



Supervision of working with hazardous substances:

Exposure to hazardous substances

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1. Introduction: supervision of exposure to hazardous substances

This report provides insight into the implementation by the Netherlands Labour Authority of the Exposure to Hazardous Substances programme over the past programme period (2020 – 2023)¹. The programme focuses on reducing risks related to the exposure to hazardous substances. In this report, we look back on the programme period in which COVID-19 impacted the inspection method in 2020 and 2021.

Programme scope

Hazardous substances to which employees can be exposed pose a significant risk in the workplace. They can be harmful in both the short and long term. In the Netherlands, there are more than 100,000 companies where employees may come into contact with these substances. Approximately 40,000 of these companies work with substances that can cause intoxication, poisoning, suffocation and fire or that can pose an explosion hazard. These companies include approximately 400 companies working with large quantities of hazardous substances that are therefore subject to the Major Accidents (Risks) Decree 1999 (Brzo). Approximately 4,100 people die each year from occupational diseases. Nearly 3,000 of them die from exposure to hazardous substances. More than 14,000 occupational diseases caused by substances are diagnosed each year².

Focus and attention programme

The programme focuses on the most hazardous substances³. Examples of these are carcinogenic (cancer-causing), mutagenic and reprotoxic substances, i.e. CMR substances. These substances can cause cancer, damage genes or be harmful to human reproduction. Examples of CMR substances are chromium-6, welding fumes, wood dust and diesel engine emissions. These substances 'form' during work processes and are also called 'substances without an owner'. It may also concern 'substances with an owner'. These substances are used 'consciously', for example in an industrial setting, such as solvents. Legislation and regulations therefore prescribe additional requirements for working with CMR substances. In addition to these CMR substances, the programme also focuses on substances to which people may be hypersensitive after exposure. These are the so-called 'sensitizing' (S) substances.

In addition to so-called 'reactive supervision', i.e. the handling and inspection of reports and requests, the programme carries out risk-oriented supervision through active inspection projects. Attention is paid to target groups, sectors and employers representing the largest 'population at risk' and where exposure is greatest and/or control is moderate.

Hazardous substances: underestimated, because invisible

Addressing exposure to hazardous substances is complex. More than a million Dutch people are exposed to hazardous substances at work. This often occurs without them being aware of the risks, because these substances are invisible or odourless. Or because they do not immediately expect that these substances can be so harmful. This is because unhealthy work due to exposure to hazardous substances is often difficult to observe and less direct in nature. It can take years for symptoms of illness from exposure to hazardous substances to manifest themselves. This is therefore different from occupational accidents such as those involving hot or corrosive substances, where the harmful effects are immediately apparent. About 80% of deaths from working with hazardous substances are retirees, while 20% of deaths are working people.

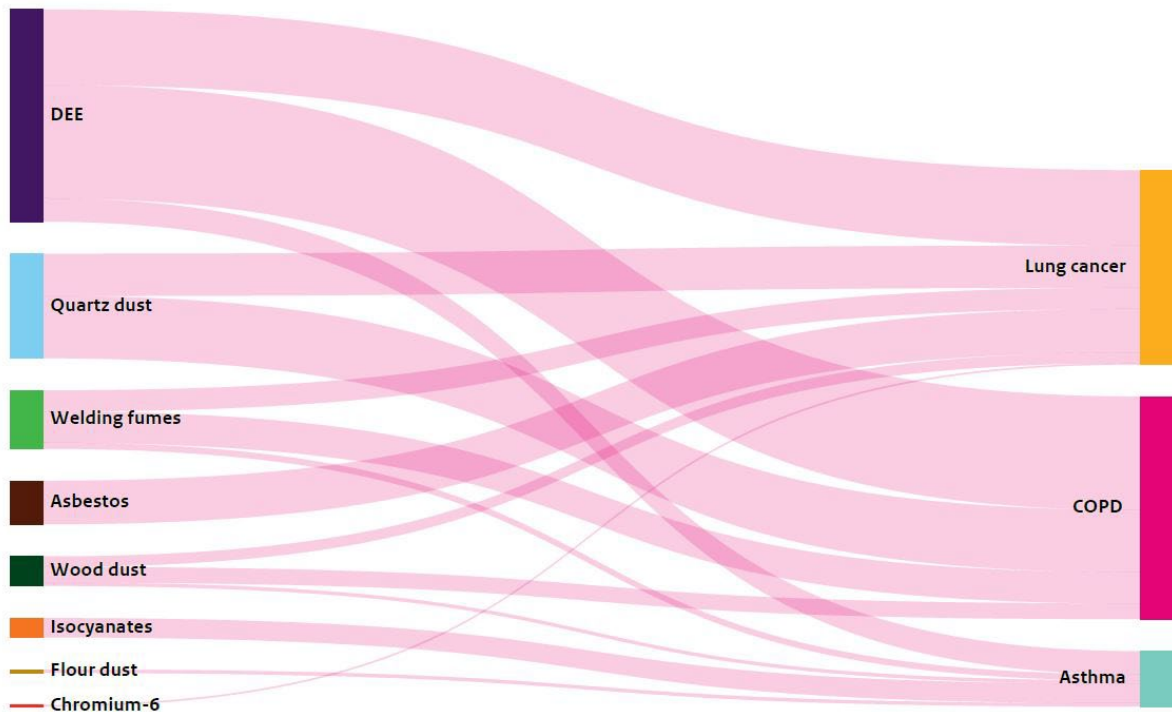
¹ Previous report dates from mid-2021, see: [Supervision of working with hazardous substances 2016-2020 | Report | Netherlands Labour Authority \(nlarbeidsinspectie.nl\)](#)

² Factsheet: [Factsheet Working Safely with \[Hazardous\] Substances | Brochure | Working Conditions portal](#)

³ [Prioritering van risico Nederlandse Arbeidsinspectie.pdf](#)

For a number of illnesses in employees it is known to what extent are caused by exposure to hazardous substances. The figure schematically shows the relationship and proportions between the known burden of disease and the substances. There are also many diseases for which it cannot be determined whether someone became ill due to exposure to hazardous substances at work.

