Health & safety at work

Health, Safety, Security & Environment

DAMEN
MAASKANT

Health & safety at work

Health, Safety, Security & Environment

Legend

P Visitor parking area
1 Main entrance
2 Reception / Offices
3 Goods delivery
4 Workshop
5 Diesel Service workshop
6 Refit hall

Yard facilities

	Dock 1	Dock 2	Dock 3
Lifting capacity (tons)	**400**	**2.000**	**3.500**
Length o.a. (m)	**40**	**50**	**76**
Breadth (m)	**10**	**17**	**17**

During normal working hours 07:30 – 16:15

Internal emergency number (0187) (68) 5011

Outside normal working hours

Emergency number (0-)112

Working hours	07:30 – 16:15
Coffee break	09:30 – 09:45
Lunch break	12:30 – 13:00

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Introduction

Unfortunately, accidents at work still happen.
However, we can reduce the risks of our work by following the rules, so that we do not have to say afterwards “If only I had...”.
This booklet is about that “If only I had...”.

A booklet with points of attention and rules to prevent accidents. It is also a booklet for safe and healthy working. After all, it is not only important to go to work healthy, but also to come home in one piece.
Every accident is one too many and it can happen to you. By acting wrongly, colleagues can be put at risk. Therefore, take care not only of yourself but also of others, and follow the rules in this booklet.

Your employer is obliged to inform you about the possible dangers and the measures to be taken. He must ensure that you can work safely, but it is your responsibility to carry out the work correctly.

Remember: **Acting safe and sound helps!**

- Chapter 2 deals with some general matters and lists the most important general rules.
- Chapter 3 gives an overview of the personal protective equipment.
- Chapters 4 to 19 deal with the various activities and conditions that you may encounter at shipyards.

In addition to the **general rules** in this booklet, there are **company regulations**. Make sure you know them and act accordingly.

General information 2

Working Conditions Act

The general obligations of employees under the Working Conditions Act are:

- Exercising caution and care when performing work, so that one does not endanger oneself or others (=normal human behaviour).
- The correct use and maintenance of machines, appliances, tools and other aids.
- Making use of and maintaining the personal protective equipment provided, if this has been prescribed.
- Using the safety equipment (equipment, barriers, etc.) correctly and not removing them.
- If the protective device has been put out of action temporarily or has to be removed, e.g. for maintenance or repair, it must be reactivated or replaced immediately after the work is done.
- Actively attending the information meetings.
- Immediately reporting any discovered dangers to the management.

Never a reason

If you see that others are not keeping to the rules, that is no reason for you to adopt this behaviour. Point out the dangers and try to change their behaviour in a positive way.

General rules

- Is this your first time on company premises? Always report to reception and inform yourself of the safety and environmental rules that apply on the company premises.
- Know the emergency numbers and how to report a fire, incident or accident.

- Familiarise yourself with escape routes and know where to find fire extinguishers, first aid, rescue equipment and telephones. Ask who the company emergency response officers are and how to recognise them.
- Possession and use of alcoholic beverages and drugs is prohibited.
- Watch out for possible side effects when taking medication. Consult with your doctor whether you can carry out your work normally. Inform the company management about your medication use.
- Barriers, warning, instruction and prohibition signs are there for a reason. Take them seriously and follow the directions.
- Emergency exits, entrances, fire hydrants, fire extinguishers, first aid and rescue equipment must always be easily accessible. So don't put anything in front of it and make sure that the reference signs also remain clearly visible.
- Only use fire extinguishers, first aid and rescue equipment for its intended purpose and do not move them. Otherwise they cannot be found immediately in an emergency.
- If fire extinguishers, first aid and rescue equipment have been used, you must report this to the responsible department (company management, emergency response team), so that the resources can be supplemented.
- If work cannot be carried out in the "prescribed" manner, the method to be followed must be determined in consultation with the company management.
- Means of transport may only be used with the permission of the company management.
- Heavy site transport, usually recognisable by flashing lights, always has priority.
- Do not use crane tracks, walkways, roads, etc. as storage or parking areas.
- Do not clean, maintain or repair machines and equipment in operation.
- Familiarise yourself with the work permit system and adhere to it.
- Be considerate of the work of others.

