact with them?



Explanation: As part of the risk assessment, clarification is needed if employees come into contact with hazardous substances and whether they might inhale such substances. This largely depends on the specific circumstances in the working area. Is the relevant substance handled openly? How large are the quantities that are used? Is skin contact possible?



If a hazardous substance is only ever handled within enclosed systems or if it is completely extracted at the point of its origin, it cannot reach the air that is breathed in. Nevertheless, such systems and plants do need to be opened from time to time, e.g. for charging, maintenance, cleaning or repairs, which then involves potential hazards.



- 3.3 Have you looked at the methods which allow a first risk estimation?



Explanation: There are methods that permit an informative estimation of a risk based, for example, on simple details of quantities and working conditions. The following tools can, for instance, be used for this purpose:

- ▶ The Stoffenmanager® from COSANTA
- ▶ Easy-to-use Workplace Control Scheme for Hazardous Substances (EMKG) of the Federal Institute for Occupational Safety and Health (BAuA) in conjunction with expert advice
- ▶ Risk Assessment of Dermal Exposure for Substances According to the CLP Regulation by IFA (an institute of DGUV), which specifies requirements under TRGS (Technical Rules for Hazardous Substances) no. 401, "Risks resulting from skin contact – identification, assessment, measures".

Necessary measures:

Responsibilities and deadlines:

Module 4 Level of Exposure

Can you estimate the level of exposure to carcinogenic substances for both managers and employees?

The risk can only be assessed and classified if the level of exposure is available or has been determined.
This means knowing the relevant **air limit value**?



What's the situation in your company?

4.1 Have you identified the level of exposure in the air that is breathed in?



Explanation: It is possible to identify the employees' level of exposure to hazardous substances in the air they breathe. This is done by measuring or sampling it, i.e. by determining the relevant concentration in the air, though non-metrological methods are also available.



Non-metrological methods include comparisons with similar workplaces and the use of standardised procedures, such as *Process- and Substance-Specific Criteria (VSK)* and the *Recommendations of the Accident Insurance Institutions (EGU)*. If the work is carried out under such process specifications, then the company is complying with the **air limit value**.

The *Stoffenmanager*® from COSANTA is a recognised and validated tool to estimate concentrations of hazardous substances, so that they can be compared to limit values.



- 4.2 Have you checked whether carcinogenic hazardous substances can be absorbed through skin contact or swallowed?



Explanation: If there is any risk that hazardous substances might be absorbed through the skin or that they might be swallowed, then this must be mentioned in the risk assessment.



Hazardous substances must not be stored in food containers. This is important to ensure that such substances cannot be confused with other substances.



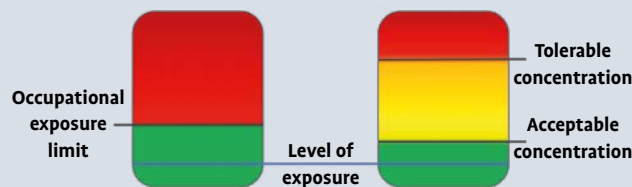
Suitable hygiene is important, too. A hazardous substance may, for example, reach the mouth via a contaminated hand or glove. Eating and drinking are therefore prohibited in such areas.

As regards absorption via skin contact, it is important to identify not only properties that pose hazards to the skin, but also the relevant contact area (e.g. splashes or full hand contact) and the duration of skin contact.

- 4.3 Have you checked whether the compliance with the existing limit values is ensured for activities involving carcinogenic substances in your work areas?



Explanation: Whether protective measures are required and, if so, what kind of protective measures, should depend on whether a hazardous substance poses a risk and the level of that risk.



To judge this question, the identified exposure levels must be compared with the relevant limit values. To assess the risk from inhaling a substance, these are essentially the **occupational exposure limit** and the **acceptable concentration** and **tolerance concentration**. In a number of cases, **assessment standards** are also available (e.g. for quartz dust and chromium(VI) compounds).

If a substance can be absorbed through the skin or if it can be swallowed, it may also be reasonable to look at the **biological limits**.