Visualization of the relationship and proportions between exposure to hazardous substances at work and disease burden



Starting point for monitoring exposure to hazardous substances

The general principle is that employers use the order of the occupational hygiene strategy when managing risks (taking measures)⁴. The starting point of this strategy is to prevent and limit exposure to hazardous substances by taking measures as close to the source as possible. Levels of measures are: 1. Replacing the hazardous substance with a non-hazardous or less hazardous substance; 2. Applying technical measures, work processes, equipment and materials that prevent or limit the risks; 3. Taking collective protection measures at the source or taking organisational measures; 4. Providing personal protective equipment for employees who are (or may be) exposed to hazardous substances.

⁴ Also known as the so-called STOP strategy (Substitution, Technical measures, Organisational measures and, as a last resort only, Personal protective equipment).

Approach Netherlands Labour Authority

In recent years, the Netherlands Labour Authority has urged employers working with hazardous CMRS substances to take responsibility for ensuring that their employees are protected against exposure risks. This was achieved through (enforcement) inspections, re-inspections and communication. This means that employers have been checked to see whether they comply with the following steps⁵:

1. *Has the employer inventoried and registered the hazardous substances?*

This concerns actively purchased hazardous substances. To prevent hazardous substances from entering products and materials that employees work with (including sanding and grinding work, working in contaminated soil, etc.), as well as substances that are released during (production) processes.

2. *Has the employer assessed employee exposure?*

This is about whether the employer has taken responsibility for assessing the risk that employees run. This is because not every employee in the company is exposed to hazardous substances and not every employee does the same work. These steps are necessary to assess which measures are required in the relevant situation and whether the measures taken are sufficient.

3. *What measures has the employer taken with respect to CMRS substances? On the one hand, general preventive measures and, on the other, measures in accordance with the occupational hygiene strategy⁶*

The occupational hygiene strategy specifies the sequence of measures to be taken. For hazardous substances, the order is: Substitution (replacement) of the hazardous substance, Technical measures, Organisational measures, Personal protective equipment (STOP).

Taking measures is subject to the 'principle of reasonableness'.

4. *What does the employer do in terms of providing safeguards?*

This is about whether the employer, to the extent technically feasible, makes ongoing efforts to reduce exposure to the lowest possible level below the limit value. Does the employer have a procedure in place to identify and manage changing situations?

In addition, employers have been checked to see whether they fulfilled their occupational health and safety obligations, including a risk inventory, action plan, basic contract with company doctor and a periodic occupational health examination. This includes checking whether the employer provides information, training and supervision. In addition, it has been checked whether the employer offers its employees periodic occupational health examinations in order to timely detect damage to health due to work risks.

Self-inspection: working with hazardous substances

Companies receive assistance in tackling exposure to hazardous substances in the form of the self-inspection tool 'Working with hazardous substances', developed by the Netherlands Labour Authority⁷. The self-inspection tool contains a number of steps aimed at applying a structured approach to limit and control the risks of working with hazardous substances. The self-inspection allows the employer to look at these four steps through the eyes of the inspector, as it were. After completion, an action item list will be drawn up with possible points for improvement.

⁵ [Explanation of 4-step plan | Explanation of Self-inspection working with hazardous substances | Netherlands Labour Authority \(nlarbeidsinspectie.nl\)](#)

⁶ Working Conditions Decree: Articles 4.4 and 4.18

⁷ [Self-inspection tool](#)

Conclusion: more attention and much improvement needed

The responsibility for a healthy working environment lies primarily with the employers, but other actors too have a role to play. Examples include individual employees, the Works Council, the health and safety officer, certified key experts, company doctors, occupational health and safety services, industry organisations, insurers, policymakers and the Netherlands Labour Authority itself.

Improvement opportunities for employers, and other parties, were previously mentioned in the [State of Healthy Working published by the Netherlands Labour Authority in 2023](#). Some important actions that were highlighted include identifying risks, investing in improving the working conditions, investing in the safety culture and talking to each other about healthy and safe working, and investing in knowledge about hazards, risks and effective measures.

Following the inspections, re-inspections and other interventions carried out in the past four years, the Netherlands Labour Authority further concludes that:

- Employers do not pay sufficient attention to general (common sense) preventive measures. Examples of this are separate areas for eating/drinking and changing clothes, lids on barrels to prevent unnecessary exposure, proper packaging and piping (no leaks), no storage of hazardous substances in the workplace.
- Employers lack sufficient knowledge of the hazardous substances they use and the associated health risks, including the long-term risks.
- Substitution of hazardous substances is considered less often than it could be, and there is room for more innovation in this area.
- Taking measures in accordance with the occupational hygiene strategy is not yet standard practice, with an excessive reliance on personal protective equipment instead of technical control measures.
- The use of the occupational health and safety catalogue is not yet widely applied to the subject of Exposure to hazardous substances. And even if the sector has drawn up an occupational health and safety catalogue and it has been assessed by the Netherlands Labour Authority, familiarity with it among the employers is still low.
- Employers are still not actively (and periodically) fulfilling their occupational health and safety obligations.

The inspections and results show that continued attention and commitment is needed to increase the responsibility of employers to reduce harmful exposure of their employees to hazardous CMRS substances.

A further explanation of the inspections, re-inspections and other interventions can be found in Chapter 2.

2. Inspection results

2.1 Exposure to CMRS substances in Brzo companies

The Netherlands Labour Authority has inspected almost all companies subject to the Major Accidents (Risks) Decree 1999 (Brzo) for exposure to hazardous substances. This was prompted by a study which showed that Brzo companies pay insufficient attention to exposure to CMR substances⁸. The number of Brzo companies changes each year, depending on the quantity of substances the companies work with. Approximately 415 Brzo companies were active between 2020 and 2023.

Additional inspections were carried out at a Brzo company when the Brzo company consisted of multiple sites. Over the years, a total of 527 business sites have been inspected for the risk of exposure to CMRS substances. Of these inspections, approximately 100 were carried out at companies that currently do not have Brzo status. These companies do work with many hazardous substances and could be assigned Brzo status in the future or come under the current ARIE scheme.

The Netherlands Labour Authority initiated an enforcement procedure at 63% of the business sites visited. A large proportion of the business sites where enforcement was imposed were subsequently inspected again. This made the effect of the inspection visit clear. During the second inspection visit, an enforcement procedure was initiated at 44% of the business sites visited.