Your own workplace (and that of others)

- Before you start work, always check the access to the workplace, the workplace itself, the tools and aids, and make sure that everything is in order before you start.
- Maintain order, tidiness and sufficient free space in your workplace by regularly tidying up and limiting the amount of material in your workplace.
- Dispose of waste in the appropriate bins and clean up spillages properly.
- Provide adequate and safe lighting in and around the workplace.
- Ensure effective ventilation, especially if the work generates fumes, dust, etc.
- With regard to the fire risk, make sure that precautions have been taken when welding or burning in immediate surroundings of flammable substances. Consider, for example, gas and oxygen hoses.
- Gas cylinders should be used as little as possible in buildings, workshops or on ships. They should be secured against falling, but in such a way that they can be quickly released in case of emergency.

Personal protective equipment 3

Personal protective equipment is provided by the employer in accordance with the company's rules.

In principle, hired workers and subcontracted workers are provided with this equipment by their own employer, unless other arrangements have been made in advance.

Employees are obliged under the Working Conditions Act to use the resources made available to them.

Each company has its own responsibility with regard to the composition of the protective equipment package.

At Maaskant, the following personal protective equipment is applicable:

Head protection

A safety helmet must be worn on board, during lifting operations, in the docks, at the shipyard, in the construction area and near scaffolding for protection against falling objects. This is indicated by means of a sign at the entrances.

Important

Once a safety helmet has been impacted, it must be replaced.

Precautions must be taken with machines where there is a risk of loose hair being caught by the machine (e.g. lathes, drilling machines).
These may include the following:

- Tying up your hair tightly
- Wearing a hair net

Hearing protection

At places where the noise level exceeds 80 dB(A), the use of hearing protection is recommended. From a noise level of 85 dB(A) (grinding, gouging, welding, grit blasting, hydro-jetting, etc.) and in places where this is indicated by a instruction sign, the employee is obliged to wear hearing protection continuously.

This may include, for example:

- Otoplastics
- Ear muffs
- Earplugs

Eye protection

In places where there is a risk of flying particles (grinding, hacking, dusty environment, etc.), harmful or irritating substances (chemicals, etc.), danger of radiation (welding, fires, etc.) and in places where this is indicated by a prohibition sign, the employee is obliged to use eye protection equipment at all times.

This includes, for example:

- Safety goggles
- Spacial vision goggles / Face shield
- Acid goggles
- Welding goggles
- Welding shield or helmet
- Laskap of –helm

Face and respiratory protection

In order to prevent skin contact (face) and/or inhalation of hazardous or irritating substances (chemicals), the employee must use face and respiratory protection when working with these substances and also in places where this is indicated by a instruction sign.

This may include, among other things:

- Face shield
- Grinding hood
- Dust mask
- Filter mask
- Fresh air hood or helmet

Important

- Never connect a fresh air hood to the oxygen line (see chapter 8) or directly to working air. Working air must always be used with an oil/water filter.
- Use the correct type of filter with a filter mask.

Hand and arm protection

Where there is a risk of injury, e.g. from sharp objects, skin contact with harmful or irritating substances (chemicals), radiation risk (e.g. during welding), and at places where this is indicated by an instruction sign, hand and arm protection equipment must be worn.

This includes, for example:

- Gloves for various applications.
- Sleeves and hoods.
- Mouwen en kappen

Important

Do not wear gloves when working on or in the immediate area surrounding rotating parts, such as:

- Drilling machines
- Lathes etc.

Also wear close-fitting clothing.

Leg and foot protection

The use of safety shoes or boots is mandatory on the entire site.

Special points of attention

- When welding, wear high shoes or boots because of sparks or metal splashes.
- When using boots, do not put the clothing inside the boots.

Body protection

Where there is a risk of skin contact with harmful or irritating substances (chemicals), danger of radiation (e.g. during welding), exposure to temperature or weather conditions, as well as in places where this is indicated by a instruction sign, the employee must use the protective work clothing provided.

These include:

- Overall
- Welding apron
- Welding jacket
- Rain suit
- Winteroverall
- Thermal underwear

Important

Wearing loose and/or torn clothing, necklaces, bracelets, rings etc. is dangerous near rotating parts.

