SAFETY MANUAL FOR

# Agriculture and Agricultural Contractors

Branchearbejdsmiljøudvalget Jord til Bord

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Branchearbejdsmiljøudvalget Jord til Bord

Further information and Sector Guides are available by contacting Branchearbejdsmiljøudvalget Jord til Bord:

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Acts, Executive Orders, At-vejledninger (WEA Guidelines), At-anvisninger (WEA Instructions), At-meddelelser (WEA Notifications) and At-cirkulæreskrivelser (WEA Circulars) can be found on Arbejdstilsynet's website www.at.dk.

Branchearbejdsmiljøudvalget Jord til Bord

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# Safety handbook for agriculture and agricultural contractors

This Sector Guide has been compiled for Branchefællesskab for Arbejdsmiljø (BFA) by Branchearbejdsmiljøudvalget (BAU) in collaboration with Jordbrugets Arbejdsmiljøudvalg.

BAU Jord til Bord is part of the BFA Transport, Service – Turisme and Jord til Bord, and is tasked with providing information and guidance on the working environment.

Three working environment committees have been set up for this purpose:

- Jordbrugets Arbejdsmiljøudvalg
- Mejeriindustriens Arbejdsmiljøudvalg
- Slagteribranchens Arbejdsmiljøudvalg

The composition of the committees, contact details and materials can be found on the website www.baujordtilbord.dk

Arbejdstilsynet (National Working Environment Authority) has reviewed this Sector Guide and finds the contents to be in line with Arbejdsmiljøloven. Arbejdstilsynet has only assessed the guide as presented and has not considered whether it covers all relevant topics within the particular area. This includes no accountability for technological development.

# Contents





# Reporti ng of industrial injuries

Industrial injuries are understood as industrial accidents, short-term harmful infl uences, e.g. cases of poisoning, sudden lift ing injuries and occupati onal diseases. Industrial injuries should be discussed within the health and safety organisati on with a view to preventi ng similar incidents.

## *Industrial accidents*

Employers have a duty to report industrial accidents and cases of poisoning.

The employer must report industrial accidents and cases of poisoning that result in incapacity to work for 1 day or more (in additi on to the day the injury is sustained) to Arbejdsti lsynet as soon as pos-sible and within 14 days of the fi rst day of absence.

In the case of work that is not carried out for an employer, the owners and users of machines and other technical aids have a duty to report accidents that have occurred while using the equipment, e.g. chainsaws, woodchippers or brushcutt ers, to Arbejdsti lsynet.

The report must be made digitally in the EASY electronic reporti ng system via Virk.dk or www.at.dk.

The employer must give the enterprise's work health and safety organisati on (the health and safety representati ve) access to the report. In additi on to this, the employer must give the injured party a copy of the report.

Anyone is entitled to report industrial accidents, short-term harmful infl uences and sudden lift ing injuries to Arbejdsti lsynet and Arbejdsmarkedets Erhvervssikring (Labour Market Insurance).

The employer also has a duty to report industrial accidents, short-term harmful infl uences lasti ng up to 5 days or sudden lift ing injuries that may be assumed to legally justi fy a payment claim as soon as possible, and within 9 days

## *Occupational diseases*

Doctors and dentists have a duty to report occupational diseases.

Doctors and dentists who, in the course of their work, establish or suspect that a person has contracted an established or suspected occupational disease, or has otherwise been exposed to harmful influences at their work site, must report the matter to Arbejdstilsynet and Arbejdsmarkedets Erhvervssikring.

The report must be made as soon as possible, and within 8 weeks from when the doctor or dentist becomes aware of the occupational disease or harmful influence, including details of the presumed work connection.

The report must be made digitally in Arbejdstilsynet's and Arbejdsmarkedets Erhvervssikring's EASY reporting system.

The report does not require the consent of the injured party. However, the injured party may request that the case not be dealt with by Arbejdsmarkedets Erhvervssikring.

The employer has a duty to report occupational diseases, such as back pain or eczema, to their insurance company or Arbejdsmarkedets Erhvervssikring. Anyone is entitled to report occupational diseases.

It is important that the trade unions are involved prior to the reporting of occupational diseases.

A significant extension to the limitation period has been introduced for occupational diseases. This means that persons with occupational diseases that develop more than 30 years after the harmful influence are still eligible for compensation.



## *Digital reporting of industrial injuries*

The employer must report industrial accidents digitally in the EASY electronic reporti ng system via Virk.dk or Arbejdsti lsynet's website www.at.dk.

It is the duty of the employer to report a work-related accident. If this is not done, the employee may report the accident themselves via Virk.dk.

Doctors and dentists must report occupational diseases digitally in the ESS reporting system at Virk.dk.

All Danish enterprises, trade unions and other parties may use EASY to report industrial accidents.

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- *Beskæftigelsesministeriets bekendtgørelse af lov nr. 216 af 27. februar 2017 om arbejdsskadesikring med senere ændringer (Arbejdsskadesikringsloven).*
- *Beskæftigelsesministeriets bekendtgørelse nr. 1478 af 2. december 2016 om lægers og tandlægers pligt til at anmelde erhvervssygdomme til Arbejdstilsynet og Arbejdsmarkedets Erhvervssikring.*
- *Arbejdstilsynets bekendtgørelse nr. 615 af 8. juni 2010 om anmeldelse af arbejdsulykker mv. til Arbejdstilsynet med senere ændringer.*

# Working in areas with high levels of traffic

In some cases, contractors carry out work along the verge of busy public roads or on central reservations. Stationary roadwork refers to work that takes place at the same site for more than one working day. Mobile roadwork refers to work of a shorter duration, carried out at the same site, for a maximum of one working day, or continuously moving work.

Work vehicles; machines, tractors, and similar vehicles, must be equipped with flashing or rotating amber lights when they are working, when they are being put away, or when they might otherwise cause a disturbance for other traffic.

In addition, it is recommended to provide work vehicles and machines used for road work outside the marked work area with vertical red and white stripes.

In addition, it is recommended that work vehicles and machinery used for roadwork outside the designated working area are supplied with vertical red and white stripes.

Persons outside the restricted area must wear class 3 (DS/EN 471) “high visibility clothing” such as a boiler suit or trousers and jacket/vest. The workwear must be in fluorescent material in colours yellow, orange or red. The clothing must be fitted with white reflectors.

The employer must ensure that high visibility clothing is available when the work situation requires the employee be clearly visible during work after a specific risk assessment, e.g. a workplace assessment. The employer must also ensure that high visibility clothing is used from as soon as the work begins and throughout its duration. High visibility clothing is personal protective equipment

Vehicles that are operated by a walking operator (sweepers, etc), must be designed so they automatically come to a stop when the operator releases the control levers.

In foggy weather, continuously moving roadworks other than snow clearing, salting and gravelling should be discontinued e.g. mowing.

On major roads with traffic or roads with heavy or fast traffic, the work site must be marked with edge market panels, traffic cones, or delineator posts. On motorways at speeds of less than 40 km/h, safety barriers and warning signs must be used if the vehicle is on the roadway.

In addition, common signage rules apply under the Danish Road Traffic Act.

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- *Færdselsloven.*
- *Justitsministeriets bekendtgørelse om særlig råden over vejareal.*
- *Transportministeriets bekendtgørelse om anvendelse af gult blink med senere ændringer.*
- *Transportministeriets bekendtgørelse om anvendelse af vejafmærkning.*
- *Vejdirektoratets håndbog for afmærkning af vejarbejde m.m.*
- *At-vejledning 2.10.2 om reflekstøj.*
- *BAU Bygge og Anlæg, Håndbog for afmærkning af vejarbejder mm.*

# Health and safety organisation

Health and safety work in the enterprise is handled through cooperation between the employer, the supervisors and other employees.

This cooperation will create the framework for the strategic and operational health and safety tasks in the company. Strategic refers to overall, planning, forward-looking and coordinating tasks. Operational refers to day-to-day tasks.

## *Health and safety meeting*

All enterprises with employees must hold an annual health and safety meeting, which should i.a.:

1. Organise the content of the health and safety cooperation for the coming year.
2. Establish how this cooperation will be implemented.
3. Assess whether the previous year's objectives have been achieved.
4. Establish goals for the coming year's cooperation.
5. Discuss whether the enterprise has the necessary knowledge of health and safety if there are less than 10 employees.

In addition, it is recommended that the workplace assessment should be a fixed item on the agenda of the health and safety meeting.

It is the role of the employer to ensure that the annual health and safety meeting takes place. If there is a health and safety organisation, it should be involved in the meeting.

The employer must be able to document in writing to Arbejdstilsynet that the annual health and safety meeting has taken place. The enterprise itself decides how this will be documented.

Arbejdstilsynet has prepared a template for documentation of the annual meeting. But you may also e.g. simply note in your workplace assessment when the meeting took place and who attended.



## *Less than 10 employees – without a health and safety organisation*

In enterprises with less than 10 employees, it is the duty of the employer to ensure that there is cooperation on health and safety. The cooperation should involve regular direct contact and dialogue between the employer, any supervisors and the other employees. There is no obligation to set up a health and safety organisation.

Employees must be consulted when planning and introducing new technology, including health and safety implications when choosing personal protective equipment, technical aids, etc.

Employees must be given all the necessary information concerning health and safety, as well as the opportunity to make suggestions regarding health and safety.

## *10 employees or more – with a work health and safety organisation*

In enterprises with 10 or more employees, it is necessary to have a health and safety organisation.

The health and safety organisation must as a minimum consist of a health and safety representative elected by the employees and a supervisor appointed by the employer, with the employer or a representative of the employer as chairperson. The health and safety representative is protected against dismissal or any other impairment of their conditions in the same way as shop stewards within the same or any similar sector.

Part-time employees, young workers, etc., are included in the calculation of the number of employees. Supervisors and the employer are not included.

In enterprises with 10-34 or more employees, the employer must establish a two-level health and safety organisation consisting of:

In the case of work that is fully or partially performed at temporary or varying work sites outside the enterprise's permanent work site (including building and construction work), cooperation on health and safety issues must take place within a health and safety organisation if five or more employees work for the same employer at

the external work site and the work is carried out over a period of at least 14 days.

A single-level health and safety organisation must perform both the overall and day-to-day tasks that, in enterprises with a multi-level health and safety organisation, are handled by health and safety groups and health and safety committees respectively.

In enterprises with 35 or more employees, the employer must establish a two-level health and safety organisation consisting of:

- a level with one or more health and safety groups, and
- a level with one or more health and safety committees.

A health and safety group consists of one appointed supervisor and one elected health and safety representative.

A health and safety committee consists of supervisors and health and safety representatives from one or more health and safety groups, with the employer or a representative of the employer as chairperson.

The required number of members of the health and safety organisation is determined according to a subsidiarity principle. There must be at least the same number of health and safety representatives as supervisors in the health and safety organisation.

## *Compulsory health and safety training*

Health and safety representatives and supervisors within the health and safety organisation have the right and duty to take part in the compulsory three days of health and safety training.

The training must be completed within 3 months after a person has been elected or appointed to the health and safety organisation.

The training focusses on good cooperation, and a systematic approach to solving day to day health and safety problems in the workplace.

It is customary for the health and safety representative and supervisor to participate in the same course. By doing so, they will have the same knowledge and thus be able to work together in performing health and safety tasks.

The employer pays all expenses in connection with the activities of the health and safety representative and indemnifies them for any loss of earnings and expenses incurred in connection with compulsory participation in the training.

Health and safety representatives and supervisors who have completed the statutory health and safety training later than 1 April 1991 do not need to participate in the new training.

## *Supplementary health and safety training*

The employer is obliged to offer health and safety representatives and supervisors within the health and safety organisation:

- 2 days relevant training within the first 12 months of term of office
- 1 days relevant training every subsequent year

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- *At-vejledning F.3.1 om samarbejde om arbejdsmiljø i virksomheder med højst ni ansatte.*
- *At-vejledning F.3.2 om samarbejde om arbejdsmiljø i virksomheder med 10-34 ansatte.*
- *At-vejledning F.3.3 om samarbejde om arbejdsmiljø i virksomheder med mindst 35 ansatte.*

# Workplace assessment

Work must be planned and organised in such a way that it can be carried out appropriately in respect of health and safety. The basis for this is i.a. the performance of an assessment of health and safety conditions at the work site – a workplace assessment.

All employers with employees have a duty to prepare a written workplace assessment. This duty also applies in the case of fixed-term employment or casual employment.

It is the responsibility of the employer to make sure that a written workplace assessment is prepared ensuring that all major health and safety issues are covered by the enterprise's health and safety work.

The enterprise may choose the method for performing the workplace assessment, but the assessment must cover these five elements:

1. Identification and mapping of the enterprise's health and safety conditions.
2. Description and assessment of the enterprise's health and safety issues.
3. Inclusion of the enterprise's sickness absence with a view to assessing whether the enterprise's health and safety conditions may be contributing to sickness absence.
4. Priorities and an action plan to resolve the enterprise's health and safety issues.
5. Guidelines for following up on the action plan.

The workplace assessment must be in writing, be kept on the enterprise's premises and be accessible to employees and Arbejdstilsynet. The workplace assessment may also be prepared in electronic form.

The workplace assessment must be updated when changes occur in relation to the nature of the work, working processes and methods, etc., that are significant for the enterprises health and safety, but at least every three years.



It is the responsibility of the employer to make sure that the health and safety organisation is involved in and participates throughout the process. This applies to planning, organisation, performance, follow-up and revision of the workplace assessment.

Participation must be documented by means of the health and safety organisation signing off the workplace assessment. In enterprises that do not require a health and safety organisation, the employees must participate in the work in an equivalent manner.

The employer must seek assistance from a health and safety adviser or other expert if the enterprise itself does not have the necessary insight to perform a workplace assessment.

If hazardous substances and materials are kept at the workplace, a list of all such substances found at the enterprise must be prepared. Together with the associated safety data sheets, the list must form the basis for the chemical risk assessment (see "Chemical risk assessment"), which is part of the general workplace assessment and must include the following elements:

1. The hazardous properties of the substances and materials.
2. The level, type and duration of exposure.
3. The circumstances surrounding the work involving hazardous substances and materials, including the quantity.
4. The effect of the preventative measures taken or to be taken.
5. The conclusions that can be drawn, where possible, from occupational health examinations.
6. Limit values set by Arbejdstilsynet.
7. Supplier health and safety information.

The list of hazardous substances and materials found at the enterprise, together with the chemical risk assessment/chemical workplace assessment, must be accessible to employees.

In addition, it should be noted that special requirements apply in a number of areas.

This applies to i.a.:

- health and safety of pregnant women
- risk of cancer
- GM microorganisms
- biological agents
- work in connection with explosive atmospheres
- smoking policy.

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*At-vejledning C.1.3 om arbejde med stoffer og materialer.*
*At-vejledning D.1.1 om arbejdspladsvurdering.*
*At-vejledning D.3.4 om arbejdsrelateret muskel- og skeletbesvær.*
*At-vejledning D.4.1 om kortlægning af det psykiske arbejdsmiljø.*
*BAU Jord til Bord, Branchevejledning om Arbejdspladsvurdering.*
*BAU Jord til Bord, www.baujordtilbord.dk/apvnet.*



# Design and fitting out of the work site

The rules governing the design and fitting out of the work site concern how the work site must be organised so that work can be carried out appropriately in respect of health and safety.

The rules apply to all enterprises with employees. The rules do not apply to enterprises where there are only the owner and resident family members working. However, if there is just one person employed, the rules become applicable to the employer and their family.

A distinction is made between:

- varying work sites
- permanent work sites.

## *Varying work sites*

The rules governing varying work sites come into effect when the employer permits employees to carry out work at a foreign enterprise or at another location outside their own operating facilities. These rules also apply at the employer's own operating facilities if this not covered by the Executive Order on the design and fitting out of permanent work sites.

For enterprises within forestry, agriculture and horticulture, this means that work carried out in the field or forest will be covered by the rules on varying work sites. This also applies to forestry contractors who carry out work on the premises of customers.

In the case of varying work sites, it is the responsibility of the employer to assess and ensure that the conditions at the work site comply with the applicable rules.

*Welfare arrangements*

In the case of varying work sites, the employer must ensure that the employee has access to the following facilities during working hours:

- Toilet
- Suitable dining area, if the working period includes food breaks.
- Handwashing facilities, with running water wherever possible
- Secure storage of clothing and personal belongings.

*The nature of the work may also require that employees have access to:*

- Changing facilities, where necessary with separate storage of own clothing and workwear
- Room for drying workwear
- Washing facilities, if the work is very dusty, dirty or wet, or if the employee is exposed to high temperatures or a high level of physical exertion.

It is the responsibility of the employer to ensure that there are suitable/correct welfare facilities available for each individual work assignment.

Such welfare facilities do not necessarily have to be accessible on-site but may be established in one of the following ways or a combination thereof:

A. The facilities may be set up in suitable rooms located in the immediate vicinity of the area where the work is taking place.
B. The facilities may be set up on-site in a site hut or other mobile unit. Site huts and the like that are made available for use by more than four persons must fulfill the requirements laid down in Arbejdstilsynet's Executive Order on the design and fitting out of site huts and similar units. Toilets in site huts, where reasonable and possible, should be connected to a sewer. Drain-free toilets should meet the same hygiene standards as toilets with a water flush.



C. The facilities are available at an assembly site, a departure site, or similar. The facilities here must meet the requirements for welfare arrangements for permanent work sites. A prerequisite for the assembly site's toilet facilities being considered as providing adequate access to toilets, however, is that the employee is able to return to the assembly site at reasonable intervals, or that the employee otherwise has reasonably easy opportunities to use the facilities at the assembly site. If this is not the case, a toilet of a reasonable standard must be provided for the employee within a reasonable distance of the work site.
D. If these alternatives are not practicable, e.g. in cases of work involving long-distance transport, the employer must ensure that employees have access to facilities in another reasonable and appropriate manner. Employees must not be directed to use facilities in their own homes if the work involves heavy soiling or carries a risk of contamination with hazardous substances.

Persons working over larger areas and on short-term assignments at a number of sites may be directed to use the transportation vehicle as a place to eat if it is suitable for the purpose. This means i.a. that the cabin must be capable of being heated independently of the engine and must be provided with special eating facilities (a thermos container for storing food and drink and a table top).

## *Permanent work sites*

The definition of a permanent work site is the enterprise's buildings and operating facilities, including the areas immediately adjacent to them.

If garages or machinery rooms are used in order to carry out work, e.g. repairs, manufacturing operations or major refurbishment of machines and tools, the work site is covered by the rules on the design and fitting out of permanent work sites.

Areas where there is a danger of falling or toppling must be secured with fencing, coverings, railings or other suitable safety installations.

The guardrail might consist of a handrail at a height of 1 metre, a middle rail at a height of 0.5 metres, and a lower rail at a height of 15 cm.

Where necessary, signage must be put up which provides information or warnings with regards to health and safety.

Work rooms are understood as any room within an operating facilities in which work is carried out. The work room must be of sufficient size to allow the work to be carried out properly.

The work room must be appropriately insulated against damp, cold, heat, noise and vibrations coming from outside or from other rooms.

### *Welfare arrangements*

A permanent work site must have the following facilities available for employees:

- toilet
- dining area
- handwashing facilities/bathroom
- wardrobe and changing room
- cleaning area
- telephone

Where no more than three employees are engaged at a permanent work site, the employer may direct the employees to use the facilities in their private residence or in a service residence. It is, however, a condition that the residence is situated close to the work site and that the facilities in question meet the requirements set out in the executive order.

If the enterprise engages more than three employees at a time, welfare facilities must be provided in a permanent building connected with the enterprise. A sufficient number of facilities must be made available, taking into account the type of work and the number of persons generally using them.

Additionally, there are detailed rules on how welfare facilities are to be designed and fitted out.



# Scaffolding

### *Freestanding scaffolding*

Freestanding scaffolding should be erected and used in accordance with the supplier's directions for use, which must be provided to employees together with comprehensive instruction.

Freestanding scaffolding must not be used in strong winds due to risk of collapse. The erection site must be firm and stable. The supporting base must be positioned horizontally and any supporting legs must be used.

### *Transportable personnel lifts*

These consist of a work platform or basket mounted on a mechanical lifting device from which the work platform can be adjusted to the desired height and position.

Personnel lifts may only be used by persons over the age of 18 who have completed the relevant training.

Setup, operating and maintenance instructions, as well as a personnel lift journal in Danish, must be supplied and kept with the lift.