The Netherlands Labour Authority can see room for improvement in the following areas at Brzo companies (the number of times enforcement was imposed due to shortcomings in this area is shown in brackets):

General preventive measures (enforced 118 times), including:

- Organising the workplace in an orderly manner and limiting the amount of hazardous substances and exposure in the workplace.
- Suitable break areas and no smoking, drinking or eating in the workplace.
- Providing good sanitary facilities and ensuring that employees are provided with work clothing and facilities to change.

Occupational hygiene strategy (enforced 196 times), including:

- Efforts to eliminate or replace hazardous (CM) substances.
- If replacement is not possible, taking technical measures.
- Personal protective equipment only as a last resort control measure.

Inventory and assessment (enforced 893 times), including:

- For all hazardous substances to which workers are exposed, determining the nature, degree and duration of exposure.
- Testing against limit values
- Exposure assessment.

Hazard Identification & Risk Assessment and assurance (enforced 291 times), including:

- Changes and identifying.
- Information and training, periodic occupational health examinations.

E-Magazine exposure at Brzo companies

The project results were presented to representatives of the Brzo companies at the Seveso congress, at the end of 2023. More information can be found in the e-Magazine: [Exposure to hazardous substances at Brzo companies | Netherlands Labour Authority \(nlarbeidsinspectie.nl\)](#).

⁸ See research [Effect study of exposure to CMR substances - baseline measurement at 80 complex companies and effect measurement at 29 complex companies | Report | Netherlands Labour Authority \(nlarbeidsinspectie.nl\)](#).

2.2 Metal and maintenance

2.2.1 Chromium-6 maintenance

Chromium-6 is released during chrome plating or processing of chromium-containing surfaces (welding, sanding or other processing). Chromium-containing surfaces include coatings (paints). Coatings pre-dating 2019 may contain chromium-6. The use of chromium-6 is subject to an authorisation requirement. This means that chromium-6 may no longer be used, unless authorisation has been requested under REACH⁹. This is, for example, the case for coatings in the aerospace industry. The authorisation requirement was introduced between 2015 and 2019, depending on the type of chromium-6 compound.

A project was started in 2020 because it became apparent that chromium-6 is released during maintenance work. The project focuses on taking measures to control exposure to chromium-6 when working on coatings on metal within the framework of maintenance and renovation work.

Within this project, inspections were carried out during work on:

- Vehicles, such as aircraft, ships, trains, trams;
- High-voltage pylons;
- Building structures, railings and fencing, parts of traffic support structures, lampposts, air and ventilation ducts;
- Bridge(s);
- Other objects, such as boilers and sheds.

The enforcement rate during these inspections was 55%.

Within the project, a total of 16 companies were inspected on the basis of reports indicating employees were exposed to chromium-6 during maintenance work. At 94% of these companies, enforcement was imposed with respect to the following:

- The HIRA does not pay attention to chromium-6;
- No records kept of employees exposed to chromium-6.

It has been found that chromium-6 was released during work on the coatings of these objects, such as deburring, sanding, blasting, welding (stainless steel or coated metal). More than half of the companies visited are not sufficiently aware that chromium-6 can occur in old coating layers. This is partly because it is not recognisable as such. There is often no information indicating that a chromium-6-containing coating was applied to the object in the past. A perspective for action is available for companies, [Management regime for chromium-6 and other hazardous substances \(version 2\)](#).

Re-inspections were held at 45 companies. Of these, the enforcement rate was 20%.

In conclusion, we can state that employers have insufficient knowledge of the hazardous substances they use and the associated health risks, also in the long term.

Following this project, communications on our website in relation to chromium-6 have been adjusted¹⁰, so that they contain the latest information again.

⁹ See paragraph 2.7

¹⁰ [Chromium-6 | Netherlands Labour Authority \(nlarbeidsinspectie.nl\)](#)

2.2.2 Smelters and foundries

In 2022, an inspection project was started at smelters and foundries. The reason was a number of complaints about exposure to hazardous substances. It was found that employees were exposed to multiple CMR substances, including metal fumes. The inspections and a number of re-inspections were carried out in accordance with the approach applied by this programme. In the first inspection, the focus is mainly on an inventory of the substances and their assessment and subsequently on the measures taken.

In 2022, inspections were carried out at 71 smelters and foundries at an enforcement rate of 87%. Re-inspections were held at 16 of these companies. During these re-inspections, minor improvements were found. This was found to be insufficient in 9 re-inspections, resulting in further enforcement orders.

The inspections revealed that:

- Employers do not pay sufficient attention to general (common sense) preventive measures, such as separate areas for eating/drinking and changing clothes, lids on barrels to prevent unnecessary exposure, proper packaging and piping (no leaks), no storage of hazardous substances in the workplace.
- Employers lack sufficient knowledge of the hazardous substances they use and the associated health risks, including the long-term risks.

In addition, it was found that employers do not know where to start when taking measures to reduce exposure during the melting and casting production process. They tend to think of taking drastic technical (long-term) measures that cost a lot of money, instead of taking (short-term) organisational measures that have an immediate effect. To help employers take these measures to immediately reduce harmful exposure to CMRS substances, [a communication tool](#) was developed (only available in Dutch). This was explained to the companies at the end of 2023.

This contains an explanation of the risk and a perspective for action with immediate effect, namely:

- General hygiene;
- Use of a vacuum cleaner (instead of a broom);
- Good respiratory protection (which is kept clean);
- Next, check whether effective extraction is possible and necessary.

Re-inspections will take place in 2024, with the emphasis on whether short-term measures have been taken. In addition, the emphasis of these re-inspections will be on what measures the employer takes to reduce harmful exposure at the source, in the long term.

2.3 Diesel Engine Emissions (DEE)

Diesel engines are used to power vehicles and equipment and emit diesel emissions. The soot particles in the exhaust gases of diesel engines can cause lung cancer, among other things. DEE is carcinogenic and causes the highest level of work-related disease burden. Exposure occurs in various sectors of the labour market. Since 1 July 2020, the legal limit value for DEE has been 10 µg EC/m³ (soot concentration per cubic metre of air). However, this DEE exposure value is not a safe exposure level. Therefore, companies must make efforts to prevent this risk where possible, or otherwise take technical measures in accordance with the occupational hygiene strategy.

Given the risk and the share that DEE plays in the burden of disease in the Netherlands, the Netherlands Labour Authority started raising awareness about this risk in 2020. Various steps have been taken to inform various stakeholders about this, such as the industry organisations VNO-NCW, MKB-Nederland, BOVAG and BMWT. Industry organisations were also contacted when the occupational health and safety catalogue was no longer up to date with regard to DEE.

