

SAFETY MANUAL FOR Forestry



Branchearbejdsmiljøudvalget Jord til Bord

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Forestry



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

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



Branchearbejdsmiljøudvalget Jord til Bord

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Safety Manual for Forestry

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 og 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 (Working Environment Act). Arbejdstilsynet has only assessed the guide as presented and has not considered whether it covers all relevant topics within the particular area. Arbejdstilsynet's findings are also subject to future technological developments.

Jordbrugets Arbejdsmiljøudvalg



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Reporting of industrial injuries

Industrial injuries are understood as industrial accidents, short-term harmful influences, e.g. cases of poisoning, sudden lifting injuries and occupational diseases. Industrial injuries should be discussed within the health and safety organisation with a view to preventing 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 addition to the day the injury is sustained) to *Arbejdstilsynet* as soon as possible and within 14 days of the first 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 brushcutters, to *Arbejdstilsynet*.

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

The employer must give the enterprise's health and safety organisation

(the health and safety representative) access to the report. In addition to this, the employer must give the injured party a copy of the report.

Anyone is entitled to report industrial accidents, short-term harmful influences and sudden lifting injuries to *Arbejdstilsynet* and *Arbejdsmarkedets Erhvervssikring* (Labour Market Insurance).

The employer also has a duty to report industrial accidents, short-term harmful influences lasting up to 5 days or sudden lifting injuries that may be assumed to legally justify a payment claim as soon as possible, and within 9 days of the injury being sustained, to the insurance company or *Arbejdsmarkedets Erhvervssikring*.

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 reporting system via Virk.dk or *Arbejdstilsynet's* website www.at.dk.

It is the duty of the employer to report an industrial 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 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.*
 - *At-vejledning F.0.4 om forebyggelse af arbejdsulykker i små virksomheder*
 - *www.at.dk, Report an industrial accident in EASY under the "Self-service" menu item.*

Work on slopes, in lakes and ditches



Working on slopes can strain different parts of the body. Depending on the incline of the slope and the type of surface, it can be difficult to stand or walk without slipping or stumbling. There is therefore a real risk of an accident and sudden unexpected strain that may cause acute or lasting damage, e.g. in the legs or back. If the surface is smooth and slippery, the risk is further increased. Operating machinery under these conditions carries a further risk.

The work may consist of:

- Clearing with brushcutters
- Planting
- Fertilizing with a backpack sprayer
- Laying of woodchip

When working on slopes, in ditches and the like where there is no horizontal surface, work must be planned and organised in order for it to be carried out safely. This includes assessing the incline of the slope, the type of surface, appropriate footwear, the duration of the work and other relevant conditions such as the weather and height of the slope.

Uneven terrain requires the use of well-fitting footwear. Lace-up boots provide better support than shoes and offer a certain amount of ankle protection. In addition, the soles of the footwear must provide a good secure footing on a smooth surface.

It may be necessary to organise the work so as to switch between working on a slope and on a flat surface, with periods of maximum 1 hour spent on a slope separated by periods of 30 minutes of other work on a flat surface.

When working in lakes, ditches and the like, you must wear suitable workwear, which in most cases means waders. In some cases, a rain jacket is also necessary.



When working outdoors in wet weather, suitable rainwear must be provided, i.e. allowing the body to breathe while preventing the body or workwear from getting wet.

When working in creeks and ditches full of water, it is often necessary to have two people present and to use a safety line, as there is a risk of falling and not being able to get out again. If there is a lot of water in the ditch or creek, it may also be necessary to wear a life jacket.

REMEMBER! Because of the nature of the work, it is important that there is access to welfare facilities with a bath/shower, drying room, etc.

See “Design and fitting out of the work site”.

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- *At-vejledning D.5.2 om høreværn.*
 - *At-vejledning D.5.7 om beskyttelseshjelme.*
 - *BAU Jord til Bord, Håndskubbet plæneklipper*

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 general planning-related, 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 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 employer participates if there is no supervisor. 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 employees, the employer must establish a single-level health and safety organisation. 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 focuses on good cooperation and a systematic approach to solving day-to-day health and safety problems.

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 of relevant training within the first 12 months of the term of office
- 1.5 days of 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.*
 - *At-vejledning F.3.5 om samarbejde om arbejdsmiljø på midlertidige eller skiftende arbejdssteder, bortset fra bygge- og anlægsarbejde.*
 - *At-vejledning F.3.6 om aftale om virksomhedernes samarbejde om arbejdsmiljø.*
 - *At-vejledning F.3.7 om arbejdsmiljøuddannelse for medlemmer af arbejdsmiljøorganisationen.*
 - *BAU Jord til Bord, Arbejdsmiljøarbejdet – hvordan gribes det an*
 - *BAU Jord til Bord, Få styr på arbejdsmiljøet.*

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.