The essential safety instructions contained in the directions for use must be reproduced clearly and concisely on a durable sign on the work platform.

On the access side of the work platform, there must be a sign stating the maximum permitted load in kg, together with the maximum number of persons and other loads.

The work platform must have 1.1 metre high guardrails, comprising handrail, knee-rail and foot-rail on all sides, and a non-slip floor. The access door to the basket must close securely. The guardrails must also ensure that tools and similar items cannot fall from the work platform.

Fall protection equipment must always be used when operating personnel lifts.

The controls (buttons or levers) must be designed so that movement ceases when they are released (dead man's switch function) and positioned so as to prevent unintended activation. In the event of operational failure, it should be possible to perform an emergency lowering of the platform from the ground. At least two persons must therefore be present, one of whom must remain on the ground and have proper training and instruction in the emergency lowering procedure.

Personnel lifts must be used in accordance with the supplier's directions for use and must not be left elevated.

Personnel lifts must be inspected and checked as needed, however a main inspection must be carried out at least once a year by the supplier or another expert.

Transportable and stationary aerial lifts must be CE marked.

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- *At-vejledning B.2.3.1 om løft af personer med gaffeltruck.*
- *At-vejledning B.3.2 om opstilling og brug af stilladser.*
- *At-anvisning nr. 2.3.0.2 om opstilling, eftersyn og vedligeholdelse af hejse-, løfte-, og transportredskaber.*
- *At-meddelelse nr. 2.02.11 om anvendelse af hejse-, løfte og transportredskaber.*
- *At-meddelelse nr. 2.04.3 om transportable personløftere med arbejdsstandplads.*
- *At-meddelelse nr. 2.04.4 om anvendelse af en- og flersøjlede personløftere med arbejdsstandplads.*
- *BAU Jord til Bord, Lovpligtige eftersyn af landbrugsmaskiner og udstyr.*



# Workwear

Here a distinction is made between regular workwear and workwear that must simultaneously function as personal protective equipment.

## *Regular workwear*

Workwear must not limit freedom of movement and must not be too tight. It should be able to tolerate dirt as well as repeat washes, and moreover be repairable. In colder weather, the workwear should prevent heat loss. It should be both waterproof and windproof, and divert body heat and moisture.

It is also important that the workwear covers the lumbar area and does not separate in the middle when the wearer bends over. Exposure to the cold can lead to pulled muscles.

Underclothing must provide good air circulation and be able to absorb body moisture and sweat. It should ideally fit snugly. A thermal undershirt is recommended.

These days, synthetic underclothing is available that does not absorb moisture but is thin enough for the wearer's body heat to drive moisture and sweat out through the undergarments to the surrounding clothing. This means that the wearer is kept dry and warm closest to the body.

The clothing worn outside the underclothing should be warm and suitable for the season. Two or more sets of intermediate clothing and outerwear are recommended.

The outerwear should protect against wind and bad weather, but must not be so heavy that it limits freedom of movement. The material should be "smooth", ideally waterproof and ventilating.

In cold weather, a hat and gloves are suitable, and in summer a cap to shield the eyes from the sun and prevent headaches.

Workwear featuring kneepads is appropriate in many situations, e.g. laying paving stones.

### *Rainwear*

For outdoor work during wet weather, suitable rainwear must be provided. This should allow the body to breathe, and prevent the body and work clothing from getting wet.

### *Personal protective equipment*

Personal protection is understood as i.a. clothing intended to protect employees from one or more risks that may jeopardize their safety or health during work. E.g. coveralls, rainwear, thermal wear, safety trousers or clothing that protects against fire hazards.

See “Personal protective equipment”.

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- *At-vejledning D.5.2 om høreværn.*
- *At-vejledning D.5.4 om åndedrætsværn.*
- *At-vejledning D.5.5 om faldsikring.*
- *At-vejledning D.5.7 om beskyttelseshjelme.*
- *At-vejledning D.5.8 om øjenværn.*



# Pesticides

Pesticides are active substances intended to kill or deter pests, or control plant growth.

The pesticide limit value must be stated in the safety data sheet (supplier’s directions for use).

Work with pesticides must be planned and organised in such a way that it can be carried out appropriately in respect of health and safety. Before spraying begins, the hazardous nature of the pesticide must be evaluated by completing a risk assessment based on the label and the safety data sheet (supplier’s directions for use), see “Chemical workplace assessment”.

All pesticides must be supplied with a label including their classification and marking providing information on applications and methods. The label must be in Danish. The label’s directions for use must not be confused with the required safety data sheets.

In the case of hazardous pesticides, a safety data sheet (supplier’s directions for use) should be provided when the product is purchased. Hazardous pesticides are mixtures that:

- are classified as hazardous according to Miljøministeriet’s rules and have a label marked with hazard pictograms or hazard phrases.
- are included with a limit value in Arbejdstilsynet’s list of limit values for substances and materials and its appendixes.
- contains 1 % or more (for gaseous materials 0.2 %) of a substance with a limit value included in Arbejdstilsynet’s list of limit values for substances and materials.
- contains 1 % or more (for gaseous materials 0.2 %) of a substance classified as harmful to human health or harmful to the environment according to Miljøministeriet’s classification.

### *CLP classification, labelling and packaging*

As of 1 June 2017, products may only be sold if they are marked according to the CLP Regulation with red and white diamonds the new EU hazard pictograms.

The labelling of mixtures as "highly toxic/toxic" has been replaced with "acutely toxic", which means they may be fatal following swallowing, skin contact and/or inhalation, or with the "health hazard" pictogram, which refers to mixtures that can cause chronic harm, such as cancer or allergies, if inhaled.

The safety data sheet (supplier's directions for use) may appear on the label of the agent. In such cases, all 16 points must be covered satisfactorily.. A chemical risk assessment must also be prepared.

See "Chemical workplace assessment".

### *Storage*

Pesticides, pesticide residues and empty packaging must be stored in an environmentally appropriate manner in respect of health and safety, locked securely, inaccessible to children and separate from foodstuffs, feedstuffs, medicines or similar. Pesticides must only be stored in their original packaging.

An appropriate warning sign must be displayed, e.g. "general hazard", if large quantities of hazardous substances and mixtures are stored. The above-mentioned signs or marking/labelling must be displayed beside the storage area or on the door to the storage room.

It is also a good idea to mark the chemical room with a clear sign when storing smaller amounts.

When toxic substances and mixtures are stored in a total volume exceeding 125 ml, and where more than five persons have access, a safety officer should be appointed to ensure proper storage and prevent unauthorised persons accessing the substances and mixtures in question.

Spraying liquids, etc., that have been prepared with pesticides must not be left unattended.



### *Education*

As of 1 July 2020, persons working with pesticides must not only be in possession of a spraying certificate, but also be authorised in Miljøstyrelsens Autorisationssystem til brug af Bekæmpelsesmidler (MAB).

This means that persons purchasing and using pesticides must be in possession of a spraying certificate. However, persons who have completed a period of training, the content and requirements of which are at least equivalent to those obtained for the applicator certificate or applicator license, are exempt from this.

Young persons over the age of 15 must, as an essential part of a qualifying vocational programme, perform pesticide application under the guidance of persons holding a spraying certificate or spraying permit.

All persons with a spraying certificate/permit, as well as persons who have completed an equivalent training programme, must take a follow-up course every 4 years.

## *Spraying certificate*

You must hold a spraying certificate if you:

- carry out professional pesticide application for others
- carry out professional pesticide application as part of your own business or a concession
- carry out professional pesticide application as the employee of an enterprise.

## *Spraying permit*

You must hold a spraying permit if you:

- have established your own business or concession before 1 January 1991
- are employed in an enterprise and carry out professional pesticide application for less than 4 hours annually.

## *Use of personal protective equipment*

When mixing and applying chemical pesticides, personal protective equipment must be used, including clothing that can protect employees from risks. It is important that protective equipment is used correctly and that it properly fits the wearer in order to provide the right protection. Personal protective equipment is personal.

To determine which personal protective equipment should be used, carefully read the agent's label and accompanying safety data sheet to identify the hazard class and any hazard phrases. The safety data sheet should indicate which protective equipment is suited to the task. When purchasing protective equipment, the supplier can provide information on which pesticides the protective equipment protects against.

After use, the personal protective equipment must be cleaned in accordance with the pesticide's directions for use. In the absence of directions for use, clean in soapy water and dry thoroughly. Protective equipment must be cleaned after each use, even if the work is to continue the following day. Make absolutely sure that all pesticide residues have been removed from inside the personal protective equipment.

NB! Respirator filters cannot be cleaned but must be changed according to the supplier's directions.

When wearing clothing, boots and gloves, the skin can get warm and sweaty and thus become softened and more permeable to agents. It is recommended that you wear cotton gloves underneath your protective gloves, as well as sweat-wicking underclothes, when carrying out spraying work.

Protective equipment that no longer provides the necessary protection, e.g. because it has holes in it or is contaminated with pesticides, must be disposed of.

When choosing gloves, it is important to be aware that they must be resistant to the pesticides that are to be used. Nitrile gloves are resistant to many chemical effects. Regular rubber gloves made of latex do not provide an effective barrier against chemical pesticides and should therefore not be used. Only disposable gloves should be used. If pesticide is spilt on gloves or coveralls, these must be removed before the substance is able to penetrate the material.



Respirators must be carefully maintained. The supplier's directions for use must be strictly observed. Respirators are best kept in a dark and airtight environment to maintain the flexibility of the mask. The lifetime of the filter is shortened if it is not stored in an airtight environment. Work using an air-purifying respirator must not exceed 3 hours per day.

If the work is expected to exceed 3 hours, from the start of work use either an air-purifying respirator with a turbo unit (blower) or an air-supply respirator.

Personal protective equipment, including clothing, must be kept separate from other workwear so it does not become contaminated with pesticides. Moreover, protective equipment must not be stored together with pesticides.

When handling protective equipment, including clothing, be aware of any contamination with pesticides. Pesticides can be absorbed through the skin in the event of unprotected direct contact. Personal protective equipment (clothing) must always be washed separately from workwear and other clothing.

Personal protective equipment is the property of the employer, who meets the expenses and is responsible for washing and cleaning. It is the responsibility of the employer to ensure that protective equipment, including respirators, is properly maintained and thus provides the expected protection.

Personal protective equipment only really provides protection when combined with a high standard of personal hygiene. Personal hygiene means washing the hands and face, and removing workwear prior to eating, drinking or smoking, in order to avoid inhalation of small amounts of pesticide.

Hands must also be washed prior to using the toilet.

If any spray is spilt on the skin, the contaminated area must immediately be washed thoroughly with soap and water. You should therefore always take clean water and soap with you when working "in the field".

## *Transport of pesticides*

Pesticide sprays that have been mixed ready for use may be freely transported anywhere.

As an agriculturist, you assume responsibility for the agents as soon as they are handed over to you by the retailer or delivered to your enterprise.

As a business person, you can transport pesticides yourself for use in your business. This applies both to transport from the retailer and around the business. You must ensure that the packaging and its labelling is undamaged and that the products are safely stowed and secured. Pesticides must not be transported together with feedstuffs, foodstuffs, etc. There may be special rules for transport of certain pesticides, e.g. agents requiring a poison certificate.

When hauliers transport pesticides, they do so following a number of internationally applicable safety protocols. Larger deliveries should therefore be left to the supplier.

### *Tractor cabs*

New tractors that apply pesticides and liquid fertilizer must be equipped with a category 4 cab that protects against dust, liquid pesticides and their fumes. There will therefore be no requirement to use respiratory protection in category 4 cabs.

### *Filling and washing of sprayers and tractors*

The filling of plant protectives and the washing of field sprayers and tractors that have been used to apply plant protectives, or backpack sprayers that have been used outdoors, must be carried out at a washing site with discharge to a slurry tank or other container, or on the area where the plant protective has been applied. Special rules exist about where washing areas are situated.

### *Inspection of spraying equipment*

As a rule, all sprayers must be inspected before 26 November 2016. The owner of the spraying equipment is responsible for ensuring that pesticides are only applied using approved spraying equipment. Inspected sprayers are given a sticker with the date of the next inspection.



# Bolt guns

Bolt guns must be treated with care and caution.

Bolt guns must not be left with, or used by, persons under 18 years of age. The person operating a bolt gun must have thorough knowledge of safety guides and directions for use and have received comprehensive instruction.

### *Shooting with bolt guns*

The animal must be secured to ensure effective and correct killing. A catchpole is a good tool for securing the animal.

Place the bolt gun correctly on the animal's forehead and shoot when the pig is completely still.

Always hold the bolt gun so it is pointed away from both yourself and others:

- when you kill the pig
- when you charge or unload the gun
- during cleaning and maintenance of the gun.

If firing the gun with one hand, your free hand should not be near the gun. Stand in front of the pig as you shoot. This way, you avoid the pig falling on you. Make sure there is plenty of space around the killing site so that you can move out of the way, if necessary.

Use personal protective equipment (head, eye and hearing protection). Store the gun and ammunition in a securely locked compartment that is inaccessible to children – also during rest breaks and similar work intervals. New bolt pistols must be CE marked.

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- *Arbejdstilsynets bekendtgørelse om indretning af tekniske hjælpemidler (Kap. 2 + Bilag I – XI ophæves med bekendtgørelse 693 af 10. juni 2013).*
- *Arbejdstilsynets bekendtgørelse nr. 693 af 10. juni 2013 om indretning m.v. af maskiner.*

# Disposal of chemical residues and empty packaging

Enterprises using pesticides are responsible for disposing of empty packaging and any residues in a proper manner.

Pesticides must be stored in their original packaging.

## *Duty to notify the local authority*

Users of pesticides have a duty to notify the local authority if they come into possession of pesticide residues that must be delivered to the local receiving station.

## *CLP classification, labelling and packaging*

As of 1 June 2017, chemicals carrying orange hazard symbols can no longer be sold. Only chemicals with red/white hazard pictograms may be sold. Read more about the labelling of pesticide sprays on Miljøstyrelsen's website www.mst.dk.

## *Items that must always be delivered*

The following types of waste must always be delivered to a receiving station:

- pesticide residues,
- all packaging marked with hazard pictograms,
- all packaging that cannot be cleaned using water.

It must be stated on the packaging's label text how the empty packaging is to be disposed of. Packaging from the vast majority of pesticides can be disposed of as ordinary waste once the packaging has been rinsed and the rinsewater poured into the sprayer.

If the waste is in its original packaging, it can quickly be classified. If it features hazard pictograms, the waste will typically be hazardous (based on the principle that hazardous substances, mixtures and items become hazardous waste when disposed of).

Incineration or landfill is not permitted for any form of empty packaging.

## *Cleaning of packaging*

Prior to disposal, the packaging must be completely emptied and cleaned with water. When preparing the pesticide spray, rinse the packaging with three rounds of water to get all the contents into the sprayer. When rinsing heavily contaminated packaging externally and/or internally, do it in a place where it is certain that the rinsewater cannot run into sewers, streams, lakes, drains, etc. It is particularly important to prevent the rinsewater from running into wells.

Work involving dust must be organised appropriately in respect of health and safety. When working with liquids, avoid spray, splashes or evaporation and wear suitable personal protective equipment.

## *Storage of empty packaging*

It is forbidden to recycle empty packaging or hand it over to others. The empty packaging must be stored in the same way as if it were full or partially empty packaging.

See "Chemical substances and materials".

## *Disposal*

As a supplier of hazardous waste, your enterprise is responsible for the correct sorting, packaging, labelling and declaring of the waste. With regard to the disposal of chemical residues, a special form must be filled out.

Carcinogenic waste must be collected, stored and disposed of in its own sealed containers.

The receiving station is only obliged to receive waste that is properly packaged.

*Filling and washing of sprayers and tractors*

The filling of plant protectives and the washing of field sprayers and tractors that have been used to apply plant protectives, or backpack sprayers that have been used outdoors, must be carried out at a washing site with discharge to a slurry tank or other container, or on the area where the plant protective has been applied.

There are special rules concerning the location of washing sites.

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- *Miljøministeriets bekendtgørelse nr. 1309 af 18. december 2012 om affald med senere ændringer (Affaldsbekendtgørelsen).*
- *Miljøstyrelsens hjemmeside om Pesticider*
- *BAU Jord til Bord, Branchevejledning om Bortskaffelse af kemikalierester og tom emballage.*



# CE marking

Only products specified in the relevant EU directives must be CE marked.

All general machines purchased after 1 January 1995 and personal protective equipment purchased after 30 June 1995 must be CE marked.

Industrial trucks and certain types of building and construction equipment purchased after 1 January 1996 and personnel lifts purchased after 1 January 1997 must be CE marked.

CE marking shows that a product complies with EU regulations. When a manufacturer uses the CE mark, they are declaring at their own responsibility that the product complies with all the legal requirements for CE marking.

The CE mark means that the product has been evaluated before being placed on the market and thus complies with the applicable rules (e.g. a harmonised safety level) for it to be sold. This means that the manufacturer has:

- confirmed that the product fulfills all the relevant requirements (e.g. in terms of health and safety or the environment) in the relevant directives and
- had them examined by an impartial conformity assessment body, where required by the directives.

It is the responsibility of the manufacturer to commission the conformity assessment, to issue the EU conformity declaration and to affix the CE mark to the product. Directions for use in Danish must be included with delivery.

In addition, there is a requirement for CE noise marking of certain machines for outdoor use.

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- *Arbejdstilsynets bekendtgørelse om indretning m.v. af maskiner.*
- *Maskindirektivet 2006/42/EF af 17. maj 2006 med senere ændringer.*

# Electric hand tools and power supplies

Hand tools can cause ergonomic strain and must therefore be suitable for the user. The use of suitable technical aids can eliminate the strain of prolonged use.

With outdoor use of hand tools, cables, plugs and sockets must be robust enough to withstand heavy loads, damp and oil. Plugs and sockets must be the green/red type or neoprene.

Do not use power tools during thunderstorms, and it is important that you read the user guide and follow the manufacturer's instructions when using the tool. Safety information must be in Danish

Enterprises must ensure that electric hand tools are regularly inspected in accordance with the manufacturer's guidelines.

- General electric hand tools (class 1) must be inspected at least every 2 months.
- Double-insulated hand tools (class 2) must normally be inspected every 6 months. Most professional hand tools are double-insulated.

Damaged or defective equipment must not be used and must be taken out of service immediately. Repairs must be carried out before the tool is used again.

Electric hand-tools must be fitted with a switch so that the tool can run only when the switch is pressed (dead man's switch) If the machine is to be used for lengthy periods, the switch must be fitted so that it does not force the hand or fingers into a certain fixed position.

Fitted safety features must not be removed or blocked in such a way that prevents it from working as intended.

Hand-arm vibrations are the shakes that affect the hands and arms when using hand tools.
Young persons under 18 years of age are not permitted to use vibrating hand tools with a vibration level exceeding 130 dB(HA) corresponding to 3 $m/s^2$. However, short-term work, i.e. less than 30 minutes over an 8-hour work day, is permitted with drills and sanders.

New electric hand tools must be CE marked.



# Single axle machines

Rotary tillers and other single-axle machines must have a safety lever (dead man's switch) that stops the machine immediately if the lever is released.

The Danish Road Traffic Act must be adhered to when driving in public areas.

**REMEMBER:** The machine must always be inspected before work begins, as the driver bears responsibility pursuant to the Danish Road Traffic Act. Illegal machines can result in fines, lenient imprisonment or removal of driving licence.

According to the Danish Road Traffic Act, passengers are not permitted on trailers for motorised implements.

There must not be more persons in the vehicle than there are seats available. Children under 13 years are not permitted.

Exhaust fumes must be discharged in such a way so as to not disturb the operator of the machine.

The noise level of the machine must be reduced as much as possible. If the machine's noise level exceeds 80 dB(A), hearing protection must be provided and worn.

The safety data sheet (supplier user guide) must contain information on the noise level. However if the machine was made before 1 January, 1993, the supplier is required to provide the noise level.

The safety date sheet should also contain specific instructions on e.g. safe use of the machine, restrictions on use and maintenance, etc.

Safety footwear with toe protection must be used, as there is a risk of toe injury.

The machine must be adjusted so it can be guided safely with a light grip on the handles.

The vibrations of the machine must be reduced, e.g. with a rubber mount and handles.

The speed must be adjusted according to the surface. The more uneven, the lower the speed.

Avoid large holes where possible.