Hazardous substances with the highest estimated disease burden: cancer and lung diseases



2.3.1 DEE exploration

In 2020, the Netherlands Labour Authority carried out a DEE exploration. The aim of this project was to gain insight into the risk of DEE exposure and the measures taken by companies. At the beginning of 2020, a total of 170 companies in nine sectors were visited with suspected cases of DEE exposure. A telephone survey was launched at the end of 2020 to investigate the risk of exposure to DEE and the measures taken. A total of 1,000 companies from twenty sectors were included in this study.

The DEE exploration showed that companies:

- Were mostly unaware of the risks posed by DEE exposure;
- Had not assessed the risk to their employees in the Hazard Identification and Risk Assessment (HIRA);
- Often limited themselves to organisational measures for control; and,
- That there are major differences in the use of diesel between the various sectors.

The exploration revealed several sectors that often use diesel as fuel. They are sectors that often do not take measures to reduce DEE exposure in the company and where it is not clear to what extent employees are exposed to DEE. Based on this overview, the Netherlands Labour Authority initiated inspections specifically aimed at DEE in car repair shops, the concrete mortar industry and waste processing companies. The trade associations in these sectors were notified. The inspections focused on clear measures that employers must take to prevent DEE exposure whilst carrying out the work.

2.3.2 Inspections at car repair shops

A total of 195 inspections were carried out at car repair shops. A total of 67% of employers had taken no or insufficient measures to minimize DEE exposure. All this while most employers indicated that they were aware of the DEE hazards and that they acted accordingly. Of all the employers with violations, a total of 102 were re-inspected. Enforcement was imposed again in 7% of cases.

It was striking to see that there is no difference in inspection results on DEE exposure between employers who are and those who are not affiliated with a trade association.

The project results are available in the publication '[Exposure factsheet car repair shop owners](#)'.

2.3.3 Concrete mortar industry and waste processing companies

The concrete mortar industry and waste processing companies share some similarities. Both sectors work both indoors and outdoors with heavy diesel-powered machinery.

In the concrete mortar industry, a total of 114 inspections were carried out. Enforcement was imposed at 75% of companies, mainly due to insufficient measures. A total of 51 companies were re-inspected, and enforcement needed to be re-imposed at 10% of these.

At the waste processing companies, a total of 127 companies were inspected. Enforcement was imposed at 60% of those.

In both sectors there appeared to be a lack of knowledge about the risks of DEE. The inspections revealed that the option of replacing diesel-powered equipment/vehicles was still limited.

Alternatives are available for some of the diesel-powered equipment/vehicles found, but so far these alternatives are used to only a limited extent. The companies give various reasons why they cannot replace the devices/vehicles. Examples of this include the required capacity and bottlenecks in the power supply associated with the use of equipment/vehicles and the necessary financing. In 2024, we will use these insights to define a supervisory approach to reduce exposure to diesel engine emissions.

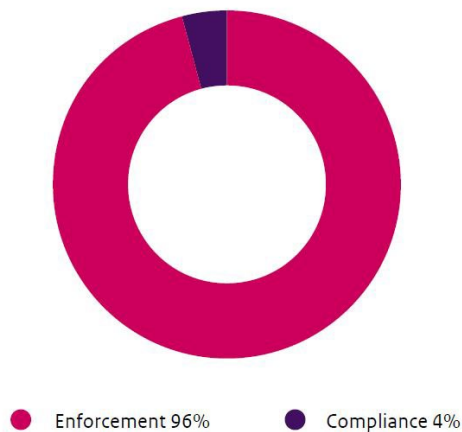
2.4 Cleaning: Tank cleaners

About 60 companies in the Netherlands clean tank trucks. About half of these companies clean tankers that contain residues of hazardous substances. In the period from the end of 2021 to 2022, following complaints about exposure to hazardous substances, the Netherlands Labour Authority carried out 28 inspections at tank cleaners that clean tank trucks using hazardous substances.

The Netherlands Labour Authority found that two-thirds of companies clean tankers that may contain residues of CMRS substances. It turned out that:

- The companies were not aware of the rules applicable to hazardous substances and, in particular, to carcinogenic and mutagenic substances.
- The companies do not yet have a standard practice for the occupational hygiene strategy. They rely too much on personal protective equipment, instead of technical control measures.

Enforcement rate



At 96%, the enforcement rate was high, as shown in the figure above. The only company that *did* comply with the rules was not a cleaner of tank trucks, but of 1,000-litre containers.

At all companies where enforcement was imposed, the assessment of the nature, extent and duration of use of hazardous substances was not in order. This means that they had no clear idea as to whether the employees could work healthily. Furthermore, the companies did not take sufficient precautions: the companies did not work with closed drainage systems, even though this was possible.

The trade association was shocked by these results and has indicated that it will start supporting its members in prioritising and categorising the substances to be cleaned.

A re-inspection project is scheduled to take place in 2024, which will be reported on at a later date.

2.5 Manufacturers of adhesives, resins and sealants and Chemical wholesalers

Exposure to hazardous substances is common among producers of adhesives, resins and sealants and chemical wholesalers, while there is insufficient knowledge about exposure to these substances. This despite the fact they are actually suppliers to companies. They must provide their buyers with information about the risks and be able to think along about alternatives. Reports received by the Netherlands Labour Authority often turned out to involve wholesalers. This is remarkable, because wholesalers handle hazardous substances to only a limited extent.

In response to this, an inspection project was launched in 2020 that specifically focused on these suppliers: on the one hand, they were manufacturers of adhesives, resins and sealants and, on the other, wholesalers of chemical products. Manufacturers/producers of adhesives, resins and sealants often produce using batch processes. In a batch process, a predefined volume or quantity of a product is produced each time. This is in contrast to a continuous process. A batch process is labour-intensive and involves many interventions, such as weighing, dosing, mixing, filling, etc. In the case of wholesalers of chemical products, the main focus is on distribution. In addition, some companies carry out small-scale operations such as pouring, pumping, repacking, etc.

The objective of the inspection project was as follows: to check compliance with the obligations under the Working Conditions Act that focus on exposure to hazardous substances at a minimum of 50 and a maximum of 70 companies, i.e. manufacturers/producers of adhesives, resins, sealants and wholesalers of chemical products. Exposure to CMRS substances had the highest priority.