If an acceptable concentration and a concentration tolerance have been exceeded for a given substance (yellow range), the risk assessment must include a **plan of measures**, describing specifically which protective measures should form the basis for minimising further exposure, the periods of time when those measures should be implemented and the extent by which the exposure is expected to be reduced by (see also Module 9.1). The concentration must fall below the tolerance concentration within three years.

Necessary measures:

Responsibilities and deadlines:

Module 5 Protective Measures

Have you implemented specific protective measures for carcinogenic substances in the company?

Due to the special severity and delayed onset of a potential illness (latency period), any carcinogenic substances of categories 1A and 1B usually require additional protective measures. The precise nature of those measures must be based on the risk assessment, using the results from Modules 2, 3 and 4. The STOP principle must always be followed when setting the order in which protective measures should be taken: This means starting with a substitution check, followed by technical and organisational measures, and only then – if still required – personal protection measures.



Substitution
Technical ...
Organisational ...
Personal ...
 ... protective measures

What's the situation in your company?

- 5.1 Have you implemented the basic protective measures that are applicable to all hazardous substances?



Explanation: There are several basic duties and protective measures that apply to all hazardous substances at all times. They include the duty to find substitute substances and procedures, limiting the quantities of hazardous substances in the workplace, prohibiting the storage of food and drinks at work, drawing up a hand and skin protection plan, stipulating adequate hygiene measures, especially avoiding any contamination, and of course ensuring that the workplace is cleaned at regular intervals.

- 5.2 Are the available protective measures in your company adequate, or should additional protective measures be taken?



Explanation: Sometimes a protective measure does not offer adequate protection, or the resulting protection provides less coverage than planned. This may be the case, for instance, if something has changed in the procedure and if the air limit values are consequently exceeded. In such a case, further protective measures are necessary.

- 5.3 Does your company have processes and working conditions that limit the release of carcinogenic substances?



Explanation: Technical protection measures can prevent the release of hazardous substances (closed system) or reduce it (e.g. through extraction or room ventilation). In the hierarchy of protective measures technical protection measures come straight after substitution and should be prioritised accordingly.



- 5.4 Does your company organise work routines in such a way that they limit exposure to carcinogenic substances?



Explanation: Organisational protection measures include limiting the number of employees who carry out activities involving carcinogenic substances. They also include the labelling of substances, mixtures and work areas and specifying hygiene regulations, e.g. on the use of workwear and protective clothing. Some organisational measures are designed to maintain the effectiveness of technical measures (e.g. maintenance work).



- 5.5 Have you checked whether suitable personal protective equipment is available and whether PPE must be worn?



Explanation: If a hazard cannot be adequately reduced through technical or organisational measures, personal protective equipment must be provided and made mandatory. Providing PPE also includes its cleaning and replacement, depending on the level of exposure. Wearing heavy PPE must not be an ongoing measure, and time limits on wearing PPE must be observed.



Necessary measures:

Responsibilities and deadlines:

Module 6 Workplace Safety Instructions and Operating Instructions

Does your company provide regular instruction on work with carcinogenic substances, using instructors with professional expertise?

Before employees start a given job, they must be given good instructions on the hazards of carcinogenic substances and how to avoid them. Any work involving carcinogenic substances of categories 1A and 1B must only be undertaken by specially instructed persons or by persons with professional expertise. The instructions must be documented.

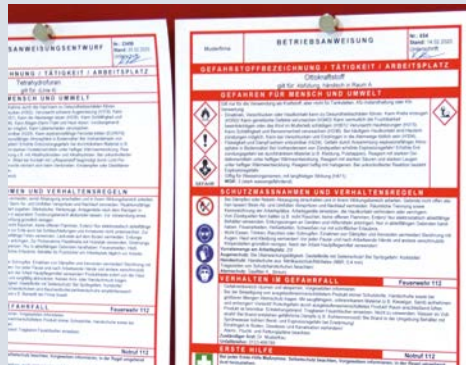


What's the situation in your company?

6.1 Have you drawn up operating instructions for activities involving carcinogenic substances?



Explanation: Operating instructions must be drawn up for all activities involving carcinogenic substances. They must cover all the results of the risk assessment with relevance to employees. Staff should be able to see straightaway what the hazards are and which protective measures are necessary. The operating instructions also form the basis for the instruction. Like the risk assessment, operating instructions must be updated whenever circumstances have changed.