An anti-vibration seat suitable for the vehicle should be used. The seat must have good back support in relation to the movements that the work entails. It must be well maintained and easily adjusted for/by the driver. The driver must be properly instructed in the adjustment of the seat.

Select machines with low vibration and purchase vehicles with sprung suspension, where possible..

The machines should be maintained regularly so that vibration impact is kept at the original level. Gloves must always be used when working with vibrating machinery. However, be aware that vibration-insulating gloves have a limited effect and do not work at frequencies below approx. 100 Hz.

Anti-vibration gloves must be CE marked.

When purchasing new machines, you should aim to acquire those with the lowest noise and vibration levels on the market.

The safety data sheet should contain information on vibration impact and the level should be stated if it exceeds 2.5 $m/s^2$.

See the relevant limit values and action values in “Vibrations”.

If a single-axle tractor is towing a trailer with the operator seated during driving, a car or tractor driving licence is required, unless the driving is done on sections of road that have been safely cordoned off by means of barriers (e.g. roadworks) or off public-access roads.

Special rules apply to young persons under the age of 18 when driving rotary tillers and other single-axle machines. See “Vibrations” and “Young persons’ work”

All new single axle machines must be CE marked.

# Monotonous repetitive work

Monotonous repetitive work involves uniform work movements repeated with great frequency for a significant portion of the working day as part of everyday work. Hedgetrimming, landscaping and laying paving stones are examples of potentially monotonous repetitive work.

Work is not considered to be monotonous repetitive work if uniform movements are performed for less than approx. 10% of the total time spent working on the task. On the other hand, the work can very well be monotonous stressful work, as is the case with e.g. surveillance work and driving work.

Unnecessary physical strain and inappropriate work postures and movements should be avoided.

It is also important to be aware that the physical and psychological fatigue often associated with monotonous stressful work influences the ability of the employee to quickly and appropriately respond to an unexpected situation.

At enterprises with monotonous repetitive work, an action plan must be drawn up containing proposed initiatives to be implemented at the enterprise in order to minimise monotonous repetitive work.

At larger enterprises, the health and safety organisation will be central to these efforts. In smaller enterprises without a health and safety organisation, work on the action plan will be undertaken jointly by the supervisor and employees.

Mapping of monotonous repetitive work will be a natural part of the workplace assessment.

Within landscaping, the main problems caused by monotonous repetitive work are:

- Tennis elbow, carpal tunnel syndrome, a bad back and bad knees.



Tennis elbow and carpal tunnel syndrome can be caused by the highly uniform movements of the elbow and wrist involved in e.g. laying paving stones and the repeated precision control of the hands, etc.

A bad back can be caused by lots of heavy lifting and twisting of the back.

Bad knees can be caused by e.g. jumping down from large machines, kneeling work, etc.

To minimise monotonous repetitive work and monotonous stressful work, and thereby reduce the risk of injury, it is important to switch between different work tasks and positions during the day, e.g. between sitting, walking and standing work.

By switching between work tasks and positions, the individual will experience a more varied working day and at the same time have the opportunity of more meaningful work.

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- *Arbejdstilsynets bekendtgørelse om arbejdets udførelse med senere ændringer.*
- *At-vejledning D.3.1 om løft, træk og skub.*
- *At-vejledning D.3.2 om ensidigt belastende arbejde og ensidigt gentaget arbejde.*
- *BAU Jord til Bord, Branchevejledning om Ensidigt Gentaget Arbejde.*

# Woodchippers and woodchips

Removal of jammed items must only take place when the machine has come to a standstill, i.e. the traction power (e.g. a tractor) must have come to a complete stop. The feed funnel must be sufficiently long that the blades or rollers cannot be reached with an arm or leg. Gloves should be used while working. Manually fed woodchippers must be capable of being started/stopped with a lever that can be reached from either side. Woodchippers designed for crane feeding must not be manually fed.

Woodchippers often reach noise levels above 80 dB(A). Hearing protection must be used when working with machines emitting noise above 80 dB(A). Noise emitted from the machines should be reduced where possible. When purchasing new wood chippers, seek out the quietest machines on the market.

Woodchips contain molds which can pose a health risk during work. Moulds can cause a wide variety of issues Headaches, tightness in the chest and irritation of the eyes are common reactions after working with woodchips. Asthma is a rare but very serious reaction. Keep an eye on your health. Tight-fitting protective goggles and a dust mask with P3 filter should be worn. Work only with the wind at your back.

New woodchippers must be CE marked.

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- *At-vejledning B.1.3 om maskiner og maskinanlæg.*
- *At-vejledning D.5.2 om høreværn.*
- *At-vejledning D.5.4 om åndedrætsværn.*
- *At-vejledning D.5.8 om øjenværn.*
- *BAU Jord til Bord, Der er skimmelsvampe i flis – folder samt www. flisogskimmelsvampe.dk.*



# Liquid ammonia

Ammonia is a nitrogen fertilizer and colourless gas which, under pressure or intense cooling (to 33oC), turns into a clear liquid.

Ammonia is hazardous to health, corrosive, and in certain conditions when mixed with air is flammable and explosive. It is therefore very important to use and maintain the substance correctly and use personal protective equipment.

## *Be careful!*

All ammonia facilities must come supplied with an operating guide in Danish. This must include i.a. information on the hazards associated with ammonia, as well as rules on first aid.

All persons dealing with ammonia must be instructed with care and fully familiarised with the work, including the filling of ammonia containers.

## *Personal protective equipment*

Close-fitting protective goggles and protective gloves made from rubbed or plastic must always be used during work with ammonia.

Filter masks with ammonia cartridges and eye irrigation bottles with water must always be to hand. Filter type K protects against ammonia and similar gasses according to the supplier information. In addition, there should always be a plastic container with at least 10 litres of water close to hand.

## *Transfer of ammonia*

- Never position field tanks near residences, barns or greenhouses, etc.
- Make sure the tanker has good access.
- When operating valves, etc., in connection with transfer, you should always stand with the wind at your back wherever possible.

- Goggles and gloves must always be worn, and masks and water must always be ready to use.
- Upon connection, always check that the gaskets in the hose valve are functioning properly and that the vent screw is closed.

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**When REFILLING**

Use protective goggles and protective gloves!

Have a gas mask and water supply ready!

**TRANSPORT and PARKING**

**before and after REFILLING and APPLICATION**

close the container's shut off valves!

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All tanks must be marked with the inscription **AMMONIA**

In addition, there must be asign with the following text: Never over-fill an ammonia tank.

- Check with each filling, that the 85% meter and flow meter are working.
- Never leave a tank unattended during transfer. Smoking and the use of open flames is prohibited.
- Use the adjustable work light when working after dark.
- Operate the valves in the correct order according to the instruction manual.
- Check the applicator knives for wear and any necessary adjustments.
- Ensure regular filter cleaning.
- Ensure that the quick-closing valves are functioning properly. The engine of the vehicle must be switched off unless being used for transfer purposes.



## *Field application*

- Do not drive at a faster speed than can be steadily maintained.
- Use the marker and check consistently that all the delivery tubes for the applicator knives are frosted.

## *Driving with ammonia applicators on public roads*

Make sure that the couplings on the vehicle are solid and in working order.

All valves on the ammonia tanks must be closed during transit as well as in the field.

The delivery tubes must be meticulously suspended and secured during transit as well as in the field.

The side wing of the applicator must be folded up and clamped with protective guard screens fitted in place.

When driving after dark, the rear and side lights must be in good working condition and the lenses and reflectors must be clean.

A rotating amber light on the tractor is a good measure.

The driver's cab in the tractor must have a safety card (can be omitted when transporting less than 300 kg of ammonia)

## *Inspection and testing*

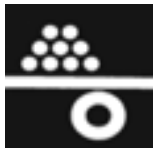
All ammonia tanks and all ammonia equipment are subject to periodic inspection by Arbejdstilsynet or one of their recognised testing bodies. In addition, the equipment must be checked annually by a recognised expert.

All inspections must be noted in the tanks' inspection book. This inspection book must be available for all staff members.

## *Out of season storage*

Out of season, ammonia tanks must kept in a protected space with minimum hazard to the environment. They must be situated at

least 15 m from public roads, residences and warehouses containing flammable goods, and at least 100 m from buildings with many occupants.



# Feeders

When driving with feeders, the roadways must be designed in a way that allows the vehicles to drive without the risk of tipping over, crashing or other accidents. Ensure feeders are fitted with good wheels, thereby reducing the impact of push and pull.

The propulsion system must be designed so that it can only be set in motion by a deliberate action.

The user must have received effective and thorough instruction on use of the equipment. Internal combustion engines carry the risk of carbon monoxide poisoning.

Internal combustion engines must be kept meticulously clean due to fire hazards.

Care must be taken when refueling. According to vehicle regulations, lubrication, adjustment and oil changes must be carried out in order to achieve the cleanest exhaust fumes possible.

A inspection is required every 12 months.

Never use an open flame near to fully charged accumulators. There may be “oxyhydrogen” present which can spray accumulator acid and crack the accumulator.

New feeders must be CE marked

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- *Arbejdstilsynets bekendtgørelse om arbejdets udførelse med senere ændringer.*
- *Arbejdstilsynets bekendtgørelse om indretning m.v. af maskiner.*



# Felling and forestry work

Never work with a chainsaw without thorough training beforehand.

When performing felling and forestry work, ensure there are no persons in the fall range of the tree(s). This is especially important if there are multiple persons carrying out felling and forestry work at the same time. On hilly terrain, tree-felling work must be organised in such a way as to counteract the dangers that may arise from the tree rolling or sliding after felling.

Before felling, ensure that escape routes are established, e.g. backwards at an oblique angle to the direction of fall.

In forestry work, there is a major risk of lesions and cuts, so a tetanus vaccination is highly recommended. The vaccination lasts for approx. 10 years, after which it should be renewed.

When performing felling and forestry work, employees must always carry a pressure dressing.

During felling, forestry and pruning work, the following protective equipment must always be used:

- Helmet (industrial safety helmet)
- Hearing protection that can reduce noise to a level below 80 dB(A)
- Eye protection
- Foot protection should be in the form of boots or ankle boots with non-slip soles, cut-resistant inserts for protection against saw blades, and toe caps that protect against heavy objects falling onto the foot.
- Leg protection in the form of safety trousers with sewn-in cut-resistant reinforcement.

## *Training*

Felling and forestry work requires that the employee has been trained in occupational safety practices. This also includes the safety conditions and restrictions associated with working with removal of hang-ups, working alone, and contact with employers or colleagues.

## *Topping*

Crown thinning and topping by climbing can only be carried out by persons who have completed the Forest and Landscape College course in topping, basic and advanced climbing, or the equivalent training. Crown thinning and topping performed from a work platform are exempt from this.

During crown thinning and topping by climbing, there must be a person positioned at the foot of the tree.

Special short chainsaws are available with a rear handle designed so that the saw can be held with one hand. The chainsaw has been specially developed for climbing-based topping. The safety of the saw in use is dependent on the climber using the tree as support with the other hand, thereby keeping the hand away from the danger zone. This type of chainsaw may only be used when carrying out crown thinning by climbing.

## *Aids*

Trees thicker than approx. 12 cm at chest height should be felled with a pre-cut, which together with a suitable amount of holding wood (hinge wood) ensures that the tree falls in the desired direction.

When felling in windy weather, there is a danger that gusts of wind may affect the fall direction of the tree so that it does not follow the pre-cut. In windy weather, the chainsaw felling of trees thicker than approx. 25 cm at chest height should always be carried out using a back-cut.

Suitable aids (hammers, felling wedges, felling bars with cant hook) should be on hand to force the tree to fall in the desired direction.



In the case of felling trees close to houses, roads, power lines, etc., a winch with steel cable should be used. The steel cable must be long enough to allow persons operating the winch to be positioned safely outside the fall range of the tree.

## *Hang-ups*

The employer must ensure that, when removing hang-ups, well-established working methods are used in a clearly stated order.

The working methods and order might look something like this:

1. Use of felling bar with cant-hook.
2. Use of cant-hook or turning strap with lever over 2 meters.
3. Use of felling lever to move the hang-up backwards.
4. Use of hand winch.
5. If none of the above methods succeeds in bringing down the hang-up, the fall area of the hang-up must be marked with coloured plastic tape, rope or similar. Marking of the area must be carried out prior to leaving the tree.
6. Use of a tractor winch.

Hang-ups must not be removed by cross-felling or by felling the tree in which the hang-up is trapped. Work must never be carried out underneath the hang-up.

## *Solo work*

Employees must not work alone when cutting windthrown trees, crown thinning, topping standing trees or bringing down hang-ups. Solo work may, however, be permitted to bring down hang-ups of a safe size. In other words, where the hang-up can be brought down using an ordinary cant hook.

Felling and forestry work must be organised in a way that ensures the employee is in contact with another person at least four times during an ordinary working day. Contact should be evenly distributed throughout the day.

Personal contact during forestry work may be substituted with radio or mobile phone contact if, as a routine, five control calls are made during the day. The calls should be distributed evenly throughout the day. The calls should be: Sign in, three control calls, and sign off.

Radio and mobile phone contact requires that the home station knows where the employees are working and that it is physically possible for help to reach the site. At the same time, there should be a well-established routine for personal contact in the event of a loss of radio or telephone contact.

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- *At-vejledning B.5.1.1 om arbejde med motorkædesave.*
- *At-vejledning D.2.8 om fældnings- og skovningsarbejde.*
- *At-vejledning D.3.4 om arbejdsrelateret muskel- og skeletbesvær.*
- *At-vejledning D.5.2 om høreværn.*
- *At-vejledning D.5.7 om beskyttelseshjelme.*
- *At-vejledning D.5.8 om øjenværn.*
- *At-vejledning D.6.1 om støj.*
- *BAU Jord til Bord, Erhvervsmæssig Træklatring.*



# Forklifts and pallet jacks

Forklifts and load stabilisers, which mechanically lift loads along one side of a vertical mast, may only be operated by persons holding a forklift certificate.

Telehandlers, which mechanically lift loads placed on forks at the end of an extendable arm, may only be operated by persons holding a telehandler certificate.

An inspection of these machines must be carried out every 12 months. The employer must ensure that directions for use in Danish are available and that the operator follows these directions.

Operating a forklift without a forklift certificate is permitted only if the lifting height is no more than 1 metre or the forklift is rail-guided. The lifting height must be limited either by a fixed stop or a fitted key stop.

The driver's seat on a forklift must be covered to protect the operator from falling objects.

In order to reduce the risk of overturning, a forklift intended for a driver must be fitted with one of the following features:

1. a driver's cabin,
2. an arrangement to prevent the forklift from overturning,
3. an arrangement to ensure sufficient space for the person between the ground and certain parts of the forklift
4. a mechanism, e.g. seat belt, to secure the person to the driver's seat.

Forklifts may occasionally be used for lifting persons performing light work, e.g. replacing light bulbs or fluorescent strip lighting, light assembly work, cleaning, painting, etc.

The forklift must be equipped with an approved work basket.

A maximum of 2 persons may be lifted in the basket. The driver must hold a forklift certificate. There are a number of instructions regarding controls, lifting height, weight limits, operation, etc.

Forklifts designed for lifting persons must be registered with Arbejdstilsynet, and a forklift logbook must be provided with all the necessary information.

Forklifts used indoors must be electrically powered.

Forklifts used in areas shared with public transport must also comply with the rules of the Danish Road Traffic Act on design and use.

Forklifts, stabilisers and telehandlers designed and used for crane work may only be operated by persons with a crane certificate.

If you intend to employ workers from abroad or Danes with professional qualifications from abroad, the international qualifications must be recognised by Arbejdstilsynet if the work requires this.

You must be able to provide documentation that the qualifications are recognised for e.g. forklifts, load stabilisers and telehandlers.

All new forklifts, load stabilisers, and telehandlers, must be CE marked.

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- *At-vejledning 1.9.1 om Gaffelstablercertifikat*
- *At-vejledning 1.9.2 om Gaffeltruckcertifikat*
- *At-vejledning 1.9.3 om Teleskoplæssercertifikat.*
- *At-vejledning 1.9.4 om Kranførercertifikat.*
- *At-vejledning F.1.7 om Anerkendelse af erhvervsmæssige kvalifikationer fra udlandet*
- *BAU Jord til Bord, Lovpligtige eftersyn af landbrugsmaskiner og udstyr.*
- *BAU Jord til Bord, Krav om kørekort og certifikat til motordrevne køretøjer.*



# Excavators

Excavators may only be operated by persons over 18 years of age. The operator must be instructed and trained in the use and maintenance of the machine.

The excavator must have a safety cab so that the operator is protected in the event of overturning.

The cab must be well-ventilated and fitted with windscreen wipers. The controls must be arranged and designed ergonomically.

Transport of passengers is only permitted if the excavator is designed for it, e.g. fitted with an extra seat. Children under 13 years are not permitted.

Excavators must not be used for lifting persons.

The excavator may only be used in areas where it can be operated properly. The surface on which the machine is to be operated must definitely be capable of bearing the machine at full load. A safe distance from the edge of excavations or slopes must be maintained.

The excavator must be provided with signs warning against moving around within the machine's working area.

A helmet must be worn within the machine's working area.

Excavators used where the Danish Road Traffic Act applies must also comply with the rules on motorised implements. See "Driving in public areas".

In excavation work, there can be a risk of hitting gas and water pipes or electricity and telephone cables. You must therefore obtain drawings showing the location of pipes and cables before starting excavation work.

All new excavators must be CE marked.

# Pregnancy

AThe work must be organised appropriately in respect of the health and safety of all employees, but special precautions may be necessary to ensure that the work can be carried out by pregnant and breastfeeding women, as well as men and women planning to have children.

Work sites must be designed and fitted out so that particularly sensitive groups can work safely.

Once your employer has been made aware that you are pregnant, the workplace assessment must include an evaluation as to whether as a pregnant woman you are exposed to impacts that could put your pregnancy at risk.

If a risk to pregnancy or breastfeeding is identified, the employer has a duty to implement the following in order of priority:

- Technical arrangements or modified design and fitting out of the work site, e.g. technical aids for lifting.
- Arrangements related to work planning and organisation, including, if necessary, change of working hours, e.g. work alternating between standing/walking and sitting.
- Redeployment to other permanent or temporary work tasks.

If necessary, expert assistance should be sought, e.g. from Arbejdstilsynet or Arbejds- og Miljømedicinsk Klinik.

## *Leave of absence*

If the harmful impacts cannot be reduced and there is no possibility of redeployment, the pregnant employee may not work at the enterprise.

If the employer is not able to keep the pregnant employee on even though she is not incapacitated, the pregnant employee has the right to full pay during her absence.

In the event of leave of absence during pregnancy, the local authority pays unemployment benefit. Payment is made either directly to the pregnant employee or as reimbursement to the employer. Unemployment benefit is paid from the first day of absence, and the local authority requires documentation in the form of an unemployment benefit certificate to be completed by a general practitioner. The unemployment benefit certificate indicates the reason for the leave of absence and its expected duration.

In connection with leave of absence, an employer may be required to demonstrate what has been put in place to enable the pregnant employee to continue working.

If it is necessary to take leave of absence, it should be noted that the work site has a health and safety issue that should be addressed by the health and safety organisation.

## *Chemical effects*

Pregnant and breastfeeding women must not be exposed to the effects of products containing substances that are carcinogenic, toxic to reproduction, endocrine disrupting or harmful to the unborn child, organic solvents or substances that are harmful through contact with the skin, including pesticides. Complete a chemical risk assessment for the work processes involving hazardous substances and materials.

With regard to physical strain, particular focus should be placed on the later stages of pregnancy.

After the first trimester, pregnant employees should be spared heavy lifting, pulling and pushing, as well as work involving prolonged standing/walking, due to increased risk of miscarriage and premature birth. Opportunities for seated work should be provided as an alternative to work involving walking/standing.

Furthermore, attention must be paid to jolting and whole-body vibrations from excavators, forklifts, etc.

Pregnant employees should avoid lifting heavy loads. After the first trimester, pregnant employees should be lifting as little as possible. Lifting of loads in excess of 10-12 kg may entail a health risk. The risk increases in the absence of optimal lifting conditions.

The work site should have a procedure in place for managing the eventuality that an employee falls pregnant.

*Pregnancy procedure!*

The employer, the pregnant employee and other affected employees should enter into mutual agreements on work tasks and how these are to be carried out during the pregnancy.