A total of 69 employers were inspected. A total of 51 companies were found to be in violation (74%). These 51 companies were re-inspected. A total of 28 employers were found to be in violation again (55%). The figures show the results of the initial inspections and re-inspections. During the re-inspection, a fine report was announced for 6 employers. This is 12% of employers inspected during the re-inspections. All of the fines imposed related to determining exposure to hazardous substances.

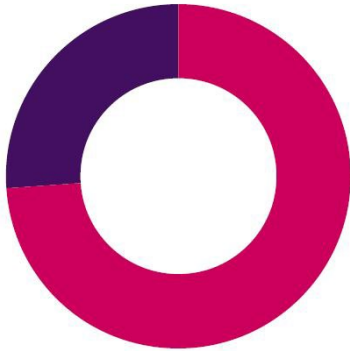
There was no clear difference in enforcement between manufacturers/producers and wholesalers. The vast majority of enforcement concerned inspections in relation to Exposure to hazardous substances.

This project also focused heavily on compliance behaviour of the inspected employers. Interestingly, lack of knowledge turned out to be the main reason for non-compliance. During the re-inspections it became clear that this had improved. It further became apparent that those who were still in violation stated cost considerations as main reason, in addition to a continued lack of knowledge (and/or a lack of actively gaining knowledge themselves).

In summary, it appears that there is room for improvement when it comes to:

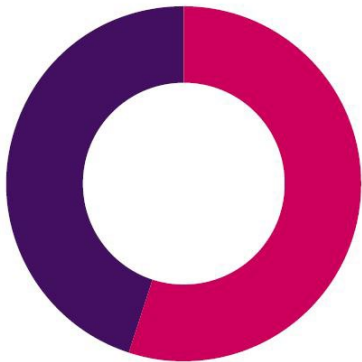
- Knowledge of the hazardous substances that companies use and the associated health risks, also in the long term.
- Replacing hazardous substances at manufacturers/producers and innovation in this area.
- Taking measures in accordance with the occupational hygiene strategy.

Results initial inspections



● Violations (74%) ● Compliance (26%)

Results re-inspections



● Violations (55%) ● Compliance (45%)

2.6 Explorations

2.6.1 Welding fumes, wood dust and flour dust

From May 2023 to 31 March 2024, a pilot project was carried out on Exposure to welding fumes, wood dust and flour dust. A total of 75 companies were inspected. Exposure to these substances causes a high disease burden and these substances rank in the top 10 risk categories of hazardous substances. Reports on exposure to these substances are received on a regular basis.

Preliminary research has shown that, for all three exposure risks, the following applies to the majority of the target group:

- Little or no knowledge of the occupational health and safety catalogue.
- Little knowledge and experience in working with (online) tools, such as 5xbetter, the self-inspection tool, Dust-free working, etc.
- The level of knowledge among employees is often (too) low.
- Small and medium-sized enterprises in particular often do not have the resources and capacity that large companies have to call in professional assistance for substantive knowledge of hazardous substances.
- Cost/benefit considerations when deciding to take measures at process level often lead to safety measures at employee level.

Inspection results

In the metal sector, enforcement with respect to welding fumes was imposed most. Enforcement with respect to wood dust in the wood, carpentry and furniture industries was imposed relatively often as well. In bakeries, inspections were carried out with respect to flour dust. Practically no violations were found though. The results and feedback from the inspectors show that companies where employees are exposed to welding fumes and wood dust need to take more responsibility to better protect their employees against exposure risks. The inspected companies where employees are exposed to flour dust have taken sufficient measures to prevent risks.

The inspection results with respect to risks of welding fumes and wood dust provide grounds for inspecting employers in the wood processing industry and in the metal sector for exposure risks to wood dust and welding fumes in the programme period 2024–2027. To this end, the Netherlands Labour Authority uses an intervention mix of monitoring, informing and enforcement. The emphasis in this is on companies being self-reliant. They must become demonstrable self-starters.

2.6.2 Quartz composites

In 2021, the Netherlands Labour Authority received questions about possible serious health risks from working with quartz-containing composite material (quartz composite). Exposure to quartz can lead to silicosis, a lung disease. This is a known risk in sectors such as construction, where they work with sand, natural stone and other materials that can release quartz dust. The Netherlands Labour Authority therefore includes the risk of exposure to quartz dust in projects in these sectors. New to the inspection were publications from Australia, Spain and Israel, among others, on silicosis among employees due to working with quartz-containing composite material.¹¹ The studies reported on employees of composite stone manufacturers and workers who process products made from quartz-containing composite materials. The studies demonstrated that the development of silicosis due to composite stone shows a more serious clinical picture in case of insufficient protection. Development is faster (well under 10 years, sometimes already after 4) and can occur at a relatively young age (under 40).

The questions and publications received prompted the Netherlands Labour Authority to conduct an exploratory investigation, as the use of quartz composite is becoming increasingly common in the Netherlands as well. The companies use the material as a worktop in kitchens, for example, and as floor and wall covering in kitchens and sanitary areas. They also use it to make products such as sills and sinks.

The exploratory study showed that the primary production of quartz composites, which is when the risk of exposure is greatest, does not take place in the Netherlands. Companies import the quartz composite in the form of large slabs for further processing in the Netherlands. The Netherlands Labour Authority subsequently carried out exploratory inspections at processors of quartz composite sheet material and producers of end products up to and including installation on the premises of the end consumer. The explorations provided the Netherlands Labour Authority with an idea of how these companies in the Netherlands deal with the risks of processing quartz composite in their respective work.

The 11 exploratory visits showed that the level of knowledge and awareness about the increased quartz content in composite materials is low among both producers and companies that install said products. They generally recognise the risk of exposure to dust. Companies are also taking measures that help control the risk of quartz dust. Examples include sawing and sanding with water and source extraction when using (hand) tools. The explorations did not reveal any direct need for further intervention. The risk of exposure to quartz dust continues to be a focal point for the Netherlands Labour Authority.

¹¹ See also: [Artificial stone-associated silicosis: a rapidly emerging occupational lung disease \(bmi.com\)](#); [Table - PMC \(nih.gov\)](#)

2.6.3 Biological agents

In the past, the Netherlands Labour Authority paid a lot of attention to biological agents. Exposure to biological agents can lead to health damage among workers. In recent years, based on our Inspection-wide Risk Analysis (IRA), priorities have shifted to other topics. For this reason, Biological Agents mainly received reactive attention (approximately 25-30 reports per year). In light of the COVID-19 pandemic and based on reports and events involving exposure to biological agents, the question arose whether a reassessment of the risks of work-related exposure to biological agents is necessary.