6.2 Have you adjusted the content of oral instructions to the specific risks posed by carcinogenic substances?



Explanation: The aim of instructions is to explain to employees the protective measures that are taken to combat hazards at their workplace. Information about special hazards from carcinogenic substances must be provided again and again, so that everyone applies safe procedures and, in this way, makes their own contribution to their own protection.



<p>6.3 When employees were given their instruction, were they informed to what extent they are exposed to carcinogenic substances and what the dangers are?</p>	
<p>Explanation: For activities with carcinogenic substances associated with specific limit values (☛ acceptable concentrations and ☛ tolerance concentrations) employees must be informed about the level of exposure and risk range (green/amber/red, see Module 4.3). Moreover, a similar procedure for carcinogenic substances with other ☛ air limit values is recommended and also for cases where no limit has been defined.</p>	
<p>6.4 Is a company doctor involved in the provision of general occupational medical and toxicological advice, forming part of the instructions?</p>	
<p>Explanation: Working with carcinogenic substances can cause serious damage to people's health. This means that occupational healthcare must involve working out a suitable toxicological consultancy plan with the relevant occupational health expert, or, alternatively, ensuring that he or she provides such consultancy directly. The occupational health expert is usually the company doctor.</p>	

<p>Necessary measures:</p>	
<p>Responsibilities and deadlines:</p>	

Module 7 Preventive Healthcare and Occupational Health and Safety Specialist

How does your company organise preventive healthcare surveillance and occupational safety-related support?

It is important to have a good combination of health and safety supervision combined with systematic preventive healthcare before, during and after any work involving carcinogenic substances, as this can minimise risks, prevent occupational diseases or at least detect them at an early stage.



What's the situation in your company?

7.1 Does your company have the support of a company doctor in conducting preventive healthcare?





Explanation: Company doctors advise employers and employees in/on all issues of occupational health and safety. One major task is to provide support in deciding whether there is a need for preventive healthcare, as this is particularly important in the case of carcinogenic substances.

7.2 Are employees offered preventive healthcare, or is it arranged for them?



Explanatory notes: The purpose of preventive healthcare is to detect and prevent work-related illnesses, including occupational diseases, at an early stage. A distinction is made between **mandatory preventive healthcare**, **optional preventive healthcare** and **preventive healthcare on request**. In the case of carcinogenic substances, it is important that such preventive healthcare should be provided, offered and used.

<p>7.3 Does your company ensure follow-up preventive healthcare at the end of a job?</p>  <p>Explanation: Cancer often occurs a long time after exposure at the workplace. This makes it important to take appropriate precautions, also after the end of a job. It is the duty of the employer to organise such follow-up preventive healthcare. Under certain conditions, this can be delegated to the appropriate social accident insurance institution or the relevant organisational services set up for this purpose, such as the two services GVS (Health Care) or ODIN (Service for the Organisation of Post-Exposure Medical Examinations) (www.dguv-vorsorge.de).</p>	
<p>7.4 Is safety-related support organised in your company?</p>  <p>Explanation: Occupational health and safety specialists provide valuable support on all issues of health and safety, including humane workplace design. Close cooperation between the occupational health and safety specialist and the company doctor contributes to providing the best possible protection for employees.</p>	

<p>Necessary measures:</p>	
<p>Responsibilities and deadlines:</p>	

Module 8 Exposure List

Does your company need to keep an exposure list?

A personal exposure list must be kept, covering all employees who are exposed to carcinogenic substances (or germ cell mutagens) of categories 1A or 1B. This is a requirement in all instances where a risk is more than slight. Long-term documentation of the level and duration of exposure of employees has the purpose of identifying potential links between working conditions and any disease that may occur, even after a latency period has elapsed. This is because most latency periods are quite long.



What's the situation in your company?

8.1 Have you ascertained under what conditions an exposure list must be kept?



Explanation: There are a variety of conditions that require a company to keep an exposure list. They include instances where the air limit value exceeded, where the level and duration of exposure is not known (e.g. accidental occurrences) and where personal protective equipment must be worn due to a risk posed by carcinogenic substances..