### *Procedure to be followed when a colleague falls pregnant:*

1. Can the pregnant employee continue with her current work tasks?

### *If not!*

2. Can technical modifications be implemented so that the pregnant employee can undertake her current work tasks?

### *If not!*

3. Can the work be organised differently and the pregnant employee redeployed (including job rotation)?

### *If not!*

4. A leave of absence may be necessary!

When designing a pregnancy policy, you can get inspiration from "Branchevejledning om Gravides Arbejdsmiljø i gartnerier".

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- *At-vejledning A.1.8 om gravide og ammendes arbejdsmiljø.*
- *BAU Jord til Bord, Branchevejledning om gravides arbejdsmiljø i gartnerier*
- *www.gravidigartneri.dk.*
- *www.gravidmedjob.dk.*



# Slurry system

Slurry systems must be properly designed. The individual elements must be made from suitable materials and proportioned so as to achieve the strength and durability required for safety. Slurry systems must be secured so users and others nearby are not exposed to any hazards. This must be done as far as possible through construction, and otherwise through use of safety equipment.

Miljøstyrelsen's requirements must be met for the sizing and design of the slurry containers.

On installation/layout of slurry systems, directions for use must be supplied containing i.a construction instructions in connection with water locks and pump wells, etc.

Warning signs are required here, which inform of the potential for deadly gas. Hydrogen sulphide, which smells like rotten eggs, is a very dangerous toxin for humans and animals. Hydrogen sulphide is released when the slurry is moved by stirring or pumping.

## *Slurry container placement*

Apart from slurry basements (manure basements) and other channels, all slurry containers, pump wells (reservoirs) and storage containers, etc. must be kept outside.

Connections between the barn and pumping site must be designed so that the gasses released from the slurry e.g. by stirring and pumping, are properly prevented from entering the barn or other buildings.

Pump well and container covers must have the capacity to withstand the transit of a tractor and full wagon.

## *Inspection and descent openings*

Descent openings for closed containers must be designed so that assistants are able to lift out an unconscious person.

The descent openings must have at least a clearance of either 0.8 m x 0.8 m or 0.5 m x 0.8 m in diameter.

Above one of the descent openings, there must be a permanent fastening point for a safety lanyard.

Inspection and descent openings must be securely covered. The cover must not be immediately removable without a tool or key.

Start and stop switches for electric slurry pumps must be located at least 1.5 m from the pump well/container's openings.

### *Guarding of slurry containers*

Slurry containers must be secured with fencing or coverings so that children and other unauthorized persons are protected from hazardous areas.

Fencing is considered adequate when open slurry containers are fenced to at least 1.5 m above ground. Fencing must be designed so that persons cannot walk, stand, or climb upon the fence. On wire fencing around slurry containers, the mesh width must not exceed 40 mm.

It is important to note that climbable trees and storage items surrounding slurry containers are liable to carry risks, e.g. children falling into the container. If the trees are not felled and such items removed, the height of the slurry container or fencing must be increased.

### *Work in slurry containers*

For work where it is necessary to go down into the slurry tank, slurry channel and suchlike, those descending must use a safety lanyard. Above the descent opening, there must be at least one assistant with a pulley who is able to hoist descending persons up again.

When descending into pump wells, reservoirs and covered slurry containers, those descending must be provided with either supplied-air respiration, or the container itself must be empty and properly ventilated.

All enclosed containers in which persons can enter must be properly ventilated. Proper ventilation would normally require at least 2 openings and a fan.



Any descent into the container should be left to persons using, and trained in the use of, respiratory protection.

For remodeling, repairs and other work, where no supplied-air respiratory protection is used, and where it is necessary to go down into the channels, containers or slurry/manure basements, the following must be done prior to descent:

- The system must be completely emptied of slurry.
- The system must be properly ventilated with all openings open.
- Any dampers to storage containers, etc., must be secured against opening.
- Closed containers must be ventilated with a fan and all openings open.
- Prior to descent, the purity of the air must be checked with measuring equipment, e.g, a Dräger device.
- The hydrogen sulphide content of the air must not be hazardous and must be under the applicable limit value (currently 5 ppm or 7 mg/$m^3$).

### *User guides, warning signs, etc.*

In any barn with slurry systems, there must be durable warning notices informing about poisoning hazards and the use of first aid in such cases.

Weatherproof warning signs must be fixed at descent openings for slurry containers, channels and slurry/manure basements.

At descent openings for slurry containers, pump wells, etc, information about poisoning hazards and the use of first aid in such cases must be visibly stated.

There must be weatherproof signs on the slurry wagon on the front end of the tank, which warn that slurry can emit a deadly gas during the filling process, and that staying at the tank during the filling process is prohibited.

Safety precautions when moving out and stirring. To avoid a poisoning hazard when moving liquid fertilizer from the "dangerous" barns with deep manure basins, the following advice should be followed:

1. Stirring should not be carried out until there is a good gap between the slots and manure layer (approx. 1 meter). Be especially careful where the manure has been stood undisturbed for any length of time.
2. Any stirring in manure basements must involve very strong ventilation and airing over slotted floors and in the barn.
3. Be extra cautious during periods of heavy and foggy weather.
4. If a deep manure basement is nearly full (20 – 30 cm. from manure to slotted floor), and you want to mix the manure before moving out, doors and windows must be opened and everyone – both animals and humans – must be kept away from the barn for the first two hours from when the mixture is complete.

Repeat-flushing and stirring of manure in basements and channels under barns should be avoided as far as possible.

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- *At-vejledning B.1.3 om maskiner og maskinanlæg.*
- *At-anvisning nr. 2.6.1.1 om anlæg til flydende husdyrgødning (gylleanlæg og ajlebeholdere).*
- *BAU Jord til Bord. Arbejdsmiljø i Svinestalde.*
- *BAU Jord til Bord. Sikkert arbejde i højden.*
- *BAU Jord til Bord. Sikkerhed ved arbejde med gylle.*



# Straw and hay storage

When loading with bale throwers, persons are not permitted to remain in the trailer during loading, and when using tractor-mounted bale forks, the tractor driver must ensure that no persons are within dangerous vicinity to the throwing arm.

Transportable or movable conveyors must be set up securely. The conveyors may only be used to transport the goods they are designed for, in terms of weight, size and quantity.

Persons are not permitt ed to work or be transported on a conveyor in operati on. Dangerous situati ons may arise during the moving and transport of unsecured conveyors. To avoid accidents, the conveyors must be set to the lowest positi on before moving. Furthermore, check that load-bearing parts, wires, wire wheels, locking pins, etc., are working properly.

Conveyors must never be used as ladders or work platforms, e.g. when closing and opening roof hatches, as a way to access stacks, etc. It is very risky and should be strongly discouraged.

Conveyors must be well-maintained so that they are always in good working order.

Before cleaning, lubrication or maintenance begins, the safety switch must be disconnected and the lock or plug must be taken out and the cable taken back to the conveyor.

Directions for use in Danish must be included in the delivery or rental of conveyors.

Big bales, round bales and mini bales must be stacked so there is no risk of collapse, and in such a way so they can be taken back down with the machines you have access to. It is recommended that the bales are stacked in masonry formation.

Drop hatches from lofts must be fenced so that persons are safe from falling. These can be secured e.g. using a suitable form of guardrail. Open lofts and platforms where there is a falling hazard must be fitted with a solid guardrail.

The guardrail might consist of a handrail at a height of 1 metre, a middle rail at a height of 0.5 metres, and a lower rail at a height of 0.15 cm. The guardrail might also feature another type of guard, as long as it provides the same level of safety.

- *BAU Jord til Bord, Halmballer – sikker håndtering i landbruget.*

# Straw balers

Straw balers can be round balers or balers for big or mini-big bales.

There are a number of dangerous machine functions with compression/high-pressure balers. Therefore, requirements call for a guard in front of the pickup drum, and for the insertion forks operating outside of the machine's structure to be guarded on all sides.

The crankshaft and tie rod must be guarded against any clipping hazards, and the binders must have a barrier device for blocking needle movement.

The transmission shaft and flywheel must also be guarded. Threading must never be done while the baler is running.

Round balers must have effective guarding at the pickup drum and feed opening.

Cleaning and removal of stones may only occur once the tractor has stopped and the baler is at a standstill and has been disconnected.

Be aware of the risk of crushing when opening and closing the bale chamber.

When addressing malfunctions inside the machine, stop the tractor and remove the starter key.

New straw balers must be CE marked.

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- *At-vejledning B.1.3 om maskiner og maskinanlæg.*
- *BAU Jord til Bord. Halmballer – sikker håndtering i landbruget.*
- *BAU Jord til Bord. Arbejdsmiljø ved reparation og vedligeholdelse af maskiner.*



# Gloves

Gloves provide personal protection, so it is important that the correct gloves are used for particular types of work.

- For various types of work, the following types of gloves are recommended: When working with chemicals, gloves must be used that are suitable for the task and resistant to the agents being used. Nitrile gloves are resistant to many chemical effects. Penetration time depends on the thickness of the gloves and the chemical effect in question. Gloves are to be single-use only and must be disposed of immediately following contamination with pesticides.
- When handling concentrated liquids, strong rubber or plastic gloves are recommended. These must also be resistant to the agent used and able to withstand the chemical for a suitable time in accordance with the safety data sheet.
- For work with paving stones and the like, cotton gloves with rubber-lined palms or leather gloves are recommended, as these are the most durable.
- Lined gloves are recommended for work in winter to avoid unnecessarily cold fingers and hands.
- When purchasing leather gloves, attention should be paid to the chromium content. Choose gloves with a low chromium content, which are available on the market It is necessary to ask the supplier for information regarding chromium content.
- When working with vibrating tools, such as vibratory plate compactors, chainsaws, hedgetrimmers, etc., use work gloves with anti-vibration reinforcement. However, be aware that vibration-insulating gloves have a limited effect and do not work at frequencies under approx. 100 Hz.

The personal safety data sheet for hazardous chemicals should indicate which personal protective equipment is to be used, including material, thickness and penetration time.

It is the duty of the employer to supply suitable gloves. Contact your glove supplier for advice on correct glove selection.

When working with gloves for long periods of time, it is recommended that you wear cotton gloves underneath your protective gloves to ensure that your hands remain dry. Wet and sweaty hands increase the risk of eczema, and are more receptive to absorbing substances.

When working with chemicals and pesticides, gloves must be single-use only.

Single-use gloves must be disposed of when removed. Avoid contact with the skin during removal.

Gloves that no longer provide the necessary protection, e.g. have holes and tears, must be disposed of.

Gloves must be supplied with directions for use in Danish, including appropriate protection classes, restrictions on use and expiry dates.

All gloves must be CE marked.

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- *Arbejdstilsynets vejledning D.6.2 om Hånd-arm vibrationer.*
- *Arbejdstilsynets vejledning 12.1.2 om Hud og kemi.*



# Helmets

A protective helmet must be used if the work cannot otherwise be carried out without a risk of being hit by falling objects.

A protective helmet can protect the head against impacts, but may also have other additional protective properties, such as protection against crushing, electrical charges, heat radiation or splashes of molten metal.

A protective helmet constitutes personal protective equipment. The helmet should be customised to the person using it.

It is the duty of the employer to provide a suitable protective helmet and to ensure that it is worn as soon as work commences and continues to be worn throughout the duration of the work.

Employees must be instructed in the use of protective helmets based on information provided in the directions for use and must be informed of the dangers of not wearing the helmet. Instruction should also include customisation, maintenance and storage of the helmet.

Employees must wear protective helmets where required.

Directions for use in Danish should be included on delivery. These should contain i.a. information on the helmet's protective properties, customisation, use, maintenance, cleaning and storage.

2 types of helmet are available:

- industrial safety helmet and
- hard hat.

The ordinary protective helmet is called an industrial safety helmet even though it is often used in professions that are not categorised as industry, such as forestry.

Industrial safety helmets first and foremost protect the head against falling objects.

If an industrial safety helmet provides protection against other risks, such as crushing, it will be indicated on the helmet's markings.

Hard hats are not designed for use where there is danger of falling objects. Hard hats are designed only for use where there is a risk of the wearer hitting their head on e.g. hard objects or sharp edges.

Hard hats are marked with the text "Warning, this is not an industrial safety helmet".

If the helmet is to be used in combination with other personal protective equipment, such as hearing protection, a visor or a respirator, the overall protection must not be impaired. It is a good idea to use a combi kit in such cases, which is designed for securing visors, hearing protection, etc.

A helmet that has become cracked or sustained a severe impact in the form of blows or crushing must be discarded.

The expected lifetime of the protective helmet must be stated in the directions for use. As a rule, the protective effect is guaranteed for 5 years, but the guarantee period may be shorter.

Protective helmets must be CE marked.

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- *At-vejledning D.5.7 om beskyttelseshjelme.*



# Rest periods and rest days

Working hours must be arranged so that employees have a rest period of at least 11 consecutive hours within each 24-hour period. Within each 7-day period, employees must have a weekly rest day, which must be directly before or after a daily rest period.

## *Rest period*

The daily rest period can be reduced to 8 hours for agricultural work for up to 30 days in a calendar year.

## *Rescheduling the rest day*

Rescheduling of the weekly rest day may occur in the following cases:

- work involving care of animals and plants
- work involving the safeguarding of valuable assets
- on-call duty
- agricultural work.

Before the employer decides on rescheduling the rest day or the extent to which the rest period will be reduced, the organisation of the work must be discussed with the shop steward or, if there is not one, with the employees. The result of the discussion is not binding for the employer, but the employees' wishes should be taken into consideration as far as possible.

## *Waiving of rules*

Rules on the rest period and rest day may be waived to the extent necessary if natural events, accidents, machine breakdowns or other unforeseen circumstances occur (force majeure).

Arbejdstilsynet may waive the rest day rule in individual cases where the execution of the work cannot be postponed.

In cases where a rest day cannot be granted due to force majeure or waiving of the rule, a compensatory rest day must be granted as soon as possible. If, in exceptional cases, a compensatory rest day cannot be granted, suitable protection must be provided, e.g. extraordinary safety measures or organisational or administrative measures, including breaks and periods of less demanding work.

### *On-call duty*

With on-call duty, the employee is obliged to be available at or away from the work site and, in the case of the latter, may be called in at short notice. On-call duty at the work site is not considered a rest period. On-call duty away from the work site is considered a rest period, however the rest period is discontinued when the employee is called into work.

### *Change in working hours*

The daily rest period may, to a limited extent, be delayed or reduced to 8 hours. The weekly rest day may be rescheduled, however there must be no more than 12 full days between two rest days.

The employer and employee may agree to the rescheduling of rest days for a particular work roster or a specific work assignment. However, there must not be more than 7 full days between two rest days.

There are no rules on weekly rest days in relation to work performed exclusively by members of the employer's family belonging to their household.

Special rules apply to those under 18 years of age.

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- *At-meddelelse nr. 5.01.1 om daglige hvileperioder.*
- *At-meddelelse nr. 5.01.2 om ugentligt fridøgn.*
- *At-meddelelse nr. 5.01.4 om rådighedstjeneste og anden særlig tjeneste.*



# Hedgetrimmers

Keep the vibration levels as low as possible. Always select hedgetrimmers with the lowest vibration level at the handles. Electric hedgetrimmers vibrate less than petrol hedgetrimmers.

Hand-arm vibrations are the shaking sensations that affect the hands and arms when using hand tools, including hedgetrimmers.

Tingling or numb fi ngers are the fi rst signs of harmful eff ects of vibrations. If you become aware of these signs, you should take a break from using the vibrati ng tool and take steps to lessen the eff ect.

The daily exposure limit value for an 8-hour reference period is 5 $m/s^2$. This limit must not be exceeded.

The daily exposure limit value for an 8-hour reference period is 2,5 $m/s^2$. This means that measures must be taken for loads of 2.5 $m/s^2$ and above.

The vibration level must be stated in the safety data sheet (supplier's directions for use).

Gloves with vibration-reducing reinforcement should be used. However, be aware that vibration-insulating gloves have a limited effect and do not work at frequencies below approx. 100 Hz.

The impact can be reduced by limiting the time employees spend exposed to the vibrations.

When purchasing new machines, you should aim to acquire those with the lowest noise and vibration levels on the market. See "Noise".

The safety equipment included with the hedgetrimmer must be fitted and never removed, except for repair of the machine.

Special rules apply to those under 18 years of age. See "Young persons' work".

### *Motorised hedge trimmers*

- Motorised hedgetrimmers must be designed to be operated with two hands.
- Between the front handle and the cutting blades of the hedgetrimmer, there must be a hand guard that can deflect the blades away from the hand if the grip is lost and keep the hand free from cut branches.

- The hedgetrimmer must have a sheath or similar to allow safe transport.
- Hedgetrimmers should be manufactured in such a way as to minimise the risk of the user injuring themselves on the cutting blades if the grip on the handle is lost.

*This prerequisite is considered met,*

- if the stop time of the blades does not exceed 2 seconds from release of the handle, and
- the motorised hedgetrimmer has either a dead man's switch at both handles so that the motor stops, or the blades are disengaged when grip on only one of the handles is released, or the hedgetimmer is designed such that the opening between the blades is no more than 8 mm.

Hedgetrimmers with a combustion engine, the engine should automatically idle and the blades disengage when the throttle is released.

### *Electric hedgetrimmers*

On electric hedgetrimmers, the motor must be activated by a dead man's switch that automatically returns to the stop position when the grip is released.

220 V hedgetrimmers can usefully be powered by a mobile generator. This provides greater safety against electric shocks. A low-noise generator should be used.

Cables, plugs and sockets used for work outdoors must be sufficiently robust (green/red or neoprene) to withstand damp and cold. The work should be carried out in such a way that the cable is pulled along behind the user.

The hedgetrimmer must be insulated against damp to prevent electric shock.

When carrying out repairs on the hedgetrimmer, the power must be disconnected and the plug removed. If a generator is being used, it must be switched off. Electric hedgetrimmers must not be used in wet weather.

All new hedgetrimmers must be CE marked.



# Pressure washers

Manual pressure washing places stress on the hands, arms and shoulders. The jolti ng and cold temperature aff ect the skin and bones. The eyes and airways are exposed to small parti cles that are whipped up. And the high noise level is hazardous to the hearing.

Appropriate personal protective equipment must be worn when using a pressure washer, such as coveralls (can be rainwear with hood), long gloves, non-slip boots, hearing protection and any face protection and air-supplied respirator.

The noise impact associated with pressure washing is around 100 dB(A), depending on the pressure used, meaning that hearing protection must be provided and worn. Hearing protection must be worn all the time that the pressure washer is being used!

Pressure washers must have two handles. The operating handle must be designed so that the water flow stops automatically when you release the grip. At pressures above 100 bar, both handles must have levers featuring a dead man's switch function. It is illegal to block the levers.

Spray wands should be fitted with quick-release couplings to ensure that the equipment is only used with the system it is intended for.

Nozzles that form "few" and "large" droplets (aerosols) should be used, as these do not remain in the air for so long.

Wear a P2 respirator, and also wear eye protection when using cleaning and disinfecting agents.

Pressure washers can cause back and joint injuries due to the weight and inappropriate handling. In addition, the vibrations from the hose and system can cause "white finger". This risk is increased in cold and damp weather.

The water stream must not come into contact with electrical installations.

It is forbidden to use pressure washers on Eternit roof slates.

Special rules apply to those under 18 years of age. See "Young persons' work".

All new pressure washers must be CE marked.

# Hearing protection

Hearing protection is personal protective equipment. The hearing protection must be customised for the person wearing it.

The employer must make hearing protection available to employees if noise levels exceed 80 dB(A), if the peak values exceed 135 dB(C) or if the noise is otherwise harmful or a severe nuisance. This may be the case, for example, if short-term work is performed with exposure to a lot of noise.

The employer must ensure:

- That employees are provided with their own hearing protection that does not cause unnecessary nuisance.
- That employees are instructed in how to use the hearing protection and informed of the risks of not using it. Instructions must include how to customise, clean and store the hearing protection.
- That the hearing protection is well maintained.

The employees must wear hearing protection when noise levels pose a risk of hearing damage. Hearing protection should be worn when noise levels exceed 80 dB(A). Hearing protection must be worn throughout the period of noise exposure. Even short-term exposure to loud noises without the use of hearing protection can be harmful to hearing.

Hearing protection is a temporary solution to be adopted until the noise level has been reduced.

The effectiveness of ear protection varies greatly. The noise reduction values should be shown on the packaging. Please note that the noise reduction values indicated by the manufacturer are measured under ideal conditions. These values are therefore higher than the noise reduction achieved in everyday situations. Use only approved hearing protection.