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, 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.





Railings must consist of a handrail at a height of 1 metre, a knee-rail at a height of 0.5 metres and a foot-rail at a height of 15 cm.

Where necessary, signage must be put up providing warnings with regard to relevant health and safety matters.

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/bath or shower
- lockers 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 and transportable personnel lifts



Scaffolding and transportable personnel lifts, e.g. aerial work platforms, are designed to lift persons and materials to the desired working height.

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 aerial 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.

Aerial 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 personnel 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-vejledning D.5.5 om faldsikring.*
 - *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*

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 in wet weather, suitable rainwear must be provided. This should allow the body to breathe and prevent the body and workwear from getting wet.

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. 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* (Ministry of Environment) 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.
- contain 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.
- contain 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 may 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.

Training

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 training programme with content and requirements at least equivalent to the requirements for obtaining the spraying certificate or spraying permit 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.

NOTE! 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. There are special rules concerning the location of washing sites.

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.



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- *Miljøstyrelsen's website <https://mst.dk/kemi/pesticider/>*
 - *BAU Jord til Bords vejledning – Bortskaffelse af kemikalierester og tom emballage.*



Pruning from an aerial lift

When carrying out tree-pruning work from an aerial lift, dangerous situations may arise for those occupying the lift. This applies to both the chainsaw operator and anyone assisting.

As a general rule, there should only be one person in the basket when chainsaw pruning is being carried out. There may be cases where two persons are needed in the basket, but it should be noted that this can lead to hazardous situations.

There are various ways you can protect yourself against being hit by the saw when using a personnel lift for pruning jobs:

- You can work with just one person in the basket.
- You can work with a long-handle chainsaw, reducing the danger for other persons in the basket.
- You can arrange the basket so that the person not carrying out the pruning is effectively shielded from the saw.
- Both persons in the basket can have passed a special course in pruning and lowering from a personnel lift recognised by Arbejdstilsynet.

With regular personnel lifts, there is a danger of being thrown out of the basket if it is hit by a branch. The person in the basket must therefore use a safety harness with a line securely attached to the basket.

The guidelines for pruning are as follows:

- Before starting chainsaw work, remove all smaller branches with a diameter up to approx. 10 cm using a handsaw.
- Before chainsawing, place a rigging rope around the trunk and over a branch or through a rigging loop, attach it to the piece of wood with two turns and finally secure it with a lockable carabiner hook.
- The piece to be sawn off must not be heavier than one person can hold.
- The free end of the rigging rope is held by the assistant, who is positioned at the opposite end of the basket.

- Lower the sawn-off piece after the chainsaw has been stopped and placed in its holder.
- The chainsaw should be outside the basket when started or stopped.

By following these guidelines, you can avoid the risk of the chainsaw being hit by the tree branch or the assistant being hit by the chainsaw.

When working with a chainsaw, both the saw operator and the assistant must wear a safety helmet, hearing protection, eye protection, and trousers and boots with cut-resistant reinforcement.

See also “Chainsaws”, “Felling and forestry work” and “Scaffolding and transportable personnel lifts”.

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- *At-vejledning B.5.1.1 om arbejde med motorkædesave.*
 - *At-meddelelse nr. 2.02.2 om personløft med kran.*
 - *At-meddelelse nr. 2.04.3 om transportable personløftere med arbejdsstandplads.*
 - *BAU Jord til Bord, Erhvervsmæssig Træklatring.*





Hogweed

Hogweed sap is poisonous and can cause a nasty rash similar to burn blisters. When tackling oversized hogweed, you should avoid direct contact with the plant. Always wear goggles or a visor during this type of work. Protect the skin with clothing and wear long rubber gloves and high boots.

Protection

- Full-coverage, watertight clothing
- Rubber gloves and high boots
- Protective goggles or a visor
- Have water, a flannel and soap available during the work
- Avoid removing hogweed in sunny weather.

Treatment if you get sap on your skin

- Wash the affected area quickly, preferably with soap.
- Apply insect-bite cream to the skin.
- If the rash is bad, consult a doctor.
- If sap gets into your eyes, rinse them immediately and consult a doctor.