Questions 8.2, 8.3 and 8.4 are only applicable if such activities are carried out by employees:

8.2 Are all the necessary details documented in the exposure list?



Explanation: The exposure list must contain at least the following information: name and address of company, employee's name and date of birth, hazardous substance, period of working activity, and level, duration and frequency of exposure.

<p>8.3 Is the exposure list stored correctly, and is information from the list handed to the relevant employees in an appropriate manner?</p> <div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div data-bbox="316 421 772 898" style="width: 45%;"> </div> <div data-bbox="794 414 1248 833" style="width: 50%;"> <p>Explanation: The exposure list must be kept for 40 years after the end of exposure (duty of archiving). When a person's employment comes to an end, an extract from this list must be handed to them, showing all the details that refer to them as an individual (duty of delivery). It is possible, for example, to keep the exposure list within the Central Exposure Database (ZED). This online database, which is available free of charge (zed.dguv.de), allows the legally compliant recording of all the necessary details while also making it possible to delegate one's statutory duties of archiving and delivery.</p> </div> </div>	
<p>8.4 Have you provided the necessary information for contractors, and are temporary workers included in the exposure list?</p> <p>Explanation: Contractors must be treated like the company's own staff for the purpose of the exposure list. In addition, each contractor must keep their own exposure list.</p>	

Necessary measures:	
Responsibilities and deadlines:	

Module 9 Documentation

Have you implemented any additional information and any documentation requirements that are applicable to carcinogenic substances?

Carcinogenic substances are subject to special requirements over and above the general duties of information and documentation. This may concern, for instance, the participation of employees and their representatives and also sending information to the competent authorities.



What's the situation in your company?

<p>9.1 Have you documented the risk assessment, including the results of your substitution check?</p>	
<p>Explanation: The risk assessment forms the basis for determining whether there is a need for action concerning occupational health and safety in the company. Once this risk assessment is available, protective measures must be defined under the STOP principle, depending on the nature and extent of the risk. All risks and measures must be documented, including any reasons for waiving a technically feasible substitution.</p> <p>In cases where air limit values are exceeded, any current measures that have been taken must be documented, and also any future measure that will be taken in order to keep within the stipulated values. Where a substance is associated with an acceptable concentration and tolerable concentration, this must be documented in a plan of measures.</p>	
<p>9.2 Have you involved the works council or staff committee in the risk assessment procedure?</p>	
<p>Explanation: Employee representatives must be involved in the definition of protective measures, in planning the implementation of measures and also in the selection and use of personal protective equipment. Employees and their representatives must be enabled to check if all the regulations are being kept, particularly those concerning the selection and use of PPE and the resulting strain affecting employees.</p>	
<p>9.3 Is there an awareness when the relevant occupational health and safety authority needs to be contacted and what its requirements might be?</p>	
<p>Explanation: The occupational health and safety authority may ask for certain additional information about any work involving carcinogenic substances. Conversely, it is urgently recommended that the authority should be notified if the tolerance concentration is likely to be exceeded for more than three months. It is important to realise that asbestos is a special case where notification is always mandatory.</p>	

Necessary measures:

Responsibilities and deadlines:

Extract from the Online Glossary

The terms listed below are important for an understanding of this brochure and have been taken from the glossary in the online version of the GDA Hazardous Substances Check. The complete glossary with further terms and more detailed notes – including notes on terms mentioned here – can be found at www.gda-gefahrstoff-check.de.

► **Acceptable concentration (AC)**

The acceptable concentration is a binding assessment standard for certain carcinogenic hazardous substances, specified under the concept of measures detailed in the Technical Rule for Hazardous Substances (TRGS) 910. It is the concentration of a substance in the air at a given workplace, associated with the acceptable risk of 40 years of exposure during working days (daily eight-hour exposure). If the value is lower than this limit, the risk must be considered low and therefore acceptable. According to the methodology described in TRGS 910, the acceptable concentration is identified through an exposure-risk relationship (ERR). The acceptable concentrations have been published in TRGS 910, “Risk-Related Concept of Measures for Activities Involving Carcinogenic Hazardous Substances”.