In the years 2021-2023, the Netherlands Labour Authority conducted an exploratory project with respect to Biological agents. Approximately 30 exploratory visits were carried out at companies with suspected exposure to biological agents in the sectors:

- Contact with animals (food industry, zoos, nature management organisations).
- Industry (waste processing).
- Care (nursing homes, daycare for the disabled).
- Government (police, fire brigade, ambulance).
- Education (primary education).
- Services (domestic work).

The visits showed that the risk of biological agents is generally sufficiently recognised and controlled. Often measures have been taken. Attention is paid to information and training. Where vaccination is possible, this has been recognised and offered by the companies. In many sectors, attention is paid to pregnant women as a special group.

Apart from the above-mentioned results, the Netherlands Labour Authority still sees room for improvement for:

- More attention to targeted (periodic) occupational health examinations.
- More attention to infectious diseases as occupational diseases. This applies to employers, trade associations and company doctors.

2.7 REACH and national and international collaboration

Due to the risks of hazardous substances, European regulations for the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) and for the Classification and Labelling of Chemicals (CLP) are in place. These regulations apply to all countries of the European Union and are aimed at manufacturers, importers, distributors and users of chemical substances. The goal of the regulations is to limit and regulate the risks to people and the environment.

In the Netherlands, the Netherlands Labour Authority participates in the partnership for enforcement of these European regulations. This partnership also consists of the Human Environment and Transport Inspectorate (ILT), the Netherlands Food and Consumer Product Safety Authority (NVWA), Customs and State Supervision of Mines (SodM). During the period 2020-2023, the Netherlands Labour Authority carried out various interventions within the framework of the European REACH directive.

At a European level, the Netherlands Labour Authority also participates in the Chemicals Working Group of the Senior Labour Inspector's Committee (SLIC chemex). This working group examines, among other things, the interaction between REACH and working conditions legislation.

2.7.1 REF-9

In 2021, the European REACH Enforcement 9 project (REF-9) was carried out in the Netherlands. It was checked whether substances were used for which the European Commission had granted an authorisation. The Netherlands Labour Authority checked whether the substances were applied by the end user in the workplace, in accordance with the conditions for use. Twelve inspections were carried out at companies that work with one or more substances subject to authorisation.

It emerged that a proper exchange of information in the chain depends on all parties within this chain and that this does not always go well. For example, during the inspections it turned out that a paint supplier did not provide the correct information. As a result, end users were not aware of the presence of the substances subject to authorisation and the conditions for use. Subsequently, inspections were carried out at 8 of these end users. Without exception, it was found that these end users were not aware of the authorised substance and of the restrictions and conditions that apply to the use and application of said substance. Following the inspection, 7 companies immediately stopped using substances subject to authorisation. They disposed of these substances towards the supplier. Enforcement was imposed at a total of 7 companies. Enforcement on the subjects of PAGO, Registration obligation for CM substances and Incomplete HIRA on exposure to hazardous substances were the most common.

More information can be found in the project report of the European Chemicals Agency (EHCA) [Forum - REF-9 project report on enforcement of compliance with REACH authorisation obligations \(europa.eu\)](https://european-chemicals-agency.eu/Forum-REF-9-project-report-on-enforcement-of-compliance-with-REACH-authorisation-obligations/europa.eu).

2.7.2 SLIC Chemex

In 2023, the European REACH/OSH project initiated by SLIC Chemex was implemented in the Netherlands. Since 24 August 2023, a REACH restriction has been in force for the use of isocyanate-containing products. The reason for this restriction is that exposure to diisocyanates increases the risk of respiratory diseases. Workers may become hypersensitive to isocyanates (sensitize) and therefore develop allergic occupational asthma.

The restriction requires all employees working with these products to have received training on the risks and control measures. The aim of the project was to use a predefined questionnaire to determine the extent to which the restriction is complied with within Europe.

The Netherlands Labour Authority carried out 25 inspections within the framework of this project. Enforcement was imposed at a total of 4 companies for (continued) failure to complete the training. A report with the European results will be published in the autumn of 2024.

2.8 Reactive supervision of hazardous substances

Supervision in response to (accident) reports is called 'reactive supervision'. Reactive supervision of hazardous substances is embedded within the Exposure to Hazardous Substances programme, because this requires specific knowledge.

2.8.1 Reports

Reports of suspected non-compliance with the legal requirements for working with hazardous substances can be submitted to the Netherlands Labour Authority. Employees, employers, health and safety officers, (family of) victims, police, members of the works council or employee representative body, trade unions and third parties can make such a report.

In the period 2020-2023, approximately 800 reports about companies working with hazardous substances were logged as worthy of investigation according to the applicable criteria.

The reports concern companies throughout the Netherlands.

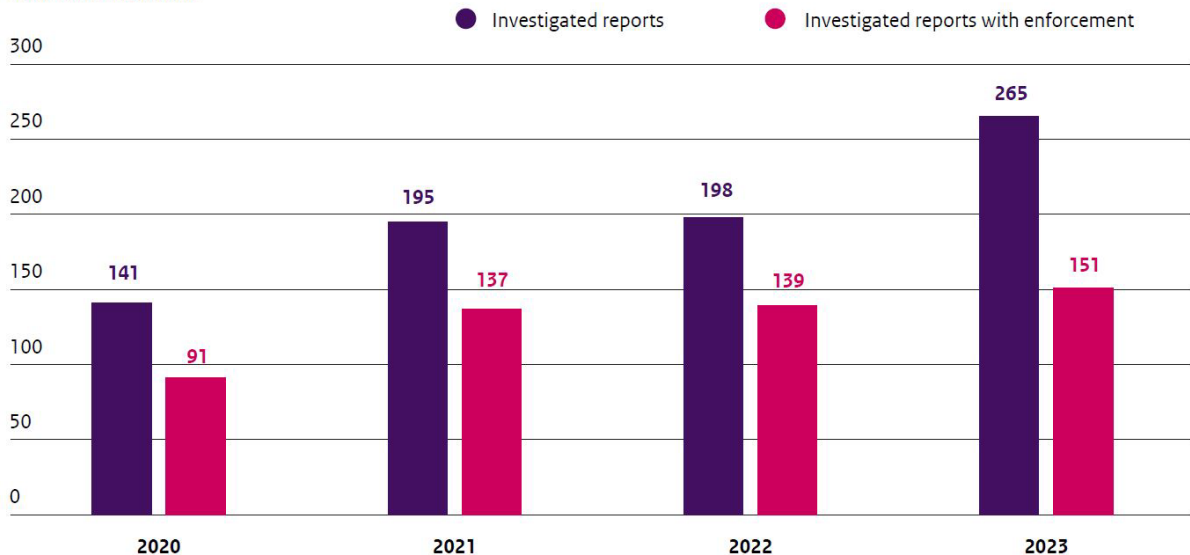
In 20 reports, further investigation showed that there was no reason to continue the investigation.