Management

Management must begin before the hogweed becomes too large. There have been positive experiences with grazing, especially with sheep, though cows and horses can also eat hogweed if the plants are not too large. Mowing is also effective, but must be done many times throughout the year. Management of oversized hogweed from a tractor with a closed cab provides the best protection against getting sap on your skin. If using a brushcutter or similar, this should be done when the plant reaches approx. 1/2 metre in height.

Do not use a brushcutter with a cable because it will cause the sap from the plants to spray around.

Pesticides may be used as a form of management under special conditions. See Miljøstyrelsen's guidelines www.mst.dk.

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.

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

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

It must be stated on the packaging's label 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 with chemicals must be carried out 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.

- *BAU Jord til Bord, Branchevejledning om Bortskaffelse af kemikalierester og tom emballage.*

Brushcutters (strimmers)



Working with brushcutters can put a strain on the back, shoulders and arms. There are many monotonous repetitive movements in awkward postures. The work should therefore be organised to include as much variation as possible, e.g. by switching between different work tasks.

Brushcutters normally emit a level of noise that is significantly higher than the noise limit. Hearing protection should therefore be used to effectively reduce the noise impact.

Brushcutters often have a vibration level higher than 3 m/s². The vibration from the machines should therefore be reduced by e.g. replacing the rubber mounts and replacing the handles with thick rubber handles. In addition, the machines must be regularly maintained.

If the brushcutter has a vibration level below 1 m/s², there is no limit to the operation time.

The daily exposure limit value for an 8-hour reference period is 5 m/s². This limit must not be exceeded. The daily exposure action value for an 8-hour reference period is 2.5 m/s². This means that measures must be taken for loads of 2.5 m/s² and above

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

Gloves, hearing protection and eye protection must always be worn when working with brushcutters.

Harness straps must be wide and padded.

When using a brushcutter for grass strimming, e.g. for mowing, protective footwear with steel toe-caps should be worn together with coveralls and a face mask for protection against stones.

A safety distance of at least 10 m from other persons must be observed.

When using a brushcutter with a circular saw blade (clearing saw), e.g. when thinning Christmas trees, the same protective equipment must be used as when working with a chainsaw.



The placing on the market of flail-type cutting attachments for portable handheld brushcutters consisting of several connected metal parts is prohibited.

When used for clearing harmful plants, e.g. hogweed, bracken and other plants that can cause allergies, the user must ensure effective protection against the risk of coming into direct contact with sap and plant residues. This means using a face mask, apron, etc., and possibly an extra-wide shield on the brushcutter's shaft.

New brushcutters must be CE marked.

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- *At-vejledning D.5.2 om høreværn.*
 - *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.*

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 rules. 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.

A Danish user guide must be provided at the time of delivery.

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

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- *At-vejledning D.6.4 om støjkrav til maskiner til brug i det fri.*



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.

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 shaking sensation that affects the hands and arms when using hand tools.

Young persons under 18 years of age are not permitted to use vibrating hand tools, e.g. chisel hammers, with a vibration level exceeding 130 dB(HA), corresponding to 3 m/s². However, short-term work, i.e. less than 30 minutes over an 8-hour work day, is permitted with an impact drill and power sander. See "Vibrations".

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 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 emits a noise of more than 80 dB(A), hearing protection must be provided and used.

The safety data sheet should include information on the noise level.

The safety data 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, it should be noted that anti-vibration 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, 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/s². 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,
- bad back and 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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- *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. the 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 woodchippers, seek out the quietest machines on the market.

Woodchips contain moulds that 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*
 - *BAU Jord til Bord, www.flisogskimmelsvampe.dk. Felling and forestry work*



Felling and forestry work

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 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.

Felling and forestry work requires that the employee has been trained in occupational safety practices. This includes safety issues and restrictions involved in the removal of hang-ups, solo work and contact with supervisors or colleagues.

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 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.

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 metres.
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 under 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 check-in 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 loss of radio or telephone contact.

- *At-vejledning B.5.1.1 om arbejde med motorkædesave.*
- *At-vejledning D.2.8 om fældnings- og skovningsarbejde.*
- *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 in 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 two 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 B.2.3.1 om løft af personer med gaffeltruck.*
 - *At-meddelelse nr. 2.01.1 om gaffeltruck.*
 - *At-vejledning 1.9.1 om Gaffelstablertifikat.*
 - *At-vejledning 1.9.2 om Gaffeltruckcertifikat.*
 - *At-vejledning 1.9.3 om Teleskoplæssercertifikat.*

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.