There are two types of hearing protection available  earplugs and earmuffs.

## *Earplugs*

Earplugs are placed in the ear canal. Earplugs must be fitted carefully and with clean hands. The most common earplugs are made of plastic, rubber or wax.

Dirt in the ear canal can cause skin irritation and eczema.

## *Earmuffs*

Earmuffs provide the safest protection and the fewest problems with e.g. instances of dirt in the ear canal.

Earmuffs enclose and cover the ear and part of the head.

Earmuffs are kept in place with an adjustable strap or band that can be customised to the head. Earmuffs that can be fitted onto a helmet are also available. Seal rings (cushions) should be checked regularly and replaced as soon as they begin to solidify or become damaged.

Aside from standard earmuffs, the following types are also available:

- Collapsible, which can be hung on a belt and so are always within reach.
- Electronic, which are supplied with external microphones and internal speakers. If the sound level gets too high, the sound is limited electronically inside the earmuff. This is recommended for persons with hearing impairment.
- Earmuffs with radio, which many find motivating. The radio can normally be turned up to a maximum of 82 dB(A).

Hearing protection must be CE marked.

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- *At-vejledning D.5.2 om høreværn.*
- *At-vejledning D.6.1 om støj.*
- *At-vejledning D.6.4 om støjkrav til maskiner til brug i det fri.*

# Chemical workplace assessment

It is no longer a requirement for companies to prepare a workplace instruction manual (APB) when dealing with hazardous substances and materials. Instead, the enterprise should focus on safety data sheets, the chemical risk assessment and, in particular, the training and instruction of employees.

## *List of hazardous chemicals*

The enterprise must draw up a list of all hazardous substances and materials present on the premises. This list, together with the accompanying safety data sheets, should form the basis for an assessment of the enterprise's work processes involving hazardous substances and materials. The list of hazardous substances and materials must be accessible, together with the accompanying safety data sheets.

## *Safety data sheets*

The content of the safety data sheets must follow international rules (REACH Regulation), be provided in Danish and contain i.a. information on

- Identification of the substance/mixture and of the enterprise
- Hazards identification
- Details of constituents
- First-aid measures
- Prevention of fire and precautions against spillage and accidents
- Handling and storage
- Safety measures and personal protective equipment
- Physicochemical properties and hazards
- Environmental information
- Disposal and transportation information
- Any special provisions for the substance/mixture



If the product does not meet the criteria for classification as hazardous, the supplier is under no obligation to provide a safety data sheet.

However, the enterprise may request that safety data sheets be provided if, for example, substances and materials are to be used in a particular way that the supplier has not taken into account. (Cf. At-vejledning C.1.3)

Employees must have access to safety data sheets for the hazardous substances and materials with which they are working. If there is an employee who does not understand Danish, it may be necessary to request the safety data sheet in the language spoken by the employee in question.

## *Enterprise's chemical risk assessment*

The enterprise must prepare a chemical risk assessment for all work processes carried out on the premises involving hazardous substances and materials.

The chemical risk assessment must cover the following seven elements:

1. The hazardous properties of the substances and materials.

   Assess in what ways the substances and materials might affect and harm the body, as well as what types of injuries and symptoms employees might sustain while working.
2. Degree, type and duration of exposure.

   Assess how much and for how long employees are exposed to the hazardous properties of the substances and whether the effects are caused via fumes, particles, skin contact.
3. The work circumstances.

   How the product is worked with and stored. How accidents can happen and how the work of others can have an effect.
4. The impact of preventive measures.

   Are the individual hazards effectively prevented. For example, have filters been changed in respirators, are suitable gloves and eye protection available, etc.

5. Experiences from occupational medicine examinations

   Results from any occupational medicine examinations must be available and included in the risk assessment.

6. Arbejdstilsynet's limit values

   You must be familiar with the limit values for each product and this must be included in the risk assessment. The lower the limit value, the more dangerous it is to inhale.

7. Supplier health and safety information.

   The employer must obtain safety data sheets for all hazardous substances and materials, including those marked with the phrase "Safety data sheet available on request".

Any problems with the chemical risk assessment must be added to the enterprise's workplace assessment action plan, together with a solution and deadline.

### *Training and instruction*

It is the responsibility of the employer to ensure that all employees know how to perform their work without being exposed to hazardous substances and materials.

This means that employees must be trained and instructed in how to carry out their work in a safe and healthy manner, and regular monitoring must be carried out to ensure that employees are following instructions and working appropriately in respect of health and safety.

As a rule, training and instruction must be performed verbally, must be based on the chemical risk assessment/chemical workplace assessment, must be matched to the individual's work situation and must be adapted to the employee receiving the training.

The following five points must be included in the training and instruction:

- The list of hazardous substances and materials present at the work site, their names, hazard labelling and risks associated with using the chemical at work.
- Thesafety measures involved in handling and storing substances and materials. Any restrictions on use of the substances and materials.
- Safety measures to be applied at work and where they can be found at the work site.
- Measures to take in the event of an accident, e.g. personal injury, fire, spills, etc.
- Disposal of substances and materials, residues and empty packaging.

Enterprises are welcome to use existing workplace instructions in connection with training and instruction of employees. However, the workplace instructions must be updated and based on the chemical risk assessment to cover the new requirements.

I.e.

- covered by the five above-mentioned points in the training/ instruction,
- verbal,
- based on the chemical risk assessment and
- supported in writing if they concern particularly hazardous substances and materials, especially complicated work processes, and if stated in the chemical risk assessment.

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Read more in

- *At-vejledning om arbejde med stoffer og materialer.*
- *At-vejledning om Arbejdspladsvurdering (APV).*
- *At-vejledning om oplæring, instruktion og tilsyn med arbejdet.*
- *REACH forordningen.*
- *BAU Jord til Bord: "Bortskaffelse af kemikalierester og tom emballage".*

# Chemical substances and materials

Work with chemical substances and materials (disinfectants, lubricants, petrol, pesticides, etc.) must always be organised and carried out appropriately in respect of health and safety to avoid unnecessary effects.

All chemicals must be provided with a Danish label. The pesticide label must contain the supplier's directions for use, explaining correct use of the product. Hazardous substances and materials must be classified in accordance with Miljøstyrelsen's rules, i.e. packaging must be provided with a Danish label detailing the following information:

- commercial name
- name(s) of the dangerous substance(s)
- hazard pictograms
- hazard and safety phrases
- name and address of importer/retailer

### *CLP classification, labelling and packaging*

As of 1 June 2017, chemicals carrying orange hazard symbols can no longer be sold. Only chemicals with red/white hazard pictograms may be sold. Read more about the labelling of pesticide sprays on Miljøstyrelsen's website www.mst.dk.

The safety data sheet (supplier's directions for use) must be in Danish and easy to understand, and should cover 16 points, including information on hazardous properties and necessary personal protective equipment. See "Chemical risk assessment"/"Chemical workplace assessment".

A list of the hazardous chemicals and products found at the enterprise must be prepared. Together with the label, this list and the safety data sheet will form the basis for the chemical risk assessment.

Before a substance or material is used at the enterprise, the possibility of replacing (substituting) this substance with another less dangerous agent or another working method should be examined.

The employer must ensure that work processes and methods effectively safeguard employees against unnecessary influences from substances and materials. The employer must provide the employees with training and detailed instruction in the use of substances and materials before the work begins, and employees must have access to safety data sheets. Instruction should be provided on an ongoing basis. The employer must also make employees aware of the accident and health hazards that may be associated with their work. Employees must follow the instructions.

When working with hazardous substances and materials, avoid contact with skin, airways and mucous membranes. If the hazardous substances and materials cannot be kept in a closed system or removed by effective ventilation, suitable personal protective equipment must be used.

Spraying agents must be stored properly. Properly means that containers must be kept in a place where the agent is inaccessible to children and not together with, or in the vicinity of, foodstuffs, feedstuffs, medicines or similar. You must also store the agent so that any waste can be collected. Hazardous substances and materials must be stored in their original packaging. They must never be stored in bottles or similar that might cause confusion with regard to the contents, e.g. soft drinks bottles.

Chemical waste must not be poured into the sewer or mixed indiscriminately in waste containers. Empty packaging and chemical residues must be stored together with the full packaging until sent to a receiving station.

See "Disposal of chemical residues".

- *BAU Jord til Bords vejledning "Bortskaffelse af kemikalierester og tom emballage".*

# Grain storage and transport

## *Unloading and dump pit*

When using tippers, unloading wagons and other special vehicles, make sure that wagons and equipment are not unbalanced during the emptying process. It should be noted that the surface (dump pit cover) that the wheel stands on during the emptying process can withstand a significantly greater load than in the normal position. Be careful not to get too close to the overhead lines as this can be fatal.

Unloading pits (dump pits) must either be guarded or covered with materials and structures that can withstand the weight to which they are exposed.

Be aware of the risk of trapping arms and legs between the auger teeth in the dump pit.

## *Grain transport*

Blowers, suction/pressure blowers, grain augers, grain legs, shakers, chain conveyors, rubber band conveyors, etc., are all used in connection with the transport of grain.

The construction and installation of these machines must be performed so that their operation, adjustment, lubrication, etc., can be carried out conveniently and without danger. The moving parts of the machines must be fitted with guards which must always be in place during use. Loose and transportable grain augers must have guarding at the inlet and outlet to prevent pinching and clipping. The auger threading may be broken at the pipe transition so clipping cannot occur.

## *Working conditions*

Access routes to work sites where work, inspections, etc., must be carried out at regular intervals and at different heights (floors) must be secured with fixed stairs and handrails. Likewise walkways and work platforms where there is a danger of falling must be secured with guardrails.

Fixed ladders should have a rung distance of a maximum of 27 cm, and a minimum rung distance of 15 cm. Vertical ladders higher than 5 m must have back protection down to a height of 2.5 m above the ground or floor. See “Ladders”

It can be very dangerous to descend into silos and into main channels with no ventilation. This is especially the case with gas-tight silos, as the oxygen from the air is consumed during the preservation process. At the same time, carbon dioxide ($CO_2$) is formed, which causes rapid asphyxiation. See “Silos”.

Never go into a silo with a bottom unloader when grain is being drained from the silo. There is a danger of sinking into the grain mass without the chance of escape.

Good lighting in and around the silo optimises safety.

Walls, ducts, etc., that have implications for safety must be proportioned according to recognised norms and standards.

Masks with dust filters must always be used when working with grain.

Filter masks must be used when working with mouldy materials, as mould fungi can cause hayfever and thresher’s lung.

New grain conveyors must be CE marked.

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- *Dansk Energi, Pas på ledningerne og livet.*
- *BAU Jord til Bord, Sikkert arbejde i højden.*

# PTO drive shafts

A removable mechanical PTO drive shaft refers to a removable component designed to transmit power between the self-propelled machine or tractor and the propelled machine's first attachment point. When sold with the guard, it is regarded as a single product.

The PTO shaft must be guarded between the tractor and the machine, implement or vehicle so that the tractor driver or others are not exposed to danger.

The tractor's PTO must be guarded with a fixed shield. This shield must be large enough to allow the shaft's protective collars to move freely underneath it. The shield must be able to withstand 120 kg, unless it is designed not to be used as a footboard.

When the PTO is not being used, a cap or sleeve must be placed on the shaft stub(s). The cap must not be able to rotate with the shaft stub.

**The input shaft** on machines and vehicles must also be securely guarded with a fixed shield. The shield must be large enough to cover torque couplings, friction couplings and freewheel couplings. The shield must extend at least 20 mm past the nearest universal joint bearing, regardless of the angle during operation.

**The PTO drive shaft** must be fi tt ed with a tube shield that encloses the shaft completely. The tube shield must consist of two collars that guard the universal joints at both ends of the shaft and a tele-scopic tube guard between the collars. The edge of the collars must at least reach to the centre of the universal joints.
The tube shield must be secured against rotating with the shaft, e.g. by means of safety chains with carabiner hooks that attach to the fixed shields.

If the PTO drive shaft has friction clutch and free wheel, these must always be mounted on the side of the machine.

Always keep the shaft's ratchets and telescopic tube on the coupled machine clean and well-lubricated, as this makes mounting easier. There must be a mount to support the PTO drive shaft when it is disconnected from the tractor.

- *BAU Jord til Bord, Lovpligtige eftersyn af landbrugsmaskiner og udstyr.*
- *BAU Jord til Bord, Arbejdsmiljø ved reparation og vedligeholdelse af maskiner.*



# Fertilizer(s)

Commercial fertilizers are covered by the general rules on chemical substances and materials.

Dust inhalation must be avoided when working with commercial fertilizers. If a large amount of dust is generated while working, respiratory protection must be used.

Likewise, gloves must be worn, as skin contact with commercial fertilizer should also be avoided. The use of eye protection may also be necessary.

Take wind direction into account when loading fertilizer.

## *Safety measures during storage*

When exposed to strong heat, nitrate-containing fertilizers – especially NPK fertilizers – can develop a variety of gasses – including toxic gasses such as nitrogen oxide and chlorine.

The nitrous gases that can develop in the event of a fire pose a serious hidden threat, as persons can inhale dangerous concentrations without feeling particularly discomforted. After only a few hours, symptoms of respiratory failure follow due to damaged lung tissue (oedema).

In the event of a fire in a building stocked with NPK fertilizer, the fire department must be informed of the quantity and location immediately. Breathing apparatus is required. Plenty of water is the only effective remedy (foam, carbon dioxide, steam or attempts to cover with sand or fertilizer are useless).

Preventive measures:

- Fertilizers should not be stored near large quantities of flammable substances.
- Fertilizers should not be stored where there is a risk of significant heat impact, e.g. near gas-fired grain drying plants, electric motors, cables, etc.
- Smoking is not permitted anywhere.

The presence of commercial fertilizers does not, under normal conditions, pose any danger.

# Driving in public areas

When driving motorised implements in public areas, i.e. roads, paths, forest tracks, etc., there are various rules that must be complied with regarding the design and fitting out of motorised implements, etc.

Where the Danish Road Traffic Act applies, a driving licence is required.

For single-axle motorised implements, e.g. motorised mowers and sweepers, where the operator walks behind the machine, the operator does not require a driving licence but must be at least 16 years of age.

For ordinary two-axle motorised implements, there are requirements concerning the following:

- A steering mechanism that enables easy, safe and fast control
- Operating and parking brakes that work on at least one axle and brake the motorised implement in a safe, quick and efficient manner
- A silencer in the exhaust system and a horn with a constant tone
- A reverse gear
- Rubber tyres or other elastic wheel covering

If the construction of the motorised implement does not allow direct rear vision, mirrors must be fitted to provide this.

The motorised implement must be provided with two forward-facing, white or yellow, non-dazzling, dipped-beam headlights that illuminate the road for at least 30 metres in front of the vehicle.

The motorised implement must also have two forward-facing white side lights and two rear-facing red back lights that can be seen at a distance of 300 metres without dazzling.

If the driver's arm signals cannot be clearly seen, there must be yellow indicators on each side, along with two rear-facing red brake lights.



The required lights must be able to remain switched on regardless of whether the engine is running.

The motorised implement must also be provided with a horn and a rear-facing red triangle.

In addition, the motorised implement must be provided with an equal number of rear-facing red reflectors.

Motorised implements intended for operation by a walking operator must be designed so that they automatically stop when the operator releases the lever (dead man's switch).

They must also be fitted with a forward-facing white or yellow light and a rear-facing red light. Both lights must be positioned on the left side of the implement and be clearly seen from 300 metres away without dazzling.

### *Trailers*

Trailers for motorised implements must be designed in such a way that protruding parts present no danger to other road users.

Trailers must be provided with a coupling device compatible with that of the motorised implement.

In addition, the trailer must have an equal number of rear-facing red triangular reflectors and an equal number of forward-facing white reflectors. Side reflectors must be yellow.

The rearmost trailer must be provided with an equal number of rear-facing red back lights and an equal number of rear-facing stop lights with greater brightness than the back lights.

At the back of each side of the trailer, there must be a yellow flasher lamp.

Trailers for motorised implements may only be used to transport tools related to the functioning of the implement. This does not apply, however, if the motorised implement is operated by a walking operator.

Trailers are not permitted to carry passengers. New motorised implements must be CE marked. In addition to the above, the Danish Road Traffic Act always applies.

# Milking centres

Milking centres must be designed in a safe and appropriate manner, with non-slip floors and optimal ergonomic conditions.

### *Pay attention to:*

- whether the washing apparatus and washing machine are positioned in a way that means you do not have to bend down to fill and empty them.
- whether the vacuum pump for the milking machine and the compressor for milk cooling are fitted with noise reduction.

### *Milking parlours*

Milking is a major part of daily work in cattle farming. It is the same work that needs to be done again and again. The ergonomic conditions must therefore be optimal.

Pay attention to:

- whether the floor height of the milking parlour can be adjusted.
- whether wash cloths can be positioned so that they can be easily reached, e.g. hanging from a ceiling runner.
- whether you can find a good working position to easily dry the teats and attach the milking machine.
- whether it is easy to transport milk to be discarded.

You should be aware of the draft and cold temperature in parlours.

### *Milking robots*

The use of an automatic milking robot requires the instruction of persons working in the parlour on a daily basis and must be in compliance with the prescribed safety regulations.

Chemicals must be safely positioned and prescribed storage regulations adhered to. Children are not permitted to occupy the room where the robot is located.

Milking robots are subject to general rules on the layout and use of technical aids as they carry multiple crushing risks.

The most important safety devices are emergency stop buttons. Check the emergency stops regularly – also during standard servicing.

Young first-time calving cows have to “learn to walk into the robot” which requires careful consideration from employees.

### *Cleaning*

Avoid getting detergents and disinfectants in the eyes or on the skin. Detergents and disinfectants must be stored out of reach of children.

Carefully follow the directions for use that accompany the detergents and disinfectants used. Never mix chlorine and nitric acid.

It may be necessary to use personal protective equipment, including gloves and goggles, when coming into contact with the agents used to clean the milking system. Especially when changing barrels containing cleaning agents.

Care must be taken to prevent collision and therefore the mixing of chlorine and acid containers at the milking facility.

See “Detergents and disinfectants” New milking systems must be CE marked.

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- *At-vejledning A.1.9 om faste arbejdssteders indretning.*
- *At-vejledning B.1.3 om maskiner og maskinanlæg.*
- *At-vejledning D.3.2 om ensidigt belastende arbejde og ensidigt gentaget arbejde.*
- *Arbejdstilsynet, Indretning af bygninger i landbruget.*
- *BAU Jord til Bord, Vejledning om automatiske maskiner i kvægbruget.*
- *BAU Jord til Bord, Arbejdsmiljø ved håndtering af kvæg.*

# Manual handling

Manual handling refers to lifting, carrying, pushing, pulling, etc. In order to limit manual lifting work as much as possible, technical aids should be used wherever possible.

Overstraining can be prevented through appropriate planning of the work processes and the design and fitting out of the work site, by using technical aids, by using good lifting and carrying techniques, and by limiting the weight and number of loads carried where manual handling cannot be avoided.

*The risk of strain injuries is reduced through the use of correct lifting and carrying techniques:*

- Position yourself close to the load.
- Stand facing the load with a broad, stable stance.
- Assess the weight of the load and its centre of gravity.
- Make sure you have a secure hold of the load.
- Bend your knees and hips, and keep your back balanced by flexing your back and abdominal muscles.
- Lift the load gently by straightening your knees and hips.
- Hold the load close to your body with slightly bent elbows.
- Lift and carry the load symmetrically, i.e. directly in front of your body, or distributed equally in both hands.
- Do not twist your back while holding the load. Move your feet instead.

When releasing the load, use the same movements in reverse.

The risk of the lift causing an injury is increased if there are aggravating factors. The surface may be uneven and make it difficult to stand firmly. The combination of bending forwards, twisting the back and other aggravating factors carries a particular risk. With increased risk of unexpected strains, the weight of the load should be minimal.



Frequently repeated lifting is also an aggravating factor.

The risk of harm when performing a particular lift is greater in those who are less strong, e.g. elderly or unwell persons. The weight limits are lower for persons under 18 years of age. See “Young persons’ work”. Heavy or frequent lifting below knee height and above shoulder height should be avoided by placing the items at a suitable height to begin with.

Heavy loads that cannot be handled using technical aids should be lifted by multiple persons. When multiple persons handle a load together, each person must not bear more than 2/3 of the weight limit for a single-person lift, which under optimal conditions is a maximum of 33 kg. Problems with coordination and failure to properly work together increase the risk of unexpected strains.