Enforcement was imposed at 65% of the investigated companies. One or more companies were found to be in violation.

Approximately 350 re-inspections were carried out. The enforcement rate was 36%.

The figure below shows the number of companies investigated that were reported in the period 2020-2023 and the number of companies where enforcement was imposed.

Investigated reports on exposure to hazardous substances and enforcement



The violations found during the inspections concerned:

- Insufficient measures to protect workers against the risks of hazardous substances.
- Lack of inventory of the substances present and lack of assessment of the risk of exposure.
- Lack of or incomplete Hazard Identification and Risk Assessment and assurance.
- Lack of appropriate measures in case of acute risks with potential (serious) danger of falling from heights or working with unsafe machinery.

The same types of violations were found during the re-inspections.

More than 50 different types of hazardous substances were found. Carcinogenic (cancer-causing), mutagenic and reprotoxic substances that have been found in relatively high quantities are diesel engine emissions, welding fumes, wood dust and chromium-6.

2.8.2 Reports on fumigated containers

In addition to the above reports on companies, the Netherlands Labour Authority received 120 reports from Customs about fumigated containers. Containers are often fumigated with pesticides to control pests. These pesticides are harmful to humans as well. When opening these containers there is a risk that someone may inhale these gases, causing a risk of suffocation, intoxication, poisoning or fire. The Netherlands Labour Authority regularly receives reports about fumigated sea containers detected by Customs with high concentrations of 'gases' in the container. These reports often come from Customs and not from employees or third parties. Customs will report on the basis of their random checks on the contents of containers reaching the Netherlands by ship, if these checks give reason to do so. The focus of the inspection is on the safe opening and entry of the containers by the recipient.

2.8.3 FNV enforcement request

Exposure to diesel engine emissions (DEE) and kerosene engine emissions (KEE) at Schiphol Airport

In December 2021, FNV, the Dutch Trade Union Confederation, submitted an enforcement request to the Netherlands Labour Authority. Following this request, inspections were carried out at the 10 companies mentioned in the enforcement request. The inspections showed that employees of baggage handling companies, Schiphol Nederland B.V. and other companies working at Schiphol Airside can be exposed to hazardous substances. This includes exhaust gases from diesel engines (DEE) and kerosene engines of aircraft. The Netherlands Labour Authority initiated an enforcement procedure at 9 of the companies it visited.

The Netherlands Labour Authority imposed compliance requirements on Schiphol Nederland B.V. and 8 baggage handling companies. The requirements focus on replacing diesel-powered vehicles and equipment for aircraft facilities, among other things. But also on reducing the extent to and time during which employees are exposed to diesel engine emissions (DEE). Employees who are (or may be) exposed to hazardous substances must also undergo (periodic) occupational health examinations (PAGO).

In addition, an enforcement order was imposed on Schiphol Nederland B.V. through a second sub-decision. Since other stakeholders were potentially involved in this second sub-decision, it was decided to apply the uniform public preparatory procedure¹².

In May 2023, a Notice of draft order was published in the Government Gazette in the context of sub-decision 2¹³. All interested parties have thus been given the opportunity to submit their opinion on the draft order to the Netherlands Labour Authority. The Netherlands Labour Authority received 9 opinions from (groups of) stakeholders.

In January 2024, sub-decision 2 was published in the Government Gazette¹⁴. In it, the Netherlands Labour Authority imposes the following measures on Schiphol Nederland B.V.:

- Measures regarding the use of aircraft engines near aprons, including adjusting aircraft arrival and departure procedures.

¹² Section 3.4 of the General Administrative Law Act.

¹³ Notification of draft order on enforcement request from the Dutch Trade Union Confederation (FNV), Netherlands Labour Authority, Ministry of Social Affairs and Employment. Government Gazette 2023, 14547.

¹⁴ Notification of decision on enforcement request by the Dutch Trade Union Federation (FNV), Netherlands Labour Authority, Ministry of Social Affairs and Employment. Government Gazette 2024, 2348.

- Measures regarding the use of Auxiliary Power Units (APUs) and the use of diesel-powered aircraft equipment near aprons. This includes offering electrical aircraft equipment and making it mandatory for airlines to purchase it.
- Including these measures in the action plan with attention to reducing the risk of collision. This will create attention to be able to implement the measures.

2.8.4 Accident investigation involving hazardous substances

Since 2021, the programme has been investigating accident reports involving hazardous substances, with the exception of fatal accidents and accidents that fall under the definition of Serious Accident at Brzo companies, which are investigated by the criminal law team and the Major Hazard Control (MHC) programme respectively.

For accident reports involving hazardous substances, some of the reports do not meet the standards for a reportable accident. This is because when exposed to hazardous substances, it is not always immediately clear whether it involves permanent injury. Two examples:

- When a casualty comes into contact with a corrosive (caustic) substance, it can lead to visible damage to the skin. It takes a long time to determine whether the injury is permanent.
- Inhalation of high concentrations of hazardous substances may result in permanent or non-permanent injury, or occupational disease. Furthermore, the relationship between occupational exposure to hazardous substances and injury cannot always be established.