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- *At-vejledning B.1.3 om maskiner og maskinanlæg.*
 - *At-vejledning D.2.13 om gravearbejde.*
 - *BAU Jord til Bord, Arbejds miljø ved reparation og vedligeholdelse af maskiner.*



Pregnancy

The 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.

Physical strain

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". www.gravidmedjob.dk

- www.gravidgartneri.dk.
- *At-vejledning A.1.8 om gravide og ammendes arbejdsmiljø.*

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 below 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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- *At-vejledning 2.1.2 om Hud og kemi*

Helmet



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 for 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.

Two 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.

Agreements at an organisation level

Agreements on waiving the rules on daily rest periods and rest days may be made at an organisation level between the employer and the employees.

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.

Local agreements

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 persons under 18 years of age.

Hedgetrimmers



The vibration level should be 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 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.

The daily exposure limit value for an 8-hour reference period is 5 m/s². This limit must not be exceeded.

The daily exposure action value for an 8-hour reference period is 2.5 m/s². This means that measures must be taken for loads of 2.5 m/s² 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 persons under 18 years of age. See "Young persons' work".



Motorised hedgetrimmers

- 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 hedgetrimmer is designed such that the opening between the blades is no more than 8 mm.

On 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.

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- *Elsikkerhedsloven.*
 - *At-vejledning B.1.3 om maskiner og maskinanlæg.*
 - *At-vejledning D.5.2 om høreværn.*
 - *At-vejledning D.6.2 om hånd-arm vibrationer.*
 - *At-vejledning D.6.4 om støjkrav til maskiner til brug i det fri.*
 - *At-vejledning D.6.7 om helkropsvibrationer.*
 - *BAR Jord til Bord, Handheld hedgetrimmers.*





Pressure washers

Manual pressure washing places stress on the hands, arms and shoulders. The jolting and cold temperature affect the skin and bones. The eyes and airways are exposed to small particles that are whipped up. And the high noise level is hazardous to 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".

During repair or inspection, the pressure washer must be depressurised.

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

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

All new pressure washers must be CE marked.

Hearing protection



Hearing protection constitutes 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. The instruction 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 noise 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. 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 støjkraft til maskiner til brug i det fri.*

Ground work



Excavation work should be led and supervised by an experienced person, who assesses the nature of the ground and makes decisions on slopes and the use of reinforcement materials.

In excavation and ground work, it is important to be aware of the risk of subsidence.

The stability of the slope is compromised by:

- strong rains and frost alternating with thawing
- water pressure behind frozen surfaces
- tremors from passing traffic and ruptures
- previous excavations.

Excavations can collapse under load stress from existing buildings and parked heavy trucks, stacked materials and soil banks.

It may be necessary to carry out surveys of the soil before commencing excavation work, e.g. whether there is contamination of the soil and, if so, to what extent.

Rain, snow, frost and darkness can have a major impact on safety in excavation work, so lighting needs to be used at darker times of year.

Manual excavation

Given that there are suitable technical aids available for excavation, Arbejdstilsynet has concluded that manual excavation is not acceptable.

Manual excavation will only be accepted in exceptional cases where machine excavation is not possible due to the available space. This assumes that a plan is prepared for alteration of churchyards so that in time all graves can be dug by machine.

The person carrying out the excavation work must not participate in other heavy manual work on the same day.



Excavation with reinforcement

The number of reinforcements depends on the nature of the earth and the size of the hole. For reinforcements, 5 cm x 20 cm planks are recommended, which are tensioned against the sides of the hole with spindles. Three reinforcements should be used for holes measuring 1 m x 2.25 m with a depth of 1.75 m, and five reinforcements for holes with a depth of 2.50 m.

Excavation without reinforcement

In excavations without reinforcement, the sides must be structured to prevent slippage. At depths down to 5 m, structures should be at least 1:2 (1 across and 2 up). At greater depths, the structure should be 1:1

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- *At-vejledning D.2.13 om gravearbejde.*
 - *At-vejledning D.2.23 om arbejde i forurennet jord.*
 - *At-vejledning D.3.1 om løft, træk og skub.*
 - *BAU Bygge & Anlæg, Håndbogen – arbejdsmiljø i bygge og anlæg*

Chemical workplace assessment



It is no longer a requirement for enterprises to draw up workplace instructions when working 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
- 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 materials and substances.
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.
- The safety 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.

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 Regulation.*
- *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. Before work begins, a chemical risk assessment of the work process must always be carried out. See "Chemical workplace assessment".

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 hazardous 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".