In work where many lifts are carried out during the working day, the total weight must be taken into account when assessing whether the work may be harmful.

Arbejdstilsynet has established guidelines on permissible aggregate lifting weights for healthy adults who are well instructed and trained where the lifts are performed in a good working position between mid-thigh and elbow height:

- approx. 10 tons per day for lifting close to the body
- approx. 6 tons per day for lifting at forearm’s length
- approx. 3 tons per day for lifting at 3/4 arm’s length

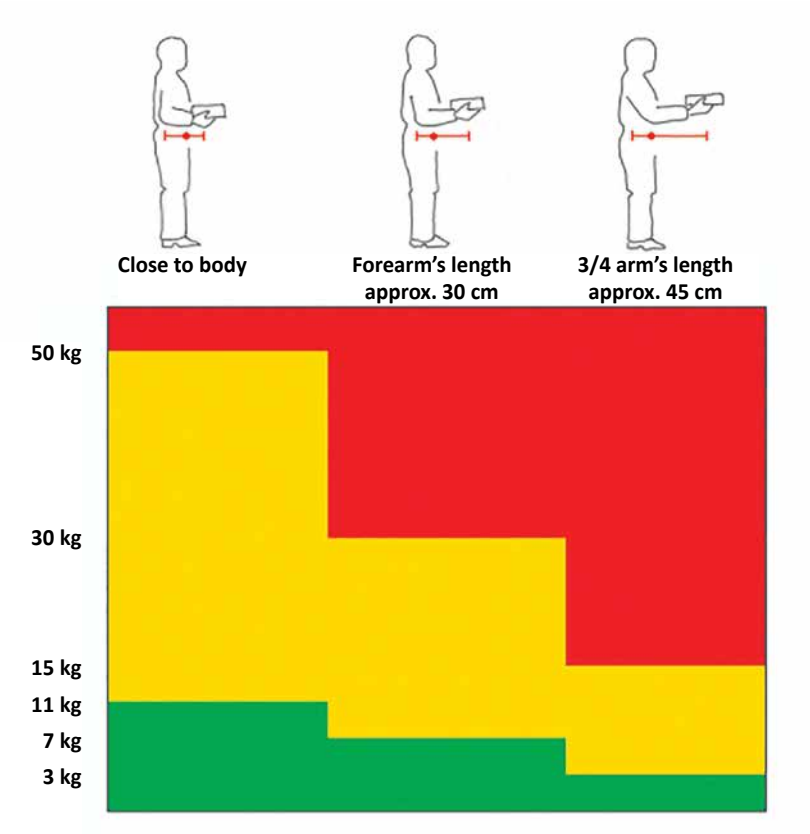
If the load is to be carried while walking, the maximum weight limit in the yellow area is reduced as follows:

- close to the body from 50 to approx. 20 kg
- forearm’s length from 30 to approx. 12 kg
- 3/4 arm’s length from 15 to approx. 6 kg.

When carrying loads, the transportation distance should not exceed 20 m on a level surface. An ordinary staircase step on the transportation route equates to a carrying distance of approx. 1 m. Carrying on uneven, wet and slippery surfaces is particularly risky.

Moreover, there are aggravating circumstances, such as forward bending, twisting and poor grip, etc. This can be avoided if there is an option to use technical aids for lifting and carrying.

Manual handling should not exceed 1/3 of the working day for the individual employee.




Lifting under optimal conditions, i.e. close to the body, rarely occurs in practice and the use of technical aids, e.g. a harness, will normally be required.

- *BAU Jord til Bord: www.paspåkroppen.dk*
- *BAU Jord til Bord, Tunge løft i jordbruget.*



# Grassland machinery

Grassland machines e.g. foragers, mowers and rotary mowers must be designed in such a way so as to provide adequate safety against unintentional contact with their rotating parts.

The housing of the knife drum must be strong enough to withstand the ejection of detached blades, stones, etc. It must also be designed so that the ejected parts do not endanger the driver of the tractor.

If there is a hatch in the exhaust funnel, the distance between the lower edge of the inspection hatch and the rotating blades must be at least 40 cm, and the hatch must be marked:

**ADVARSEL!**
**LEMMEN MÅ IKKE ÅBNES, FØR KNIVENE ER STANDSET!**

The blades must be attached to the knife drum in such a way to ensure that cannot come loose.

Operating handles operated from the tractor driver seat while driving must be capable of being adapted to commonly used tractor manufacturers with rollover protective structure (ROPS).

Power input and transmission shafts and power take-offs on side-mounted machines must be guarded in line with applicable regulations. See "PTO drive shafts"

The power input must be marked with the rpm at which the machine is intended.

The machines must feature clear and durable text which states:

**ADVARSEL!**
**MASKINEN KAN SLYNGE STEN UD.**
**PAS PÅ, AT INGEN BEFINDER SIG I KØRERETNINGEN!**

The coupling between the tractor and the machine must be designed so that it cannot come loose during driving.

Machines with tow bar (towed machines) must be equipped with support legs of a sufficient load-bearing capacity.

New machines must be CE marked.

# Combine harvesters

Combine harvesters must be secured so that the driver or others involved are not exposed to any hazard. This must be done as far as possible through construction, and otherwise through use of safety equipment.

The text on the combine harvester, along with the directions for use, maintenance and safety precautions must be in Danish.

The driver of the combine harvester must have a tractor licence or be over 18 years of age.

Do not leave the driver's seat without disconnecting the power to the combine harvester and stopping the engine.

Passengers are only permitted where the combine harvester has been designed with specific passenger space. Children under 13 years are not permitted.

## *Self-propelled combine harvesters*

The driver's seat must have a backrest and be padded. It must have spring suspension and reduced vibration. The seat must be adjustable in height and length without the use of tools and according to the weight of the driver.

There should be an effective fire extinguisher in the direct vicinity of the driver's seat – at least a 2 kg dry powder extinguisher or an equivalent.

There must be as clear a view as possible from the driver's seat. If necessary, the rear view should be improved with mirrors.

Steering and brakes must comply with the regulations of the Danish Road Traffic Act, regardless of whether or not the combine harvester is driven in areas covered by the Danish Road Traffic Act.

The stop device on the combine harvester must be marked "Stop" and be operable from the driver's seat.

The following warning text must be displayed in a visible place: "Stop the engine before leaving the driver's seat".



The engine must be shielded from the driver's seat, so that the driver is not subjected to bothersome heat from the engine.

The exhaust gas from the combine harvester's engine and the residue exhaust from the combine harvester must be expelled in such a way so as not to bother the driver. As far as possible, the exhaust system must be designed in such a way as to prevent ignition of straw, etc.

Combine harvesters must be designed so that the dust concentration inhaled by the driver is as low as possible. The dust concentration must not pose a health risk.

The cutting table must be equipped with a mechanical locking device or a support leg to hold it firmly in the raised position.

Free-running blade ends must be guarded.

There must be transport guards – for guarding cutter bars and dividers – during transportation of the combine harvester and when it is not in working use.

Engine fans and cleaning fans must be provided with protection against accidental contact with the fan blades.

Straw shakers, sieve boxes, etc., and their connecting arms must be designed or guarded so there is no crushing or clipping hazard.

Grain distribution and discharge augers must be designed, positioned or guarded so as not to pose an accident risk.

Malfunctions may only be addressed or corrected when the engine has been switched off and all parts are otherwise stationary. The start key is removed when working inside the machine as well as when working with the cylinder, meaning the machine cannot be started by mistake.

The quick-release coupling for the cutting table is intended to prevent damage to the machine. It must not be used as the only stop device in the event of error.

On some combine harvesters, the reel is driven by a hydraulic motor which does not disconnect when the quick-release coupling for the cutting table is used. This means that even if the reel stalls

due to something being jammed, it can unexpectedly start again, even though the quick-release coupling has disengaged the cutting board's other functions.

On new combine harvesters, the quick-release coupling must disengage all cutting table functions, including the cutting table blade.

If malfunctions need to be addressed under the cutting table, it must be secured against lowering through use of a locking device or support leg.

Blockages and **"bridges"** in the grain tank must also be removed only when the engine has been stopped and switched off. When the combine harvester is started again, with wooden pole and from a safe place, you can stir the material. Never enter the grain tanks when the combine harvester is in operation.

Remove the start key when working in the grain tank, so that the machine cannot be started by mistake.

### *Personal protective equipment*

Harmful concentrations of dust, e.g. from the combine harvester's cutting board, can be present at the driver's seat. As a general rule, if the combine harvester does not have a driver cab, a mask with a P2 dust filter should be used. See "Workwear" and "Respiratory protection".

If the noise impact exceeds 80 dB (A), the employer must provide hearing protection which must be used. See "Hearing protection"

### *Maintenance*

Lights and signaling devices must be in place and in line with the regulations stipulated in the Danish Road Traffic Act. See "Driving in public areas".

Chain drives, drive belts and couplings must be correctly adjusted. The blades must be sharp. The contact surfaces of the cutting table's fingers must be checked regularly to make sure they are in line with each other (aligned). If they are not, they must be immediately corrected or replaced to avoid malfunctions and stops.



For maintenance work with a raised cutting table, the table must be secured mechanically to prevent it lowering, with a locking device or support legs.

New combine harvesters must be CE marked.

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- *At-vejledning B.1.3 om maskiner og maskinanlæg.*
- *BAU Jord til Bord, Lovpligtige eftersyn af landbrugsmaskiner og udstyr.*

# Chainsaws

Work with chainsaws must be organised and carried out appropriately in respect of health and safety.

Chainsaws must have a chain brake. The chain brake should be engaged by a light forward push on the top-hand guard. The chainsaw chain must stop immediately when the top-hand guard is pushed. The chain brake on newer saws can also be engaged automatically. A kickback at the nose of the guide bar should engage the chain brake.

Before using the saw, it is important that the brake is cleaned, that the chain is inspected and sharpened, and that the functioning of the chain brake is checked.

All chainsaws must be protected against the chain (motor) starting inadvertently. This protection might be provided by requiring two independent buttons to be activated to start the chain.

In order to be able to work safely with a chainsaw, the operator must be familiar with the safety features of the saw and the specific accident and health risks associated with its use.

An employee may not work alone with a chainsaw until they have learnt a safe working technique that prevents risk of accidents.

It is the duty of the employer to ensure that the employee receives thorough instruction and training from someone with good working knowledge of chainsaws and safety-related issues.

The directions for use must provide details of how to maintain and carry out checks on the chainsaw. The directions for use must contain details of vibration in the handles and noise from the saw.

The directions for use must be in Danish and must be readily available to employees.

During felling, forestry and pruning work with chainsaws, the following protective equipment must always be worn:

- Helmet
- Hearing protection that can reduce noise to a level below 80 dB(A)
- Eye protection
- Foot protection in the form of high boots or ankle boots with non-slip soles, cut-resistant reinforcement to protect against saw blades and toe-caps that protect against heavy objects falling on the foot.
- Leg protection in the form of safety trousers with sewn-in cut-resistant reinforcement.

The employee must use the personal protective equipment supplied.

When working with a chainsaw, no other persons are permitted within the area where there is a risk of being hit by the saw or sawn-off pieces.

Chainsaws must not be used for sawing above shoulder height, unless a specially designed long-handled chainsaw is used.

Never work with a chainsaw from a ladder, unless the ladder has been secured and has a work platform that meets the relevant requirements. Never work with a chainsaw from an ordinary ladder.

During operation, the chainsaw must be held with both hands. During transportation, the chainsaw blade must be in a sheath.

Special single-hand chainsaws for tree pruning may only be used for pruning by climbing and only by persons with training in topping. The noise level of the chainsaw must be as low as possible. The noise level for type-approved chainsaw models must not exceed: 103 dB(A) at full throttle loaded and 105 dB(A) at full throttle unloaded.

Good low-noise chainsaws have a vibration level of under 4.5 $m/s^2$.

The recommended limit for vibration load is 2.5 $m/s^2$.

Gloves should always be worn to protect against vibration and cold, and doing so reduces the risk of "white finger". However, be aware that vibration-insulating gloves have a limited effect and do not work at frequencies below approx. 100 Hz.

For the sake of safety, the chainsaw must always be well maintained.

Chainsaws must be CE marked.

Young persons under the age of 18 are not permitted to work with a chainsaw, except as part of a vocational training programme.

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- *At-vejledning B.1.3 om maskiner og maskinanlæg.*
- *At-vejledning B.5.1.1 om arbejde med motorkædesave.*
- *At-vejledning D.2.8 om fældnings- og skovningsarbejde.*
- *At-vejledning D.3.4 om arbejdsrelateret muskel- og skeletbesvær.*
- *At-vejledning D.5.2 om høreværn.*
- *At-vejledning D.5.7 om beskyttelseshjelme.*
- *At-vejledning D.5.8 om øjenværn.*
- *At-vejledning D.6.1 om støj.*
- *At-vejledning D.6.2 om hånd-arm vibrationer.*
- *At-vejledning D.6.4 om støjkrav til maskiner til brug i det fri.*



# Personal protective equipment

Personal protective equipment is understood as i.a. clothing intended to protect employees against one or more risks that might jeopardise their health or safety during work.

Personal protective equipment can be workwear, gloves, helmets, hearing protection, safety footwear, eye protection and respiratory protection. See individual sections.

## *Use of personal protective equipment*

If the work cannot be otherwise planned, organised and performed in an appropriate manner in respect of health and safety, the employer must only allow the work to be performed if personal protective equipment is used.

The employer must ensure:

- that personal protective equipment is used from the start of the work in question and throughout its duration that personal protective equipment is used from the start of the work in question and throughout its duration
- that personal protective equipment provides the intended protection and does not cause any unnecessary nuisance
- that personal protective equipment fits the wearer, if necessary after customisation
- that personal protective equipment is suitable for use under the existing conditions at the work site
- that personal protective equipment is chosen taking into account ergonomic factors and the health of the employee.

If, due to multiple types of risk, the employee needs to wear several items of personal protective equipment at the same time, these must be combined without losing their effectiveness in relation to each individual risk.

The employer must provide employees with suitable personal protective equipment, meet the costs of procuring, maintaining and cleaning personal protective equipment, and have ownership of the equipment.

The employer must ensure that personal protective equipment is clean, dry and disinfected before use.

Personal protective equipment must be used in accordance with the directions for use, which must be in Danish, unless safety considerations in use require another language.

Personal protective equipment is designed for personal use and may only be used for the stated purposes.

Employees must be instructed in the use of personal protective equipment and informed about the risks associated with not using it.

Employees must use the supplied personal protective equipment from the time the task in question begins and throughout its duration.

Employees must contribute to the proper functioning of the equipment, including by reporting any faults and deficiencies to the employer.

All personal protective equipment must be CE marked, and it must be stated what specific hazards it protects against and to what level, how it should be maintained and stored, how long it may be used for and how it should be disposed of.

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- *At-vejledning B.5.1.1 om brugen af motorkædesave.*
- *At-vejledning D.5.1 om trykluft til åndedrætsværn.*
- *At-vejledning D.5.2 om høreværn.*
- *At-vejledning 2.10.2 om reflekstøj.*
- *At-vejledning D.5.4 om åndedrætsværn.*
- *At-vejledning D.5.6 om værnefodtøj.*
- *At-vejledning D.5.7 om beskyttelseshjelme.*
- *At-vejledning D.5.8 om øjenværn.*



# Lawnmowers – mowers

The rotating elements on lawnmowers/mowers must be enclosed. The enclosure casing must be designed so that stones, etc., cannot strike the user or others in the vicinity.

The mower must be designed in such a way so neither a hand nor foot can come into contact with the rotary blade when the machine is on a level surface.

If the mower is secured with a blade clutch – do not disable it.

The mower's motor must be fitted with a reliable stop device which remains in the stop position when the motor stops.

The exhaust must be diverted so that it does not bother the driver of the machine.

The mower must be equipped with a warning sign. All instructions must be in Danish.

Use safety footwear with toe protection when mowing.

The seats on seated mowers must be ergonomically designed.

When repairing the machine, especially the rotating parts, the engine must have come to a complete stop and the spark plug cap removed.

Hand-pushed motorised mowers carry a vibration impact hazard. The machines must be low vibration. When purchasing new machines, you should aim to acquire those with the lowest noise and vibration levels on the market.

The machine must not generate bothersome noise. Hearing protection must be provided and used if the noise impact is over 80 dB(A) at the site where the driver is located when working with the mower.

Miljøstyrelsen has set the following limits for mower sound/noise emissions (sound power limits)

| Lawnmower cutting width: | permissible noise |
|---|---|
| emission: less than or up to 50 cm | 96 dB |
| from 50 cm up to and including 120 cm | 100 dB |
| over 120 cm | 105 dB |

Noise emission levels for a lawn mower must appear on a certificate which can be included in the directions for use. In addition, machines must be fitted with a sign indicating the manufacturer mark, the mower's type designation and noise emission levels.

Depending on the distance from the driver to the noise source, the noise impact can be over 80 dB(A). In such cases, technical and/or administrative measures (time limit) must be taken to reduce the driver's noise impact to below 80 dB(A).

This applies to all motorised mowers, other than agricultural and forestry equipment, as well as non-self-propelled vehicles in which the cutting unit is driven by the wheels.

Proper instruction on use of the machines must be provided and the advice below must be followed:

- Keep hands and feet away from rotating parts.
- Do not touch rotating parts before the motor and ignition systems are disconnected.
- Never leave the machine with the motor running.
- Keep the noise levels of the machines to a minimum.
- Keep the vibration levels as low as possible.
- Make sure the mower blade is balanced.
- Position exhaust pipes so that the exhaust does not create a nuisance.
- Keep the exhaust damper in working order.



# Detergents and disinfectants

Detergents and disinfectants that are provided with a hazard pictogram or phrase to the effect that safety data sheets are available on request are hazardous chemicals. The rules on hazardous substances and materials therefore apply. See "Chemical workplace assessment".

## *CLP classification, labelling and packaging*

Detergents and disinfectants must be stored out of reach of children.

Detergents and disinfectants that are not marked as hazardous may still be harmful to health. See "Chemical substances and materials".

Most detergents and disinfectants contain organic solvents that are hazardous if they are inhaled or come into contact with the skin. Gloves must always therefore be worn that are resistant to the agent being used.

When purchasing gloves, it is important to know which products the gloves protect against.

It may be necessary to use personal protective equipment in addition to gloves, e.g. apron, protective eyewear or suitable respiratory protection.

At the work site, a chemical risk assessment should be carried out (as part of the normal workplace assessment) for the hazardous detergents and disinfectants. The risk assessment must be carried out before the agents are put into use.

It is a good idea to do this for all agents being used.

A safety data sheet must be provided (supplier's directions for use) Many suppliers prepare safety data sheets for all their products.

# Safety footwear (protective footwear)

Safety footwear, or protective footwear, is personal protective equipment that is supplied by the employer and remains its property. Protective footwear must be used if the work cannot be organised and carried out properly wearing ordinary appropriate footwear.

Protective footwear includes shoes, clogs, sandals, high boots, rubber boots or ankle boots with one or more protective properties.

Safety footwear with protective toe-caps must be worn where there is a risk of crushing or a risk of foot injury from falling objects, e.g. if heavy or awkward objects are handled at work, i.e. objects over 16-20 kg.

When choosing safety footwear or protective footwear, consideration should be given to whether the footwear has the appropriate protective properties. In addition, the footwear must be matched to the individual user and their needs.

Protective footwear with toe protection and cut-resistant reinforcement must be worn when working with e.g. chainsaws.

Protective footwear with protective soles must be worn where there is a risk of treading on sharp objects that could penetrate through a sole.

Protective footwear with non-slip soled should be worn where there is a risk of slipping. The risk of slipping is determined by the surface underfoot and the sole of the footwear.

Chemically resistant protective footwear should be worn where there is a risk of treading in chemicals, e.g. oils, acids or alkalis.

Rubber safety boots should be discarded when they become hard after years of use, as hard rubber provides inferior protection against saw penetration.

Safety footwear must be CE marked.

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- *At-vejledning B.5.1.1 om arbejde med motorkædesave.*
- *At-vejledning D.3.1 om løft, træk og skub.*
- *At-vejledning D.5.6 om værnefodtøj.*



# Silos

## *Depositing*

Silage of grass, maize and other crops as well as wood shavings and other types of wood waste can take the form of a silage stack or bunker silo.

Silo hatches should only open inwards, i.e. when enough silage or wood shavings have been emptied to allow the hatch to be opened. Work in silos must not be carried out alone.