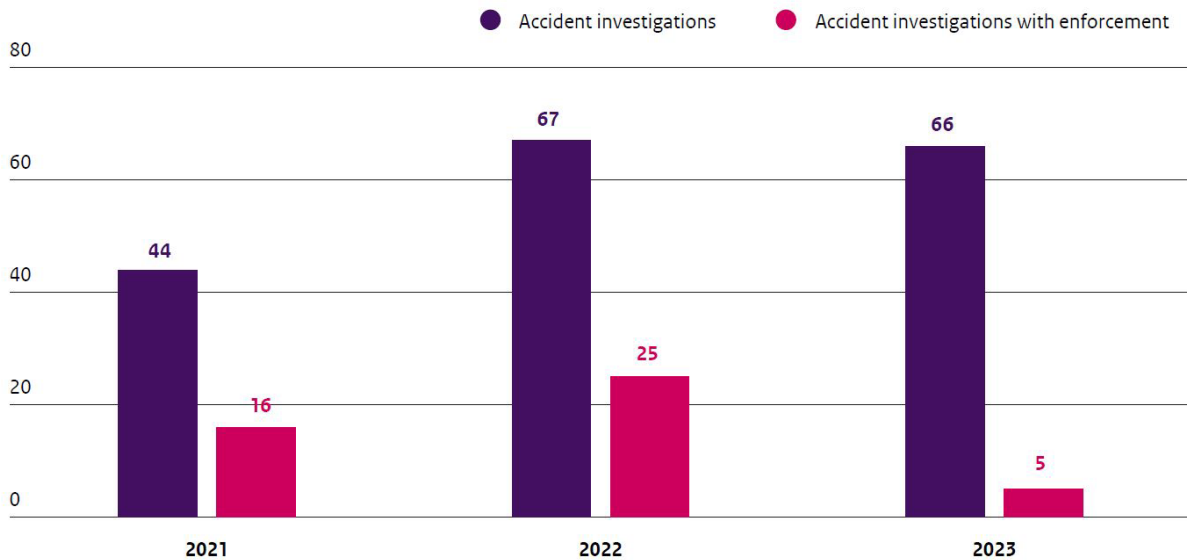
Until the end of 2022, inspectors conducted the investigation according to one standardised procedure. Since 2023, this has been replaced by a new approach. In most cases, employers themselves investigate the occupational accident. The reason for this is that a large group of inspectors did not consider the standardised method to be the best approach in all cases, for example to preventively reduce future risks. In addition, a motion was adopted by the House of Representatives a number of years ago. The motion requested that the actual lessons learned from an accident should be given priority.

This means that using weighing criteria, the following options exist for accident reporting:

1. The employer investigates the accident and draws up an employer report.
2. The Netherlands Labour Authority conducting the investigation.

Approximately 175 accidents were investigated in the period 2021-2023.

Accident investigation on exposure to hazardous substances and enforcement



3. More than supervision

3.1 Information about working with hazardous substances

In recent years, the Netherlands Labour Authority has also provided information to and collaborated with employers, employees and industry organisations about and for the (chronic) effects of hazardous substances. The aim was to make employers and employees more aware of the health effects of exposure to hazardous substances and of the legal obligations they must comply with in the event of exposure. Attention was also drawn to the handling of hazardous substances in interviews, presentations and workshops. Specific substances or methods were central depending on each target group. As in inspection practice, the emphasis in information provision is on reducing the exposure of employees to so-called carcinogenic, mutagenic, reprotoxic and sensitizing substances (CMRS substances). In the period 2020-2023, various communication interventions were made in individual projects. Examples of this include the provision of information to various target groups and discussions with industry organisations and workshops, among others.

In order to provide companies with information as clearly and transparently as possible, the e-magazine 'Working with Hazardous Substances' was published in 2020. This magazine offers companies and industry organisations tools to come up with new measures and improve existing ones.

3.2 Tools for companies

Working safely with hazardous substances is primarily up to the companies themselves. The inspections show that the required knowledge is often insufficient. For this reason, various tools have been developed. These tools support companies when managing the risks of working with hazardous substances.

3.2.1 [Self-inspection tool Working with hazardous substances](#)

This tool enables employers to assess for themselves, through the eyes of a labour inspector, whether they comply with the laws and regulations regarding working with hazardous substances. This way, the tool offers employers depth and perspective for action.

3.2.2 [Substances check app](#)

This informative app is specifically aimed at employees. The app provides information about working with certain substances: what the risks are, whether they can make you ill and what measures are needed to work safely. Employees can use this Substances Check app to quickly check whether, at any given time, the measures taken are sufficient to prevent or limit exposure to hazardous substances. In 2020, a scanning functionality was added. This allows employees to easily scan the pictograms on packaging. The scan function recognises all CLP pictograms. These are the pictograms shown in a red frame, as introduced by the CLP Regulation. The app was developed together with the trade unions and can be downloaded on a smartphone or tablet. The app is available in both the Apple Store and the Google Play Store.

3.2.3 [VIB check](#)

The VIB check allows companies to check whether they have received up-to-date information from their suppliers about, for example, the chemicals they have purchased.

3.2.4 Strengthening collaboration between health and safety officers

The Netherlands Labour Authority attaches great importance to collaboration with the various health and safety officers, each from their own specific role. Within this framework, the Netherlands Labour Authority has given presentations and workshops for the Dutch Occupational Hygiene Society (NVvA) on Working Conditions & REACH, the guideline on Replacement of CM substances, supervision of authorisation and safe working methods. Exploratory discussions have been started with the Netherlands Society of Occupational Medicine (NVAB) to investigate how collaboration between company doctors and the Netherlands Labour Authority regarding working with hazardous substances can be improved. The Netherlands Labour Authority, together with the Human Environment and Transport Inspectorate (ILT), gave a presentation at a meeting of the Health and Chemistry Contact Group on the application of the VIB check. Key question therein was: 'How does safety information on paper contribute to more responsible working with hazardous substances?'

3.2.5 Works councils

The Netherlands Labour Authority has published a flyer for works councils. This should support them in putting the risks of working with hazardous substances on the agenda. The flyer was distributed through trade organisations and magazines. The role of the works council is important in working safely with hazardous substances. The works council has options and information rights offered under the Works Council Act and the Working Conditions Decree. The works council can ask for the Hazard Identification and Risk Assessment, the substance registration and the exposure assessment. The works council is authorised to put these matters on the agenda for consultation with the director. The flyer provides a clear overview with practical guidelines.

See link to flyer: [The Works Council and Hazardous Substances - A Guide | Brochure | Netherlands Labour Authority \(nlarbeidsinspectie.nl\)](https://www.nlarbeidsinspectie.nl/en/works-councils-and-hazardous-substances-a-guide-brochure)