- *Miljøministeriets bekendtgørelse nr. 115 af 26. januar 2017 om kemiske stoffer og produkter med senere ændringer (Kemikalieloven).*
- *Miljøministeriets bekendtgørelse nr. 1647 af 17. december 2017 om bekæmpelsesmidler (Bekæmpelsesmiddelbekendtgørelsen).*
- *At-vejledning C.1.3 om arbejde med stoffer og materialer.*
- *BAU Jord til Bords vejledning "Bortskaffelse af kemikalierester og tom emballage".*

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.

PTO (power take off)

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.

Input shaft

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.

PTO drive shaft

The PTO drive shaft must be fitted 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 telescopic 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.

New PTO drive shafts must be CE marked.

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

Fertilizers



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

When working with commercial fertilizers, dust inhalation must be avoided. Respiratory protection must be used when there is a large amount of dust while working.

Skin contact with commercial fertilizer should also be avoided, so gloves must be worn. In addition, 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 gases – including toxic gases 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.

- *BAU Jord til Bord, Sikker kørsel ved frontmonterede redskaber.*





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.

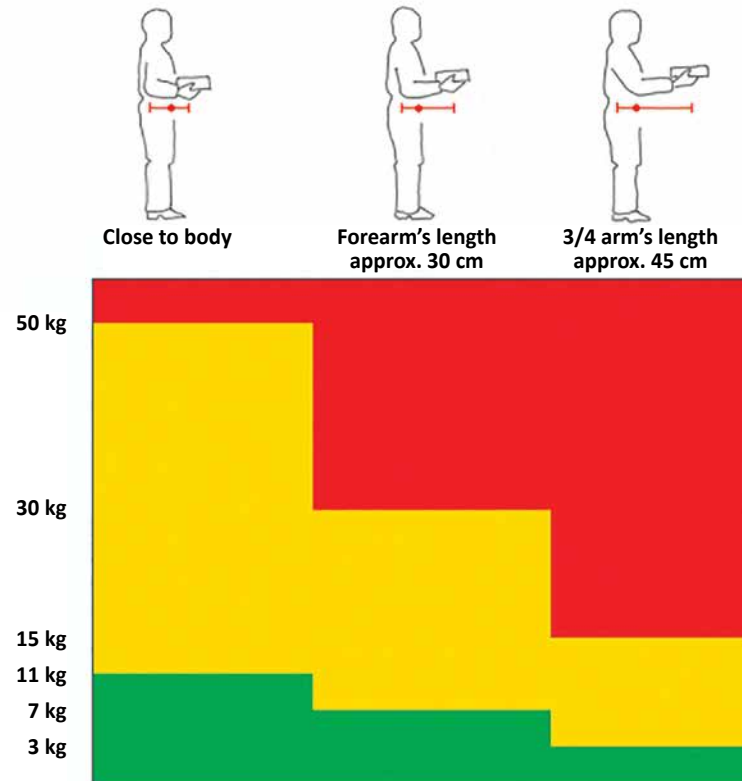
When carrying loads, the transportation distance should not exceed 20 m on a level surface. An ordinary staircase step on the transportation route equates to a carrying distance of approx. 1 m. Carrying on uneven, wet and slippery surfaces is particularly risky.





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.



- *At-vejledning D.3.1 om løft, træk og skub.*
- *At-vejledning D.3.2 om ensidigt belastende arbejde og ensidigt gentaget arbejde.*
- *At-vejledning D.3.4 om arbejdsrelateret muskel- og skeletbesvær.*
- *BFA Handel, Lifting technique – www.hvordandubedst.dk*
- *BAU Jord til Bord, Tunge løft i jordbruget.*

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.

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 and leg protection that protects against heavy objects, and with cut-resistant reinforcement to protect against saw blades
- The employee must always carry a pressure dressing.



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/s². The recommended limit for vibration load is 2.5 m/s².

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.

- *At-vejledning B.5.1.1 om arbejde med motorkædesave.*
- *At-vejledning D.2.8 om fældnings- og skovningsarbejde.*
- *BAU Jord til Bord: Erhvervsmæssig Træklatring.*

Netting machines



Netting machines, used for the packaging of Christmas trees, must comply with the requirements on safe design of machines.

For netting machines, the following must be satisfied:

- The machine must provide protection against persons being caught by the drawing hook by means of e.g. a guard or stop guide.
- Chain drives, etc., must be shielded to protect against crushing hazards.
- The operating lever must be secured against inadvertent activation (dead man's switch).
- The operating lever must return to a neutral position when released.

The accompanying directions for use in Danish must describe safe and correct use and maintenance of the machine.