► **Air limit value**

Maximum workplace concentrations are all valid limit values for hazardous substances in the air, breathed by employees. In Germany, the following air limit values have been specified in the German Hazardous Substances Ordinance:

- Occupational exposure limit (OEL) in accordance with TRGS 900
- Acceptable concentration (AC) and tolerable concentration (TC) in accordance with TRGS 910
- Assessment standard (AS) in accordance with a substance-specific TRGS

► **Assessment standard (AS)**

When conducting a risk assessment and when checking the effectiveness of protective measures, certain assessment standards must be used in assessing inhalation exposure at workplaces. The following assessment standards are binding:

- Occupational exposure limits (OELs) in accordance with TRGS 900
- Acceptable and tolerable concentrations for carcinogenic hazardous substances under a risk-related concept of measures in accordance with TRGS 910, derived from exposure-risk relationships
- Assessment standards from substance-specific TRGS (e.g. quartz(A) dust in TRGS 559 “Dust Containing Quartz” and chromium(VI) compounds in TRGS 561 “Activities Involving Carcinogenic Metals and their Compounds”)

If no binding assessment standards are available, other assessment standards (maximum workplace concentration of a chemical substance, derived no-effect levels, etc.) can be used to assess exposure.

► **Biological limit value (BLV)**

The biological limit value is the limit of the concentration of a substance derived under toxicologically focused occupational health care aspects or its metabolite (breakdown product) or an exposure indicator in the relevant biological material. It indicates the maximum concentration that is generally harmless to the health of an employee. Biological limit values are published in TRGS 903, “Biological Limit Values (BLVs)”.

► **Category**

Hazardous substances and mixtures are classified under so-called hazard classes where they are subdivided into hazard categories, depending on the severity of each hazard. Carcinogenic hazardous substances are classified as hazard categories 1A or 1B if they are known or presumed to cause cancer or increase the incidence of cancer. Unlike the case of suspected substances (category 2), the carcinogenic effect of such hazardous substances on humans has been proven or it can be inferred for human on the basis of animal experiments. Such substances are subject to special protective measures under the German Hazardous Substances Ordinance, section 10. Unless an occupational exposure limit has been published for such substances, an appropriate, risk-related concept of measures must be applied. Carcinogenic hazardous substances are classified as category 2 if they are suspected of having a carcinogenic effect on humans.

► **Hazard pictogram**

Hazard pictograms are assigned as classified under the CLP Regulation and have the purpose of conveying specific information about a given hazard.

► **Hazard statement / H phrase**

Hazard statements (H phrases) describe the hazards arising from a hazardous substance or mixture in relation to a specific hazard class and hazard category. They result from the classification of the substance or mixture based on the criteria of Annex I of the CLP Regulations. The safety data sheet, section 2, “Possible Hazards”, must always include all the applicable H statements in the classification. Furthermore, all the relevant hazard statements must also generally be printed on the label. However, it is possible to omit H statements that clearly duplicate information or which are clearly superfluous.

► **Mandatory preventive healthcare**

Mandatory preventive healthcare means preventive health precautions which the employer is obliged to put in place for certain particularly hazardous activities. These activities are listed in the annex to the German Ordinance on Preventive Occupational Health Care (ArbMedVV). When conducting a risk assessment, the employer must check whether or not the requirements specified in this ordinance apply to the activities that the employer needs to assess. If this is the case, the employer must ensure suitable preventive health precautions. Implementation of the necessary mandatory preventive health care is a requirement for the activity to go ahead. This means that employees are de facto under an obligation to take part in the required mandatory preventive healthcare if they want to carry out the activity or if they want to continue carrying the activity.

► **Occupational exposure limit (OEL)**

The occupational exposure limit is a binding assessment standard for the time-weighted average concentration of a substance in the air at the workplace in relation to a given reference period. It indicates the concentration of a substance at which no acutely or chronically harmful impact can generally be expected on the health of employees. OELs are published in TRGS 900, “Occupational Exposure Limits”. According to TRGS 900, the OEL has been specifically defined as the mean value of a shift involving daily eight-hour exposure, five days a week, during a person’s working life. Exposure peaks during a shift must be assessed as short-term values in accordance with TRGS 900, section 2.3.