Fall protection

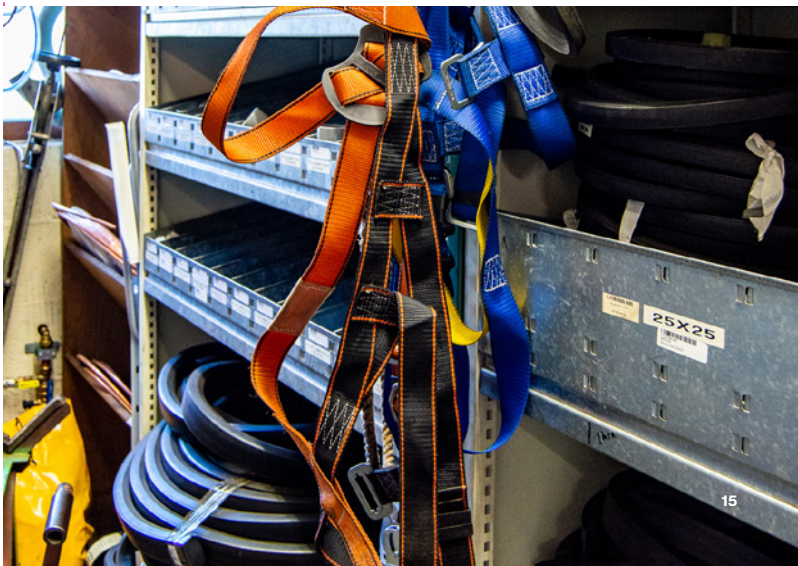
If it is not reasonably possible to make adequate provision for the risk of falling, the employee must use an approved (CE-marked) harness with a corresponding lanyard.

The belt and fastening line must be checked properly before use.

In case of damage, do not use it, but offer it for repair or replacement!

Important

Belts that have been subject to stress from a fall may not be used again.



4 Working on board ships

Due to the many types of ships and the nature of the work, working on board involves widely varying working conditions and risks. It is therefore important to follow the regulations below consistently.

- When going on board a ship, one should be aware of the meaning of the present command and prohibition signs.
- The performance of activities on board tankers is bound by specific regulations. These regulations are stated on the certificate. Be aware of this in advance and act accordingly.
- Never carry out work on board ships, in particular work that involves hot work (e.g. welding, burning, grinding), without first consulting your supervisor. During the work, strictly observe the conditions as stated on the certificate and the work permit.
- Before commencing work in areas equipped with an automatic extinguishing system, this system must be made 'safe'.
- Where there is a possible risk of fire, fire and welding work in rooms may only be started when adequate measures have been taken (extinguishers, fire watch, removal of combustible materials).
- It is forbidden to operate cranes or valves without consultation/ permission, even if this is necessary for one's own work.
- Pipelines must be dismantled very carefully in connection with possible residues in the pipeline system. It is forbidden to carry out work with an open flame on pipes that have not been checked beforehand for their contents (gas, liquid, explosive mixtures).
- Cleaning work must be carried out in accordance with the instructions, also observing the conditions on the work permit. Work may only begin after permission has been granted by the supervisor.
- When carrying out the work, always ensure good ventilation and use the correct personal protective equipment.

5 Working in confined spaces

A lot of work on board ships is carried out in ‘confined spaces’.

A confined space is a space that is closed off all around with one or more accesses (manholes) and without natural ventilation (e.g. cargo tanks, double bottoms).

When working on board, one should bear in mind that almost all the spaces present (cargo area, engine room, accommodation, etc.) have or will have an enclosed character during the work. Therefore, always be alert for risks such as those discussed below.

A confined space entry checklist form is always required for working in confined spaces. This form indicates the working situation (oxygen percentage, percentage of explosive mixture and harmful substances), the working conditions and the period of validity of the permit.

Therefore, make sure you have a valid checklist and adhere strictly to the working conditions specified in it.

When carrying out work in a confined space or when entering it, you must be aware of the following dangers:

Specific risks

- **Oxygen content too low** due to: oxygen consumption (e.g. hot firing in combination with insufficient ventilation), inerting (nitrogen filling), cargo reactions, remotely controlled extinguishing system.
- **Oxygen content too high** due to: leakage from hoses or welding torches.
- Explosive air/fumes mixture due to cargo residues, solvents (paints), gas leakage.