New netting machines must be CE marked.

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- *At-vejledning B.1.3 om maskiner og maskinanl*



Personal protective equipment

Personal protective equipment is understood as all equipment, including clothing, intended to protect employees against one or more risks that might threaten their safety or health 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 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 D.5.3 om advarselsklæder.*
 - *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.*





Planting augers

Mechanically operated handheld planting augers can vibrate and emit a great deal of noise. If the auger emits more than 80 dB(A), employees must be provided with, and are required to wear, hearing protection.

Noise and vibration levels must be stated in the supplier's directions for use.

The daily vibration exposure limit for an 8-hour reference period is 5 m/s². This limit must not be exceeded. The daily exposure action value for an 8-hour reference period is 2.5 m/s². This means that measures must be taken for loads of 2.5 m/s² and above.

Planting augers must be provided with a handle such that the auger stops when the lever is released (dead man's switch). Gloves must always be used when working with vibrating machinery.

Work with large planting augers must only be carried out by two persons. New plant augers must be CE marked.

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

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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.5.2 om høreværn.*
 - *At-vejledning D.6.1 om støj.*
 - *At-vejledning D.6.2 om hånd-arm vibrationer.*

Planting machines



Planting machines must be accompanied by directions for use in Danish providing information about use, operation and maintenance.

In addition, the general rules on the setting up and use of technical aids apply.

One of the most important things with regard to purchasing/setting up planting machines is that the seat must be ergonomically correct.

The machine must vibrate as little as possible to prevent the operator being exposed to harmful vibrations. See "Vibrations".

If the machine's noise level exceeds 80 dB(A), hearing protection must be provided and worn. When purchasing new machines, aim to acquire those with the lowest noise and vibration levels on the market.

The Danish Road Traffic Act applies if machines are driven on public roads, including with regard to lights, mirrors, etc.

The rules on young persons' work apply to the driving of planting machines, i.e. a tractor driving licence is a minimum requirement.

New machines must be CE marked.

In addition, see "Monotonous repetitive work".

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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.5.2 om høreværn.*
 - *At-vejledning D.6.1 om støj.*
 - *At-vejledning D.6.2 om hånd-arm vibrationer.*
 - *Transportministeriets (Ministry of Transport) BEK om køretøjers indretning og udstyr m.m. med senere ændringer.*



Uprooters

Uprooters must be accompanied by directions for use in Danish providing information about use, operation and maintenance.

In addition, the general rules on the setting up and use of technical aids apply.

One of the most important things with regard to purchasing/setting up uprooters is that the seat must be ergonomically correct.

The machine must vibrate as little as possible to prevent the operator being exposed to harmful vibrations. See “Vibrations”.

If the machine’s noise level exceeds 80 dB(A), hearing protection must be provided and worn. When purchasing new machines, aim to acquire those with the lowest noise and vibration levels on the market.

The Danish Road Traffic Act applies if machines are driven on public roads, including with regard to lights, mirrors, etc.

The rules on young persons’ work apply to the driving of uprooters, i.e. a tractor driving licence is a minimum requirement.

New machines must be CE marked.

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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.5.2 om høreværn.*
 - *At-vejledning D.6.1 om støj.*
 - *At-vejledning D.6.2 om hånd-arm vibrationer.*

Cleaners and disinfectants



Cleaners 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, i.e. the employer must ensure that work processes and methods effectively protect employees against unnecessary effects from the substances and materials. See “Chemical workplace assessment”.

CLP classification, labelling and packaging

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

Cleaners and disinfectants that are not marked as hazardous may still be harmful to health.

Most cleaners 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 cleaners 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)

for hazardous mixtures. 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.

It is the employer's duty to supply suitable safety footwear.

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.

Ticks



The tick is a mite belonging to the arachnid family and not an insect or bug.

Ticks can spread diseases to humans.

Ticks usually reside in shady vegetation – forests and wet meadows – a short distance above the ground, e.g. in knee-high grass. Forestry workers and those working in other similar areas are therefore particularly exposed.

Ticks are especially prevalent from May to October, with the peak infectious season from July to September.

How do you avoid ticks?

The best defence against being bitten by ticks is to wear long trousers, rubber boots and long-sleeved tops. If possible, tuck your trousers into your socks.

If you are bitten by a tick, this does not automatically mean you have been infected with a disease. However, ticks can be infected with microorganisms that can be transmitted to humans through bites and cause disease.