It can be hazardous to enter silos when the walls are so high that persons standing within them do not have head height over the silo edge.

When it comes to silage, oxygen in the air can be consumed in a matter of hours. Furthermore, the presence of nitrous gasses created by the silage cannot be ruled out. Nitrous gasses are extremely toxic, even in small amounts. When one day has passed after the last deposit, a nitrous gas hazard is present for the following two weeks.

Thorough ventilation must always be carried out before anyone enters or descends into a silo. The gasses that can develop in the silo can be heavier than air and therefore difficult to remove.

When working in the silo supplied-air respiratory protection must be used (full mask or hood) as well as a safety lanyard and lifeline The lifeline and air hose should be attached.

The respirator must be supplied with clean, fresh air, either from stationary compressed-air batteries or from compressor systems with pressure vessel.

For low silos, bunker silos and silage stacks, it is common for the silage to be deposited with a front loader or buck rake. This work should only be performed by experienced tractor drivers who are able to assess the hazards of driving in a silage stack. There is a risk of toppling in connection with transit and driving on bunker silos, which includes the depositing and compression of silage in bunker silos.

Tractors used for compression and depositing of silage must be equipped with a roll-over protective structure (ROPS).

### *Silage removal*

Where bottom removal units are used, the directions for use of the unit must be followed carefully. This is due to the significant danger associated with crawling into the outlet ducts.

The system must always be switched off and locked when persons are working or located in the silo.

### *Emptying*

Until silos are constructed that can be emptied without the need to enter the silo, the following measures must be taken:

Before the work begins, instructions must be provided on how to carry out the work in a hazard free manner. Furthermore, it must be ensured that the door cannot close when there is a person inside the silo.

Rotating parts (augers, etc) in the silo must not be able to operate when there are persons inside the silo. There could be a lockable switch at the door, for example, which disconnects the power to the motors and at the same potentially monitors doors.

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- *At-vejledning C.0.18 om udsættelse for bakterier, svampe og andre mikroorganismer.*
- *BAU Jord til Bord, Sikkert arbejde i højden*
- *BAU Jord til Bord, Sikkerhed ved arbejde med gylle*



# Site huts

Where, in connection with varying work sites or work at building and construction sites, welfare facilities are provided in site huts, there are various requirements for the size and fitting out of these huts, depending on how many persons will be using them at the same time.

If the site hut is available to more than four persons, it must meet the following requirements:

### *Toilets*

Toilets must flush and be connected to a sewer. If the toilets do not require connection to a sewer, they must meet the same hygiene standard as flushing toilets. One toilet cubicle should be provided for every 15 persons.

### *Dining facilities*

- There must be at least 1 $m^2$ of floor area per person plus 1 $m^2$ extra. Tables and chairs must be provided.
- The dining room must be separate.
- It must be possible to store
- brought-in food and drink in a hygienic and healthy manner in a refrigerator.
- In addition, it must be possible to heat up food and water for coffee, etc.
- The room must be provided with at least two ventilation valves and at least one window that can be opened and used as a rescue passage.
- In addition, there must be sunshading, e.g. in the form of curtains.

*Changing rooms*

- The changing room must have at least 1 $m^2$ floor area per person in addition to the requirements for washing and bathing/showering facilities. In addition, the room must be provided with a ventilation duct.
- It must be possible to store normal and work clothing separately, either in separate lockers or in a vertically divided locker of at least 50 cm x 50 cm x 170 cm.
- The lockers must be lockable and have a shelf. The lockers must be well-ventilated. A bench must be provided beside the lockers.
- There must be a facility for drying workwear.

*Washing and bathing/showering facilities*

- There must be direct access from the changing room to the washing and bathing/showering facilities.
- Handwash basins must be supplied with hot and cold water. There must be one handwash basin for every five persons.
- Showers must be supplied with hot and cold water. There must be a minimum of one shower for every 10 persons.
- The floor area around each handwash basin and shower must be at least 1 $m^2$.

*Other facilities*

- Exterior walls, ceilings and floors must be insulated.
- Interior walls and floors must be easy to wash.
- The room temperature must be a minimum of 18°C.

Site huts used by a maximum of four persons must meet the above functional requirements but may differ, e.g. in relation to floor area, ceiling height, etc.

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- *At-vejledning 1.03.1 om Velfærdsforanstaltninger ved skiftende arbejdssteder.*



# The smiley scheme

On Arbejdsti lsynet's homepage www.at.dk you can track enterprises' red, yellow or green smileys. You can search an enterprise's name or for a group of enterprises.

There are three ordinary smileys and one crowned smiley in the health and safety field:

- A green smiley indicates that the enterprise has no issues with Arbejdstilsynet due to a breach of health and safety rules.
- A yellow smiley indicates that the enterprise has received an immediate improvement notice, an improvement notice with a time limit or a ruling without a notice.
- A red smiley indicates that the enterprise has received a prohibition notice or a consultancy notice.
- A crowned smiley indicates that the enterprise holds a recognised health and safety certificate. This means that the enterprise has made an extraordinary effort to ensure a high level of health and safety.

The green smiley is removed from the website if the enterprise receives a notice concerning factors triggering a yellow or red smiley. Yellow and red smileys are always shown on the website for at least three months and until the health and safety issues that triggered them have been resolved. Complaints cannot be made with regard to smileys. However, it is possible to appeal the decision triggering a yellow or red smiley to Arbejdsmiljøklagenævnet

Read more about the different notices on Arbejdstilsynet's website.

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- *Learn more about the red, yellow, green and crowned smileys on Arbejdstilsynet's website www.at.dk. The text replaces: "The smiley scheme".*

# Ladders

Work may only be carried out on ladders for a short duration. When working alternately between ladders and fixed surfaces, ladder work must not exceed 1/3 of the daily working period for each employee.

A single period of work from a ladder must not exceed 30 minutes. The ladder work should then be followed by another type of work that does not impact the body in the same way.

The employee working on the ladder must wear suitable footwear with soft, non-slip soles. Footwear must be tightly fitting.

Employees must have the necessary instruction on the correct use of ladders.

There must only be one person on the ladder at a time. However, on step ladders there can be one person on each side.

Only tools that are light, easy to handle and can be operated with one hand are to be used. Only light and easily manageable loads may be carried on normal ladders. Metal ladders must not be used in the vicinity of overhead electricity lines.

Ladders must be positioned on horizontal, stable surfaces and the angle should be approx. 75° in relation to the surface.

When working on ladders, the employee must not get any closer to the top of the ladder than the third step from the top.

When working on ladders more than 5 metres above the ground, there must be someone at the foot of the ladder if it is not properly secured.

Ladders must be inspected by an expert in accordance with the supplier's instructions at least once a year and always after a repair of relevance for safety.

Damaged and defective ladders may not be used. Ladders must be repaired according to the supplier's instructions.

Ladders must be provided with written directions for use in Danish and be clearly marked with the supplier's details.



*Extension ladders (push up ladders)*

The employer must ensure that extension ladders are only used by employees who have a thorough understanding of their design, daily maintenance and the hazards associated with their use.

Young persons under 18 years of age may not perform work tasks on extension ladders that are more than 5 meters in height.

When working on extension ladders there must always be a watchperson on the ground.

When positioning and erecting the ladder, stabilisers/rubber grips must be used for the support legs. Extension ladders may not be used when weather conditions (wind, ice) render their use irresponsible. A barrier should be put in place if the ladder is being used in a crowded area.

Moving and repositioning of manned ladders in prohibited.

Lifting heavy or unmanageable objects up or down manned ladders is prohibited.

At the top of the ladder there must be a proper backrest and two "eyes" – one on each side for securing the safety belt.

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- *At-vejledning B.3.1.1 om brug af transportable stiger.*
- *At-meddelelse nr. 2.03.1 om lavetstiger.*
- *BAU Jord til Bord, Lovpligtige eftersyn af landbrugsmaskiner og udstyr.*

# Noise

Work must be planned, organised and carried out so that risks resulting from noise are removed by limiting the noise at source or reducing it to the lowest possible level.

If the employer assesses that the employee is exposed to risks resulting from noise, the workplace assessment must include an assessment of noise impact.

In selecting measures to be taken, special attention must be paid to the following:

1. Alternative work methods
2. Design and layout of work sites
3. Choice of suitable equipment with the lowest possible noise level in relation to the type of work
4. Noise reduction in organising work:
   a) limiting the duration and extent of exposure,
   b) suitable working hours with sufficient breaks
5. Suitable information on and instruction in correct use of equipment
6. Plans for maintenance of equipment, workplaces and work sites.

Unnecessary noise should be avoided, even if the level is below the specified limit. The noise level during work must therefore be kept as low as is reasonably possible, taking into account technical developments.

If the noise level is over 80 dB(A), or otherwise harmful or a severe nuisance, hearing protection must be provided and used.

No person should be exposed to a noise impact above 85 dB(A) or impulse noise peak values above 137 dB(C) during work.

Daily noise impact over 80 dB(A) leads to an increased risk of hearing damage. An increase of 3 dB(A) means twice the wear on hearing.



Hearing protection must be correctly adjusted and suited to the employee. Hearing protection must be used from the start of work and throughout its duration.

The employer must ensure that the employee exposed to a noise impact above or equal to 80 dB(A) at the work site is made aware of and informed about the risks associated with noise.

Use of hearing protection must be indicated by signage.

When purchasing new machines and hand tools, you should acquire those with the lowest noise and vibration levels available on the market. The supplier must state how much noise machines and hand tools emit.

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- *At-vejledning D.5.2 om høreværn.*
- *At-vejledning D.6.1 om støj.*
- *At-vejledning D.6.4 om støjkrav til maskiner til brug i det fri.*
- *BAU Jord til Bord, Støj i landbruget – en eksempelsamling.*
- *BAU Jord til Bord, Støj i landbruget – er det et problem?*
- *Website www.stojilandbruget.dk.*

# Dust

Work involving dust must be organised appropriately in respect of health and safety. You should try to avoid generating dust at the work site as much as possible. If it cannot be avoided, dust should be removed at source, e.g. through process ventilation, extraction from machines and waterjet cutting. If the dust cannot be removed at source, an air-purifying respirator must be used as a minimum.

Dust can damage the lungs and cause allergies and cancer.

Limit values have been established for a number of substances and materials, e.g. mineral dust, wood dust, organic dust, dust containing quartz and carcinogens.

When cutting or otherwise working with concrete, brick, granite, etc., the dust will contain quartz. For work where the dust contains quartz, a supplied-air respirator must be used.

The employer must at all times try to remove or reduce the impact of dust as much as possible.

Arbejdstilsynet typically requires certain precautions to be taken when measurements show that a substance is present at a concentration of 1/10 of the limit value.

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- *At-vejledning C.0.1 om grænseværdier for stoffer og materialer.*
- *At-vejledning C.0.18 om udsættelse for bakterier, svampe og andre mikroorganismer.*
- *At-vejledning C.1.3 om arbejde med stoffer og materialer.*
- *At-vejledning C.2.1 om kræftrisikable stoffer og materialer.*
- *At-vejledning D.5.4 om åndedrætsværn.*



# Tractors

Tractors must be provided with a rollover protective structure (ROPS) if they have at least two axles and a weight of at least 500 kg.

The ROPS must be approved. Tractors with an ROPS must be provided with an approval sign (marking) and a warning notice.

Upon delivery, there should be accompanying directions for use ensuring that the ROPS can be properly installed and used and kept in the required condition.

The ROPS must be properly maintained. If the ROPS sustains significant damage, it must be replaced.

The noise from a tractor should be reduced as much as possible. If the noise from the tractor exceeds 80 dB(A), the driver must be provided with and use hearing protection.

The seat and steering wheel must be ergonomically adjustable in relation to one another.

The control levers must be positioned in such a way that the driver can reach them easily from the seat.

The driver cab should have no drafts but should have good ventilation or air-conditioning. Nuisance vibrations should not be felt in the seated area.

Special rules apply to those under 18 years of age. See “Young persons’ work”.

## *Tractor driving*

On public and private roads and areas accessible to other traffic, including trafficable forest roads and areas where the Danish Road Traffic Act otherwise applies, tractors and motorised implements may only be driven by persons who hold a driving licence for a car or tractor. Third-party insurance must be taken out for all tractors, including non-registered tractors, used on roads.

### *Registered tractors*

Tractors to be used for any form of driving must be registered and fitted with white number plates with red edging. This also applies to other motorised implements that are designed and used for the carriage of goods not necessary for their functioning.

### *Tractors not requiring registration*

A tractor which is used predominantly off-road to tow or propel implements does not have be registered if the tractor is used by itself on roads:

- for self-transportation to and from a work site or to and from a repair workshop,
- to tow an implement to and from a work site or to and from an implement repair workshop,
- to tow a trailer that is empty or carrying implements connected with the tractor's functioning to and from a work site or to and from a trailer repair workshop,
- or for roadworks in areas that are safely cordoned off by barriers or markings, or
- for road cleaning, snow removal, etc.

### *Tractors requiring approval*

A tractor belonging to the owner or user of an agricultural, horticultural or forestry property may be approved for the following:

- Transportation of implements between areas of an agricultural, horticultural or forestry property, even if the tractor is not used for towing or propulsion when the implement is used.
- Transportation of products obtained from, or to be used for, agricultural, horticultural or forestry purposes, to and from such a property or between areas thereof.

Special rules apply for the joint ownership of tractors.

An approved tractor must be registered as approved in the Danish Vehicle Register and be fitted with a number plate before being put into use.



### *All tractors*

### *Width*

A vehicle by itself should not be wider than 2.55 metres. However, implements for agricultural, forestry and road work may be 3.30 metres, regardless of whether they are suspended, towed or self-propelled. The width may exceed 3.30 m however, if being driven between field and farmstead, between property with jointly owned equipment, or between an agricultural contractor and its customers.

Double-mounted rear wheels (twin-mounted) may make a tractor wider than 2.55 m. This is permitted if the tractor is being used to tow a trailer or if an implement is suspended or mounted on the tractor. If the implement is equipped with a transport position, this must always be used when driving on roads. Protruding parts must be turned inwards.

### *Length*

A tractor with a suspended implement or a motorised implement must not be longer than 12 metres. A road train with tractor or motorised implement must not exceed 18.75 metres in length. A road train may consist of a tractor or motorised implement coupled to a maximum of two trailers or a trailer and semi-trailer.

### *Height*

The height must not exceed 4 metres. When driving under viaducts, overhead lines, etc., the driver is always obliged to ensure safe passage without danger or inconvenience – regardless of the height of the vehicle or the load.

### *Loading*

The load must be fixed in such a way as to minimise the effect on the driver's view as much as possible, and it must not obscure lights, reflectors or number plates. The load must be placed or bound securely so that parts cannot fall off into the road or otherwise interfere with other traffic, e.g. through dust.

Goods that extend more than 1 m beyond the frontmost point of the tractor or 2 m beyond the rearmost point of the road train or 15 cm beyond the sides of the road train must be marked.

A vehicle must not be loaded to a greater total weight or axle load than it is registered or approved for.

The maximum permitted axle load is 10,000 kg, but 11,500 kg where the drive shaft is fitted with twin-mounted tyres and road-friendly suspension, and the maximum permitted bogie pressure is 19,000 kg for a two-axle bogie and 24,000 kg for a three-axle bogie. The maximum permitted total weight is 18,000 kg for a two-axle tractor or a motorised implement on normal rubber tyres and 44,000 kg for a road train.

### *Identification lights*

Tractors, motorised implements and road trains comprising such vehicles and trailers must, during the statutory lighting-up time, be equipped with one or more identification lights if the width of the vehicle or road train, either loaded or unloaded, exceeds 2.5 The lights must be used while driving and when temporarily stopped or parked on the roadway.

### *Road trains*

In road trains towed by a tractor subject to registration, at least 20% of the total weight of the tractor must rest on the tractor's driving wheels. In addition, 50% of the total weight of the road train must rest on the braking wheels.

In road trains towed by a tractor not subject to registration or by a motorised implement, at least 50% of the road train's total weight must rest on the braking wheels.

With regard to lights and reflectors, the rules of the Danish Road Traffic Act apply for tractors, motorised implements and trailer implements.

### *Passengers*

Passengers may only be carried on a tractor and road train if they can be assigned a safe seat and only where they will be assisting with the work carried out by the tractor. Children under 13 years of age may not be carried. In addition to the above, the rules of the Danish Road Traffic Act apply.



# Manure removal systems

Manure removal systems must be protected against work closure in connection with the daily operation and during servicing and repair work at the facility.

Certain types of system in which there are no crushing hazards may start automatically. Other systems with scrapers in the grid floors or cleaning aisles may only begin once the farmworker is present, and the system must be supervised throughout it operation period. Start and stop switches must be positioned to allow a good overview of the system at the start moment.

There must be a lockable safety switch.

When installing scrapers in pigsty cleaning aisles with gates, the gates must be locked in place against the sties to prevent a crushing risk. In addition, a sign must be affixed at the start switches with the following text:

**ADVARSEL!**

**RENSEGANGSLÅGERNE SKAL ÅBNES, FØR ANLÆGGET STARTES.**

Scrapers and push rods in cleaning aisles, and grid floors and channels, must be designed and positioned so that no risk of crushing can occur.

Coverage of grid floors that cross roadways must have a clearance of at least 40 cm above the grid floor base.

All points at which two manure removal systems intersect must be accessible from above.

The distance between the highest point of the moving parts and the lowest point of the cover must be at least 30 cm.

Both indoor and outdoor channels must be equipped with solid coverage.

Towing stations and auxiliary stations must be accessible from above or from the side as far as they extend. A contact must be placed in the immediate vicinity of the outriggers which when in a disconnected position prevents the systems being started from elsewhere. Outrigger and towing station trenches deeper than 50 cm must be provided with steps for use in ascending and descending.

Outrigger trenches, towing station trenches, etc., must protect against the risk of persons falling.

Winches must have an effective locking device, such as a palm mechanism or preferably a self-locking winch.

### *Maintenance*

Manure removal systems must be lubricated, adjusted and maintained as specified in the system operating guidelines.

The system must not be able to be started while lubrication or servicing is in progress.

Annual inspection must be carried out in accordance with the supplier's instructions.

In manure removal systems with a chain belt, the chain must be adjusted so it runs smoothly. This adjustment must be carried out in accordance with the manufacturer's instructions. Unfortunate consequences have occurred when users have attempted to shorten and adjust chains in line with their own methods.

### *Important precautions*

The following precautions must be taken into account during repair and maintenance work on manure removal systems:

- The employer has a duty to instruct on the safety measures.
- The employees have a duty to use the prescribed safety equipment and to comply with the applicable safety rules.
- Before descending into channels, effective ventilation must be carried out.
- When working in channels and on outriggers, there must always be a watchperson present.
- The safety switch must be locked.

New systems and machines must be CE marked

- *BAU Jord til Bord, Sikkert arbejde i højden.*
- *BAU Jord til Bord, Sikkerhed ved arbejde med gylle.*



# Exhaust fumes

Exhaust fumes are harmful if inhaled and are included in the Danish Working Environment Authority's list of carcinogens. A chemical risk assessment must be carried out of work processes that generate harmful exhaust fumes.

Exhaust fumes from combustion engines primarily consist of nitrogen oxide, carbon dioxide, soot particles and water vapour. Carbon monoxide, sulphur dioxide, lead and various decomposition products, as well as petrol, etc., are also present.

Be sure to use machines correctly to avoid harmful substances. They must be set up so that they run properly. Use machines where the exhaust is turned away from the operator and avoid machines idling for too long or being powered up and down too many times.

Avoid using leaded petrol as a fuel for chainsaws. Petrol specially intended for chainsaws has the least amount of harmful substances in its exhaust emissions. In addition, unleaded petrol should be used.

By setting up the machines correctly and using them optimally, you can minimise many of the long-term adverse effects.

Machines with combustion engines can be deadly if used in an enclosed space.

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- *Arbejdstilsynets bekendtgørelse nr. 559 af 17. juni 2004 om arbejdets udførelse med senere ændringer.*
- *Arbejdstilsynets bekendtgørelse nr. 1795 af 18. december 2015 om foranstaltninger til forebyggelse af kræftrisikoen ved arbejde med stoffer og materialer.*
- *Arbejdstilsynets bekendtgørelse nr. 1109 af 15. december 1992 om anvendelse af tekniske hjælpemidler med senere ændringer.*

# Young persons' work

Special rules apply for the employment of young persons under 18 years of age in the case of work for an employer, including work within the employer's private household and work in family enterprises, i.e. work that is exclusively carried out by the members of the employer's family belonging to the household.