- Flammable and/or harmful cargo residues.
- Noxious gases or fumes as a result of the work (welding, burning, painting, gas leakage) activities (welding, burning, painting).
- Poor access, passageways and escape routes (manholes).
- Poorly accessible and inadequate workplace due to the lack of proper facilities (single shelves, available space).
- Inadequate visibility due to poor lighting of the area and access route, glare or hazards.
- Electrocution through use of unsafe voltage (**voltage must be 50 V AC or 120 V DC**).
- Poor communication in the room and with the outside world.
- Noise level too high (the room acts as a sound box).
- Gases that are heavier than air (propane, butane, mixed gas, oxygen) and remain on the floor.

- Gases that are lighter than air (acetylene) and that remain hanging in the top of the room and in blind spots.
- Work of colleagues and third parties (subcontractors, crew).
- Physical strain (unfavourable working posture, heat, cold, moisture).

In order to minimise the risks, the following regulations must be strictly followed in addition to the general regulations (Chapter 2):

- Never work alone in an area without direct contact with the outside world or without direct supervision.
- Post a manhole guard when working in a tank.
- Have a gas measurement carried out by a competent colleague.
- Take a pocket oxygen meter into the tank.
- Always ensure good mechanical ventilation and/or extraction in the room.
- Use safe voltage (**voltage must be 50 V AC or 120 V DC**).
- In the event of breathing protection, use independent breathing protection (fresh air hood or full face mask).
- Make clear working arrangements when various types of work are to be carried out in and near the confined space.
- Prevent leakage of gas and oxygen by setting up distribution units, bottles, etc. on top of the deck and using equipment and hoses that are in good condition.
- Close the valves after use and disconnect the hoses (see also Chapter 9, Regulations for the use of gas and oxygen).

Working at height 6

Shipyards regularly use temporary or permanent facilities for working at height (e.g. scaffolding, platforms or a work floor). The law states that the risk of falling must be prevented by installing effective edge protection (fencing, handrails, etc.) in any case if work must be carried out whereby the risk of falling is more than 2.50 metres and when work is carried out at 'workplaces' that are or can be in motion.

In other situations with increased risk, e.g. when working above water or above sharp objects, edge protection must also be provided.

Work floors or scaffolding with a fall distance greater than 2.50 metres

- The work floor must be closed or sealed off and have a minimum width of 0.60 metres (3 shelves).
- The support on the foundation must be stable.
- The work floor must be constructed of sound material.

Work floors or scaffolding with a fall distance greater than 2.50 metres

- Scaffolding may only be assembled, altered or dismantled by properly instructed personnel under the supervision of a designated expert.
- The work floors or scaffolding must be easily accessible by means of stably positioned ladders. The ladders shall protrude at least 1.00 metres above the desired standing or transfer height and shall be securely fastened. On the surface to be accessed, edge protection must be fitted over a length of 4.00 metres on either side (or the access must be compatible with existing edge protection).
- When climbing heights of 10.00 metres or more, ladders shall be interrupted by rest platforms at intervals of no more than 7.50 metres.
- Working floors shall be closed or sealed and have a minimum width of 0.60 metres (3 shelves). The maximum opening between the work object and the open side of the work floor must be less than 0.25 metres (one scaffold board).

- The work floors must be secured against blowing up.
- The work floor must be equipped with a solid railing of at least 1.00 metres in height. Between the top edge of the toe board and the guardrail there must be an extra safety device (max. 0.47 metres above the toe board).
- With open structures, toe boards of at least 0.15 metres in height must be fitted (adjacent to the work floor). Small openings, e.g. through protrusions, are permitted if measures have been taken to prevent people from being struck by objects falling through these openings.
- Shelving must be stable.
- Scaffolding in the open (wind!) must be secured to the work object or braced if the height is more than 3 times the smallest dimension (usually the width). When no wind load can occur, scaffolding must be secured or braced if its height is more than 4 times the smallest dimension.
- The working floors or scaffolding must be made of sound material.
- Suspended shelving must be secured against sliding by the use of double couplings.
- No ladders, auxiliary scaffolding or other means of increasing the working height may be set up on the work floor.

Mobile painting scaffolding

- The work floor must be completely sealed off, with grid floors being preferred.
- Hoses, cables and the like may not hang freely above a height of 2.50 metres.
- During horizontal or vertical transport, nobody may stand on the scaffolding.