The three main diseases:

Borreliosis, also known as **Lyme disease**, is the most familiar disease. It is caused by a bacteria (*Borrelia*) found in the saliva of some ticks and can cause infection in humans and animals.

If a person is infected with *Borrelia*, the first sign of the disease is often an annular red rash on the skin surrounding the bite. If a rash develops that grows in size and gets bigger than 4 cm in diameter, contact your doctor.

It is also possible to be infected with *Borrelia* without getting a rash. Other symptoms include headache, aching shoulders, muscle and joints, fever and fatigue. Around 10-15 % of those who gets



borreliosis experience problems associated with the central nervous system; so-called neuroborreliosis. This includes paralysis of i.a. the facial nerves. These symptoms can appear weeks to months after the tick bite occurs. Borreliosis and neuroborreliosis can be treated with antibiotics. Treatment of neu-roborreliosis normally requires admission to hospital.

It is a good idea to inform your doctor about any tick bites, even though symptoms may not be directly connected.

Ehrlichiosis is caused by a bacteria that gives flu-like symptoms. The symptoms, which usually occur about a week after the tick bite, are fever, usually over 38°C, extreme fatigue, and pain in the muscles and joints. The infection can be treated effectively with antibiotics.

TBE (tick-borne encephalitis) is caused by a virus. In Denmark, TBE is no longer limited to Bornholm, but has also been detected in ticks in North Zealand (Tokkekøb Hegn).

TBE can infect immediately in the event of a bite and can affect both the young and old. One third of those infected with the TBE virus display no symptoms, while one third display flu-like symptoms, after which the problem goes away. In the last third, the central nervous system is affected, which can cause symptoms such as paralysis and difficulty speaking and, in severe and rare cases, can be fatal.

TBE cannot be treated with antibiotics, but can be prevented through vaccination. If you regularly spend long periods of time (weeks) in woods and scrub and in areas where TBE occurs, Statens Serum Institut recommends vaccination.

Remove ticks!

Forestry workers should examine themselves daily for ticks and remove them immediately. The risk of infection is greatest if the tick has been on the body for more than 24 hours, with the exception of TBE, where the infection is transmitted through the bite.

The easiest way to remove ticks:

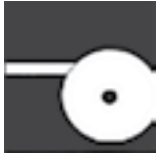
- Use the nails, a pair of fine-tipped tweezers or a special tick remover (available at your local pharmacy) to grip the tick.
- Position the nails/tweezers as close to the skin as possible. Grasp the tick and slowly turn the tweezers around a number of times until the tick releases its grip. If the mouthpiece remains in the skin, this should be removed next. It does not matter too much if you cannot get the mouthpiece out, but it can still increase the risk of itching and infection. It is important to remove the tick itself to prevent any bacteria from migrating into the bite wound.
- Wash the wound with soap and water.

Forget all the old tales like smothering the tick in grease, toothpaste or alcohol to make it release its grip.

Doctors have a duty to report tick bites to Arbejdstilsynet (AT) and Arbejdsmarkedets Erhvervssikring (AES).

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- *At-vejledning C.0.15 om arbejdsrelaterede smitterisici ved hepatitis, meningitis, polio, tetanus og Tickborne Encephalitis TBE.*
 - *The Danish Nature Agency, www.naturstyrelsen.dk.*
 - *Statens Serum Institut, www.ssi.dk.*





Forestry winches and wire cables

When working with forestry winches and wire cables, it is important to investigate potential hazards before work begins and then to carry out the work in such a way that these are minimised.

Where the wire cable runs on drums and over guide rollers, shielding must be provided due to the risk of being dragged into the winch.

Another risk of working with cables is that they can break due to wear or being too thin in relation to the object being moved.

Operators must protect themselves against being hit by the cable by standing to the side of the winch or behind a lattice fence, or sitting inside the driver cab behind protective netting or safety glass. Operation of the winch should only be possible from secure work-points.

When working with remote-controlled winches, you should walk offset to the object in the direction of travel, as you will then not be exposed to the risk of the wire cable breaking and on uneven terrain you will not risk the object rolling over the cable guide.

The wire cable must be of the “dead cable” type. The wire cable must be strong enough to match the traction of the winch.

To avoid getting wire splinters in the hands from fraying wire, thick gloves must be worn while working. In the event of wear, the cable should be shortened to remove the fraying.

When using radio control or other remote control, the winch must stop automatically when the signal is lost. The winch must be operated from the driver cab or at least 5 metres to the side of the winch.

The winch must be designed so that the driving power cannot start the winch unintentionally.