► **Optional preventive healthcare**

Optional preventive healthcare means preventive health precautions offered by the employer for certain hazardous activities. These activities are listed in the annex to the German Ordinance on Occupational Health Care (ArbMedVV). When conducting a risk assessment, the employer must check whether the requirements specified in this ordinance apply to the activities that the employer needs to assess. If this is the case, the employer must offer suitable preventive health precautions to the employees. Participation in the precautions must be voluntary for employees. For this purpose, an occupational health regulation (AMR) has been developed: AMR 5.1, “Requirements for the provision of preventive health care”.

► **Plan of measures**

A plan of measures is a list of all protective technical, organisational, and personal protective measures designed to achieve a specified protection goal. Plans of measures as defined in the German Hazardous Substances Ordinance (GefStoffV) are plans designed to achieve a specific protection goal, based on the current situation within the relevant enterprise. They can comprise individual measures or combinations of measures. An order of precedence must be observed, prioritising substitution over technical, organisational, and personal protective measures.

► **Preventive healthcare on request**

Preventive healthcare on request means preventive health precautions which the employer must put in place for employees under the German Occupational Health and Safety Act, section 11. It is up to each employee to claim such healthcare. However, an employee can only do so if, based on the risk assessment and the protective measures that have been taken, they can expect damage to their health. In the event of a dispute, the employer must substantiate and, if necessary, prove their point. Preventive healthcare on request is not limited to certain activities, and the German Ordinance on Preventive Occupational Health Care (ArbMedVV) does not therefore contain a definitive catalogue of cases associated with such healthcare. The occupational medical recommendation (AME) “Preventive Healthcare on Request” specifies the access routes to such healthcare as well its substance and constituent elements.



▶ **Professional expert / Professional expertise**

The German Hazardous Substances Ordinance defines “a person with professional expertise as a person who has acquired the knowledge and skills necessary to carry out an activity set forth in this Ordinance. The requisite competency depends on the nature of the respective task. The requirements include relevant professional training, professional experience, or the recent performance of applicable professional activities as well as participation in specific further training courses.”

Two things emerge from this: Firstly, depending on the task at hand, it is important to enquire which specific requirements must be met, as they can vary from one task to another. Secondly, this definition shows clearly that professional expertise always results from a combination of professional experience and further training.

The second point – the extent of the relevant further training activities – has been developed and presented in DGUV Principle No. 313-003 on the topic of expertise in carrying out a risk assessment for activities involving hazardous substances. This principle also shows the relationship between a person's prior experience and the need for further training.

▶ **Risk-related concept of measures**

TRGS 910 specifies a risk-related concept of measures for activities involving carcinogenic hazardous substances. Depending on the exposure-risk relationship, a suitable air limit value (acceptable and tolerable concentration) is derived, reflecting a certain work-related additional risk of developing cancer.

▶ **Skin-resorptive substance**

Skin-resorptive substances are substances that have certain physical and/or chemical properties which enable absorption through the skin. Skin-resorptive substances may be labelled with hazard statements (H statements) H310 (fatal in contact with skin), H311 (toxic in contact with skin) or H312 (harmful in contact with skin). Non-exhaustive lists are presented in TRGS 401 and TRGS 900 (where they are marked with an “H”).

▶ **Substitution**

Substitution means the replacement of a hazardous substance or a process with a substance, mixture, product or process that results in an overall lower risk to employees.

▶ **Tolerable concentration (TC)**

The tolerable concentration is a binding assessment standard for certain carcinogenic substances, specified in TRGS 910. It is the concentration of a substance in the air at a given workplace, associated with the tolerable risk of 40 years of exposure during working days (daily eight-hour exposure). If the relevant value is exceeded, the risk must be regarded as high and intolerable. According to the methodology described in TRGS 910, the tolerable concentration is identified through its exposure-risk relationship (ERR). The TCs have been published in TRGS 910, “Risk-related Concept of Measures for Activities Involving Carcinogenic Hazardous Substances”.

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