Barriers to openings, deck edges etc. in the event of a fall hazard of 2.50 metres or more:

- Manholes must be protected by non-movable grids or by 1-metre-high accessible ring constructions.

Non-sloping working surfaces

- When working within 0 and 2.00 metres of the edge, effective edge protection must be provided (fixed guardrails including toe boards, see the requirements for work floors and scaffolding). If this is not possible, or only partially possible, other equipment such as safety nets or safety belts with lanyards must be used.
- When working at a distance of 2.00 to 4.00 metres from the edge, the barrier can consist of approximately 1.00 metres high steel wire sceptres placed at least 2.00 metres from the edge.
- When working more than 4.00 metres from the edge, clear marking, e.g. a red/white ribbon, is sufficient.

Sloping (inclined) work surfaces

- For sloping working surfaces, the edge protections as indicated by work within 0 and 2.00 metres of the edge apply.

Ladders

- The use of a ladder is only permitted for reaching the workplace and for carrying out light short-term work (one hand free).
- The ladder must not be damaged by welding torches or galvanic action.
- Check the ladder for breakage, cracks, scuff marks.
- The underside of the stiles must be equipped with non-slip feet (does not apply to scaffolding ladders).
- Ensure a stable arrangement (surface), support (slipping) and a gradient of approximately 70 degrees (1 in 4).
- The ladder must protrude at least 1 metre above the desired standing or step-over height at the top.
- Move the ladder regularly. Do not work further than one arm's length to the left or right of the ladder.
- When repositioning the ladder, always look in the direction of the ladder.
- Only use the ladder as a ladder, never as a gangway or shelf.

Important

Never use a metal ladder near an electrical installation or in an electrical room (danger of electrocution!).

Workbenches

- Working from a work bench or a work platform suspended from a hoisting device (crane) is in principle forbidden. In exceptional situations and under strict conditions, it is permitted to work from a workbench on a crane. Always consult the responsible supervisor before use and adhere to the applicable regulations.

Aerial platforms

- The operating instructions must be legible.
- Only persons aged 18 and over who are sufficiently familiar with the operation and handling of an aerial work platform may operate it.

- An aerial working platform may never be used as a lift or hoisting device.
- An aerial working platform must never be stopped and left in the extended position.
- The aerial working platform must be correctly marked with the maximum number of people and the maximum load.
- It must be possible to operate it from the operating position.
- The control handles must return to the neutral position when released and there must be a functioning emergency stop.
- Aerial working platforms may be used with a high lifted load up to wind force 6.
- Make sure there is enough room to manoeuvre.
- If an aerial work platform with a telescopic or articulated arm is used, it is compulsory to use an approved safety harness with a safety line. (see also chapter 3 under "Fall protection").

Cranes 7

Improper use of cranes can cause very considerable physical and material damage. Especially larger cranes react rather slowly to operating commands because of their great mass.

Observing the following rules of conduct and conditions is therefore not a luxury, but a necessity in order to prevent undesirable situations.

- Cranes may only be operated by people who have been designated and are competent to do so. They must be properly instructed and know exactly how the crane works.
- Cranes may not be loaded more than indicated (no bridging).
- Communication with the crane operator must be carried out by one person. This can be done visually as well as with walkie-talkies.
- It is prohibited to use a crane as a means of transport for persons.
- Avoid moving the load over people or buildings.
- Any defects to the crane must be reported immediately to the management.
- Repairs to hoisting equipment and tools may only be carried out by authorised personnel.
- Avoid swinging the load, operate the crane gradually (dosage).
- Always provide an ‘escape route’ and avoid swinging, try not to obstruct swinging, falling or sliding loads.
- Use steering lines for large workpieces.

Immediate stop

The crane operator must stop work immediately if:

- The load is not properly secured (e.g. a bundle of pipes in one sling, with the danger of slipping).
- People are travelling with or on the load.
- The rigger or others are not standing securely.

- The instructions are not clear (e.g. if several persons give instructions).
- There is an overload.
- The hoisting equipment is in poor condition or unsuitable.
- The wind force is more than 6Bft.