To ensure safety, guidelines are required for:

- personal protective equipment
- winch assembly and disassembly
- transport, setup and operation
- inspection and maintenance
- teamwork.

The following personal protective equipment must be available and worn: helmet, hearing protection, work gloves and safety footwear (foot protection).

During transport, the machinery must be properly secured. In respect of setup, it must be ensured that the winch is stable and that the operator has a safe workpoint.

In respect of teamwork, procedures must be agreed and followed, e.g. whether arm, sound or radio signals are to be used.

Maintenance should only be carried out when the winch is not in operation. Forestry winches and wire cables must be inspected annually. New forestry winches must be CE marked.

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- *At-meddelelse nr. 2.02.4 om ståltøve (wirer).*
 - *At-meddelelse nr. 2.02.5 om tovlåse til ståltøve.*
 - *At-meddelelse nr. 2.02.6 om fibertøve (tovværk).*
 - *At-meddelelse nr. 2.02.7 om rulle- og bladkæder.*
 - *At-meddelelse nr. 2.02.8 om lænkekæder.*
 - *At-meddelelse nr. 2.02.10 om anhugningsgrej.*
 - *At-meddelelse nr. 2.02.11 om anvendelse af hejse-, løfte- og transport- redskaber.*





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 person, 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 m² of floor area per person plus 1 m² 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 of 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 m².

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-meddelelse nr. 1.03.1 om Velfærdsforanstaltninger ved skiftende arbejdssteder.*





The smiley scheme

On the homepage of Arbejdstilsynet 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.

- Learn more about the red, yellow, green and crowned smileys on *Arbejdstilsynet's* website www.at.dk.

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.

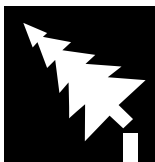
When working on ladders more than 5 metres above the ground, there must be someone at the foot of the ladder if it is not properly secured.

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.





Windthrow

When processing surface debris, divide the work site into a windthrow zone, a processing zone and a transport zone. Windthrow work must not be carried out alone.

Windthrow zone

The windthrow zone is where the difficult cutting free of the trees takes place. It is here that the particular problems associated with windthrow work are concentrated. The entangled trees must be separated in the correct order and cut free safely without the trees splitting. Machines such as excavators or forestry winches should be used to relieve the load during the cutting-free process.

It is important that this cutting-free process is not subjected to time constraints. This will prevent accidents due to stress and lack of reflection time.

If the extraction is carried out using a winch and chains, the person carrying out the cutting-free should be exempted from the clutch work, as it binds them too much to the working rhythm of the machine.

Processing zone

This is where the windthrown tree is lopped and shortened. The processing zone should be as close to the windthrow zone as possible and continuously move up with the work ahead. This limits towing distance and consequently the soil that gets into the bark and blunts chainsaws. With the use of excavators or logging machines, this problem can be completely avoided. At the processing site, the tree is placed over pieces of shortened tree at a comfortable working height.

Transport zone

In the case of extraction that requires significant traction and lifting power, the work is done with excavators and tractor loaders.

- *At-vejledningen D.2.8 om fældnings- og skovningsarbejde.*

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 kræftfarlige 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 for persons 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 to 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

The following applies to 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.

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 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 m.

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.

- *At-vejledning B.1.1.1 om førerværn til traktor og motorredskaber.*





Exhaust fumes

Exhaust fumes are harmful if inhaled and are included in Arbejdstilsynet's list of carcinogens. A chemical risk assessment must be carried out of work processes that generate harmful exhaust fumes. See "Chemical workplace assessment".

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.

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 years of age 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 not 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.



Examples of symbols and hazard phrases that young persons may not work with, which should be found on the agent's label.



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 At-Vejledningen om grænseværdier for stoffer og materialer.
- 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.

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 Regulation (EC) no. 1272/2008 on classification, labelling and packaging of substances and mixtures.*
 - *BAU Jord til Bord, Branchevejledning om Børn og Unges arbejde i Jordbruget.*

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 shaking sensation that affects 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/s². This means that measures must be taken for loads of 2.5 m/s² and above.

The daily exposure limit value for an 8-hour reference period is 5 m/s². 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 and 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 – the whole-body 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 skovbruget.*
 - *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.

Airtight eye protection must be anti-fog. Eye protection must be customised for the person using it. Eye protection must be CE marked.



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 (turbo-charger) 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 solid particles and liquid aerosols. The filter cannot be used if the limit value for the pollutant is below 5 mg/m³. 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 solid 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 accessories and 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 respirators, including any important 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 must be CE marked.