With any employment of young persons under the age of 18 years, care must be taken, when organising the work, to ensure that the work can be carried out appropriately manner in respect of health and safety.

The employer must take measures based on an assessment of the risks that the work will present to young persons, taking particular account of the special risks arising from their inexperience, lack of awareness of

risks and the fact that they are not yet fully developed. In addition, the physical, biological, chemical and psychological effects that young persons may be exposed to, in both the short and long term, must be taken into account.

The employer must ensure that young persons receive thorough training and instruction, including being made aware of the risks and the measures that have been taken with regard to their health and safety.

The employer must ensure that young persons are familiar with the information contained in the safety data sheets/directions for use concerning work with substances and materials, technical aids, etc.

The work must be carried out under effective supervision of a person over the age of 18 who has the necessary insight into the nature of the work.



*Young persons under 18 years of age*

Young persons under 18 may not i.a. work with the following :

- chainsaws
- clearing saws
- brushcutters
- hedgetrimmers
- nail and bolt guns, with the exception of nail guns with a mass not exceeding 0.3 g
- appliances for cleaning, etc., with a working pressure exceeding 70 bar (7MPa)
- coupling and uncoupling of vehicles, machines and implements with
- power transmission
- tractors
- tractors with rotary tillers
- tractors equipped with a winch
- tractors equipped with loading or digging apparatus
- tractors equipped with lifting devices
- excavating and loading machines
- industrial trucks
- pallet jacks
- load stabilisers
- forklift trucks
- sweeping machines
- cleaning machines
- rotary tillers
- lawnmowers
- snow-clearing machines
- cranes and other lifting implements and winches
- mobile personnel lifts and work platforms, hanging scaffolds, tail lifts, winches and dragging buckets
- forestry machines, including composters and wood-chippers
- mowers

- sweeping and cleaning machines
- motorised lawnmowers
- lifting devices or conveyors
- Elevators that are not push-button controlled
- lubrication, cleaning, repair and similar work on running engines, machines, transmissions and other mechanical devices where the moving parts are accessible and may cause personal injury
- vibrating hand tools, e.g. chisel hammers, bolt tensioners, concrete vibrators and rivet hammers, drills and sanders, and vibrating hand tools with a vibration level exceeding 130 dB (HA). Young persons are allowed to do short-term work, i.e. less than 30 minutes in an 8-hour work day, with drills and sanders.
- work involving risk of high-voltage shock
- autogenous welding, flame cutting and arc welding
- weed burners

Work with the following is **however permitted** if the moving parts are not accessible during operation and there are no other hazards associated with the machines.

- circular saws, clipping and cutting machines, milling machines, graders, thickness planers, lathes for metal, wood, etc., and drills with a drill socket for drill bits larger than 13 mm
- hay balers and mechanical, hydraulic and pneumatic compactors and waste compactors, including cardboard balers
- screw conveyors.

Young persons under 18 **must no**t work with, or otherwise be exposed to, the effects of a range of substances and materials, e.g. detergents, disinfectants and pesticides, marked with at least one of the following red/white pictograms pursuant to the CLP Regulation:

*This concerns e.g. the following:*

- Substances and materials covered by Arbejdstilsynet's Executive Order on measures to prevent risk of cancer when working with substances and processes.
- Work involving substances and materials that are marked as toxic might cause chronic harm, e.g. asthma, allergies and reproductive issues.
- Organic solvents included in Arbejdstilsynet's list of organic solvents in the limit value guidelines for substances and materials.
- Materials containing 1% or more solvents covered by the above item on organic solvents.
- Biological agents in groups 3 and 4 of Executive Order no. 57 of 27 January 2011 on biological agents and health and safety, or other work where they may be subject to the effects of such agents due to the nature of the work or the conditions under which it is performed.
- Examples of symbols and hazard phrases that young persons may not work with, which should be found on the agent's label (see Table 7).

The list is not exhaustive, but will provide assistance with understanding the rules concerning young persons' work.

Read more about what young persons under the age of 18 are not permitted to work with in the Young Persons Executive Order, § 12 and appendices.

### *16- and 17-year-olds*

16- and-17-year-olds, who are not subject to the duty to receive education, may work with the technical aids and equipment listed below:

- Tractors, provided the young person has a tractor licence.
- Tractors with rotary tillers, provided the young person has a tractor licence (within agriculture and horticulture).
- Self-driving combine harvesters, provided the young person has a tractor licence (within agriculture and horticulture).

### *15-year-olds*

Young persons who have reached the age of 15, and who are not therefore subject to the duty to receive education, may, on the condition that they are under professional supervision and instruction, work with the following within the area of cleaning:

- Dilution with water of detergents containing organic solvents for the employee's own use, provided the ready-to-use mixture does not contain 1% or more organic solvents.
- Occasional use of polishing agents containing up to 15% ethanol or 5% propanol.

### *Physical strain*

Young persons must not be exposed to noise or vibrations that might put their health at risk.

Young persons must not be employed in work that may result in a suffocation hazard in an oxygen-deficient atmosphere.

When lifting heavy loads, special attention must be paid to the young person's age, gender and physique, and it must be ensured that lifting is performed close to the body and that the load does not exceed 12 kg wherever possible. Out of the same considerations, one-off lifts of loads up to 25 kg should be avoided. If the load is carried over a distance, there should be a proportionate reduction in the load. If young persons perform manual pushing or pulling, special consideration should be given to their age, gender and physique, it must be ensured that the total strain does not constitute a health and safety risk, and the work must be performed such that the force that has to be exerted to initiate or maintain the push-pull is low.

Work demanding continuous manual handling that is strenuous or consistently physically demanding should be limited to short periods, and special consideration should be given to the young person's age, gender and physique.

Young persons must not engage in work processes that could pose a risk of explosion, unless effective technical measures have been taken to prevent personal injury, and special consideration should be given to the young person's age, gender and physique.

### *Young persons in education*

Young persons over the age of 15 where work is a necessary part of a qualifying vocational programme are permitted to carry out work that is normally prohibited for young persons under 18 years of age.

This is on condition that the work tasks are carried out under the effective supervision of a person over 18 years of age who has the necessary insight into the nature of the work.

In the case of work with vibrating hand tools, daily work must be organised in such a way as to include frequent breaks.

There are special rules for young persons' working hours, rest periods and rest days.

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- *Arbejdstilsynets bekendtgørelse nr. 239 af 6. april 2005 om unges arbejde med senere ændringer.*
- *At-vejledning E.0.1 om undervisningspligtige unges arbejde.*
- *At-vejledning E.0.2 om ikke undervisningspligtige unges arbejde.*
- *At-meddelelse nr. 4.01.6 om arbejdsmiljølovgivningens anvendelse*
- *for elever i erhvervspraktik.*
- *CLP-forordningen (EF) nr. 1272/2008 om klassificering, mærkning og emballering af stoffer og blandinger.*
- *BAU Jord til Bord, Branchevejledning om Børn og Unges arbejde i Jordbruget.18.*

# Vibrations

All work must be planned and carried out so that employees are not exposed to harmful vibrations. A distinction is made between hand-arm vibrations and whole-body vibrations.

## *Hand-arm vibrations*

Wherever possible, machines and tools must be designed to minimise vibrations. Similarly, work methods where employees are exposed to vibrations should be avoided as much as possible.

Hand-arm vibrations are the shakes that affect the hands and arms when using hand tools.

Hand-arm vibrations occur in particular when using striking, rotating or vibrating hand tools, such as chisel hammers, drill hammers, chainsaws, and vibrating and rotating sanders. Vibrations can also occur when using handheld machines such as vibrating rollers and garden rotary tillers.

Tingling or numb fingers are the first signs of harmful effects of vibrations. If you become aware of these signs, you should take a break from using the vibrating tool and take steps to lessen the effect. Over a longer period, there is a risk of developing “white finger”. White finger manifests in cold conditions as white, cold and numb fingers.

## *Limit values and action values – hand-arm*

- The daily exposure action value for an 8-hour reference period is 2.5 $m/s^2$. This means that measures must be taken for loads of 2.5 $m/s^2$ and above.
- The daily exposure limit value for an 8-hour reference period is 5 $m/s^2$. This limit must not be exceeded.

The vibration load can be reduced through technical measures or by limiting exposure time.

If vibration effects are suspected to be harmful, the employer must perform measurements. Symptoms of harmful vibration effects can include:

- permanently reduced sensation and gripping strength
- constant twitching in the fingers
- pain in the shoulders and joints
- increased risk of osteoarthritis.

Possibilities for limiting vibration effects include:

- suspending the tool and isolating the vibration source from the rest of the machine,
- maintenance and replacement of rubber mounts and
- use of vibration-insulating handles and gloves.

The machine must be low-vibration. The vibration level should be stated in the directions for use for handheld CE-marked machines. If the vibration emission exceeds 2.5 $m/s^2$, this must be stated in the directions for use.

## *Whole-body vibrations*

Whole-body vibrations are the shaking sensations that affect the driver of a vehicle via the seat.

Whole-body vibrations can contribute to back problems, especially lower-back pain, but also prolapsed discs and early degeneration of the spine. Higher vibration emission and longer-term exposure increase the risk, while rest periods reduce it.

Fixed postures and frequent twisting of the back increase the risk of injury. Similarly, bumps and unexpected movements, e.g. caused by uneven surfaces, increase the risk.

Unnecessary vibration impact should be avoided.

*Limit values and action values – hand-arm*

- The daily exposure action value for an 8-hour reference period is 0.5 $m/s^2$. This means that measures must be taken for loads of 0.5 $m/s^2$ and above.
- The daily exposure limit value for an 8-hour reference period is 1.15 $m/s^2$. This limit must not be exceeded.

*Measures to minimise the risk of injury:*

- Drive at speeds that are not excessive for the surface being driven on.
- Avoid driving over manhole covers, potholes, etc.
- If possible, level out stretches that are often driven on.
- Use an anti-vibration seat suitable for the vehicle. The seat should have good back support and be easy for the driver to adjust. It must have especially good lumbar support, and it is also important that it is adjusted in relation to the driver's weight.
- Maintain the vehicle's suspension, shock-absorption, etc.

New machines should be low-vibration and have seats that limit the vibrations experienced by the operator. In addition, the vibration emission should be stated in the directions for use if it exceeds 0.5 $m/s^2$.

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- *At-vejledning B.1.3 om maskiner og maskinanlæg.*
- *At-vejledning D.3.4 om arbejdsrelateret muskel- og skeletbesvær.*
- *At-vejledning D.6.2 om hånd-arm vibrationer.*
- *At-vejledning D.6.7 om helkropsvibrationer.*
- *BAU Jord til Bord, Helkropsvibrationer i landbruget.*
- *BAU Jord til Bords hjemmeside, www.helkropsvibrationer.dk.*



# Angle grinders

Angle grinders can cause serious accidents as result of the disc shattering. In addition, there is risk of nuisance effects such as dust, noise and vibrations.

Grinding discs must be suitable for the machine and its rpm. The discs must be marked with the maximum permitted peripheral speed in m/s and with the maximum permitted rpm. When replacing grinding discs, the power must be switched off and the plug taken out.

The angle grinder should be supplied with a safety guard that can catch fragments of the disc if it shatters.

The angle grinder should be handled so that sparks and dust are directed away from the body.

Eye protection must be provided and used when working with angle grinders.

Dust from angle grinders must be effectively removed by means of local extraction or the dust shroud. If the dust cannot be removed effectively, a respirator with an approved dust filter must be used. Take into account wind direction when working outdoors.

If the noise level of the angle grinder exceeds 80 dB(A), hearing protection must be provided and used.

When working outdoors or in damp rooms, only cables, sockets and plugs of a robust type (red/yellow or neoprene) that can withstand moisture and oil may be used.

Angle grinders vibrate a lot, so their vibration levels should be reduced, e.g. through use of insulating handles. Gloves can also help to minimise any harmful vibration effects. However, be aware that vibration-insulating gloves have a limited effect on vibrations and do not work at frequencies below approx. 100 Hz.

See "Vibrations".

All new angle grinders must be CE marked.

# Eye protection

Eye protection is personal protective equipment that protects the eyes against harmful mechanical and chemical effects or against radiation (welding arcs).

Eye protection includes protective goggles that fit closely to the face, face shields, mesh or part of a full-face mask. Protective goggles are available with and without side protection.

If eye protection is being used together with head, hearing and/or respiratory protection, the overall protection must not be impaired. If there is a risk of this, a special combi kit should be used.

### *It is the role of the employer to:*

- acquire and pay for eye protection, which is then the property of the employer
- make sure that the eye protection is properly maintained and cleaned.

### *It is the role of the employee to:*

- ensure that they are provided with and use eye protection during work
- ensure that they are instructed in the use of eye protection and informed of the risks associated with not using it.

When working with chainsaws, angle grinders and brushcutters, eye protection must always be worn.

Directions for use in Danish must be provided when eye protection is purchased. The directions for use must provide information on protective properties, customisation, use, maintenance and storage.

Eye protection should be chosen to suit the nature of the work. When welding, use a helmet with a visor, a face shield or goggles; when working with chainsaws, use a mesh visor or protective goggles.



# Respiratory protection

A respirator is personal protective equipment that provides protection against the inhalation of contaminated air and/or in the absence of oxygen.

### *The employer must ensure:*

- that the employee is provided with respiratory protection that is suitable for use under the existing work site conditions
- that the respiratory protection is used from the start of work and throughout its duration
- that the respiratory protection provides the intended protection at all times and does not cause unnecessary nuisance
- that the respiratory protection fits the user
- that the respiratory protection is well maintained and is clean, dry and disinfected before being put into use
- that the employee receives instruction in how to use the respiratory protection and is aware of the risks associated with not using it
- that the chosen respiratory protection is CE marked.

The respiratory protection must be used from the start of work and throughout its duration. The employee should contribute to the proper functioning of the equipment and report defects and deficiencies to the employer, supervisor or health and safety organisation.

- There are two main types of respirator available: supplied-air respirator
- air-purifying respirator

For either type, the face section can be designed as half or quarter masks, as hoods, as mouthpieces or as face shields. A respirator can either filter (purify) the surrounding air before it is inhaled or it can supply clean air. If the air-purifying respirator is fitted with a blower or an auxiliary motor, the breathing is eased to the same extent as with an air-supplied respirator.

Respirators must be selected according to the nature and concentration of the contaminated air, however where there is a deficiency of oxygen a supplied-air respirator should always be used.

When choosing a respirator, the nature of the work must be taken into account, as well as beard, head shape and whether glasses, helmet, hearing protection, etc., need to be worn at the same time, which can affect the function of the respirator.

Consideration must also be given to whether a supplied-air respirator should be used or whether an air-purifying respirator is adequate. It is important to understand the features of the different respirators in order to choose the right one. A wrong choice can have catastrophic consequences, such as loss of life if an air-purifying respirator is used where there is a deficiency of oxygen.

### *Supplied-air respirator*

Compressor masks and hoods are respirators that receive air from a compressor or stationary pressure vessel. A pressure demand respirator is a form of respiratory protection that receives air from a pressure cylinder carried by the user. A continuous flow respirator is a form of respiratory protection using compressed oxygen. A fresh-air breathing mask is a form of respiratory protection where the user breathes through a tube connected to fresh air.

A supplied-air respirator can be worn throughout a full working day, however this should include breaks, the length of which will depend on the workload and level of discomfort. Work that does not require the use of a respirator can be carried out during these breaks.

### *Air-purifying respirator*

An air-purifying respirator can be a whole or half mask with a replaceable filter against particles and/or gases. If the air-purifying respirator is equipped with a battery-powered motor (turbocharger) that blows the air through a filter, a hood can also be used as a face piece. Air-purifying respirators are also available as air-purifying face masks.



Air-purifying respirators may only be used for 3 hours during a working day. The 3 hours should not be consecutive. Should the mask need to be used for more than 3 hours over a working day, an air-purifying respirator with a turbo unit (blower) or a supplied-air respirator should be used from the start of work.

### *Respirators with particle filters (dust filters) for full or half mask*

Particle filters never protect against gases or vapours. Some filters do not protect against liquid aerosols, as indicated on the labelling.

Particle filters (dust filters) are divided into three classes:

- P1 low-effect filter
- P2 medium-effect filter
- P3 high-effect filter.

Class P1 has the lowest filtration level and therefore protects only to a limited extent against dust (solid particles). If the filter has been tested, it protects against both sold particles and liquid aerosols. The filter cannot be used if the limit value for the pollutant is below 5 mg/m$^3$. Examples of dust types that the filter does not protect against are moulds and quartz dust.

Class P2 has a higher filtration level and therefore protects to a greater extent. It can protect against harmful and toxic particles, but not against bacteria and viruses. These filters can protect only against sold particles, or both solid particles and liquid aerosols, if the filter has been tested.

Class P3 has the greatest filtration level and protects against the same substances as P2 and against bacteria and viruses. If the filter has been tested, it protects against both solid particles and liquid aerosols. Not all P3 filters are suitable for use in half masks.

Particle filters that protect against only solid particles may be marked “Only for use against solid particles” or “Not for use against liquid aerosols”. In addition, these filters will be marked with S. Filters that also protect against liquid aerosols may be marked with L,

and filters that protect against both solid particles and liquid aerosols may thus be marked with SL.

The dust coating on the filter increases inhalation resistance. When inhalation resistance gets too high, the filter must be replaced.

### *Gas filters for whole or half masks*

Gas filters do not protect against dust.

Gas filters are divided into classes and types. The class indicates the quantity of gases and vapours the filter can absorb, while the type indicates which kinds of gases the filter can absorb.

Gas filters are divided into three classes:

- Class 1 low-capacity filter
- Class 2 medium-capacity filter
- Class 3 high-capacity filter

It must be stated in the supplier's directions for use which gases the filters protect against.

Combination filter types should be used to protect against both dust and gases. Arbejdstilsynet normally recommends at least an A2p2 filter to protect against both dust and gases.

Filters for several different gases and combinations of particles have colour codes for each individual type.

A gas filter can absorb a certain quantity of air contamination. After this, the contaminated air will begin to leak through. A gas filter must be replaced before it becomes compromised or contaminated air can be smelt.

Some suppliers can calculate the estimated lifetime of the product if details of the contamination concentration and workload

are provided. The filter must be replaced in good time before the calculated lifetime expires.



If no such details are available on the filter's lifetime, a supplied-air respirator must be used.

Filters normally have a lifetime of 3 hours. This will generally be shorter if the filter has been used in connection with mist-spraying.

The supplier must ensure that directions for use are always provided in Danish upon delivery. These should be clear and easy to understand, and include details regarding:

- the respirator's durability, storage, use, cleaning, maintenance, repair and disinfection,
- and what spare parts can be used with the respirator
- any restrictions on use of the respirator
- the lifetime of the respirator and its parts
- suitable packaging for the transport of the respirator
- the importance of a hazard labelling.

For turbo equipment, the instructions for use must state which combinations of face piece, turbo unit and filter are to be used together.

For the respirator to provide the intended protection, it is important that the instructions given in the supplier's directions for use on maintenance and storage are followed carefully. The lifetime of the respirator is completely dependent on this.

Safety signs must be displayed in areas where respirators are used.

Instruction and training must cover replacement of filters, customisation, maintenance and storage of the respirator. In addition, learning how to put on and remove the respirator should be included. Employees must also be aware of the risks associated with not using respiratory protection.

Employees must use respiratory protection where required. Respiratory protection must always be used for pressure washing, demolition, and handling dusty and mouldy material.

In situations that are especially demanding due to the nature of the work, temperature conditions or similar, the length of time for which the respiratory protection is used must be reduced.

The employer meets the cost of personal protective equipment and is responsible for its cleaning and maintenance. The employer owns this equipment.

Young persons under 18 years of age may not work for more than 4 hours a day in areas where supplied-air respirators are used.

All respiratory protection and any elements that are important for the equipment to function must be CE marked.

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- *At-vejledning D.2.20 om brug af vandtryk til rengøring, afrensning, skæring mv.*
- *At-vejledning D.5.1 om trykluft til åndedrætsværn.*
- *At-vejledning D.5.4 om åndedrætsværn.*
- *BAU Jord til Bord, Vejledning om brug af personlige værnemidler – Indendørs.*
- *BAU Jord til Bord, Vejledning om brug af personlige værnemidler – Udendørs.*