Remote-controlled

For remotely controlled cranes (e.g. radio-controlled), the following must be observed in particular:

- Never stand or sit under the load.
- Make sure there is a clear path to walk on.
- Make sure you have a clear view of the workpiece.
- If work is interrupted, the key must be removed from the ignition (applies to radio operation).
- After working hours, the control boxes of the radio-controlled cranes must be stored properly in the places provided for this purpose.

8 Hoisting equipment

Hoisting equipment is understood to mean:

- Slings (steel, hoisting belts etc.)
- Chain work (chains, hooks, plate clamps, etc.)
- Hoists
- Jacks
- Vacuum and magnetic lifting tools
- Slings

The following rules apply to hoisting equipment:

- Hoisting equipment must be used correctly and may therefore not be loaded more than indicated.
- If there has been an overload or exposure to excessive temperatures (e.g. welding) this must be reported immediately; the hoisting equipment must be returned.
- The hoisting of loads on a hoisting equipment may only be done by experts.
- Before using hoisting equipment, it must be visually inspected for weld spatter, broken wires, bent hooks, torn hoisting belts, etc.
- Pressing clamps of steel wire slings must not be subjected to bending (opening bending).
- Wire ropes must never be shortened by tying knots or by using wire rope clamps (breakage risk).
- Wire ropes must never run over sharp edges. If this cannot be avoided, wooden corner protectors must be used.
- When using two-, or three- or more jumps, the top angle between the parts must never exceed 120 degrees.
- Links of chains must never be loaded on bending. Knotting and threading of chains is therefore not permitted.
- Eyebolts must be tightened completely with the chest up to the workpiece.

- The bolts must not be loaded on bending.
- Hoisting devices which are attached to the hoisting hook of a piece of lifting equipment must be secured against lifting.
- Hoisting hooks must never be loaded on the point (bending of the hook).
- Welding on hoisting equipment is not allowed, unless this is done by a recognised repairer (special heat treatment).
- When using multiple hoisting equipment at the same time (e.g. hoists) the maximum load capacity of the hoisting equipment must be appropriate to the total working load.
- Do not use rope slings because of possible damage caused by moisture, rust, aggressive substances or chemicals, oil or grease, hot objects or by direct sunlight.

Gas ands oxygen 9

Before carrying out autogenous work, familiarise yourself with the applicable operating instructions and with the correct functioning of the equipment.
Check which gas is being used (mixed gas, propane, butane or acetylene).

Please note
Mixed gases, butane, propane and oxygen are heavier than air and remain suspended at the bottom.
Acetylene is lighter than air and remains suspended at the top of the room.

In general, the following rules apply:

- Before starting work, ensure fire prevention (extinguishers, working environment, escape routes).
- Always check the equipment and accessories before use (defects, leaks, presence of safety devices).
- Do not set the working pressure of gas and oxygen higher than necessary.
- Open the valves slowly (in order to avoid pressure surges).
- Attach the hoses to the burner with quick-release couplings or hose clamps.
- When using acetylene, a flame arrestor must always be fitted directly after the regulator.
- Repairs to burners may only be carried out by authorised personnel.
- **Leaking and porous hoses must be replaced immediately. In the event of leakage, first cut off the supply**!
- A maximum of one repair per 10,00 metres of hose is permitted. Please note that no repairs are permitted in the first 10,00 metres from the burner.

- No repair or connection may be made in a hose hanging down, unless the hose is attached at the point of repair or connection in such a way that the repair or connection cannot be subjected to any tensile load.
- Always ensure good ventilation.
- Lay hoses in such a way that the risk of damage is minimised.
- When using a cutting or welding torch, use the correct personal protective equipment (depending on the circumstances, but at least welding goggles and a mouth mask). It is **compulsory** to wear these.
- Never touch oxygen valves or valves with oil or grease.
- Never burn above a flammable surface (cleaning, covering) or above gas and oxygen hoses.
- **Never use oxygen for living air, blowing clean, cooling or ventilating!**
- When welding on workpieces that are provided with a protective layer (coating), this must be removed at the welding spot. This is not always necessary for shop primers.
- When interrupting the work for a longer period of time, the valves of the manifold or the gas cylinder must be closed and the equipment and hoses disconnected.
- Remove any hoses not in use.
- After completing the welding work, check the area around the welding spot for smouldering fires and the like.

Use of gas and oxygen in confined spaces

In addition to Chapter 5 (working in confined spaces), the following rules apply:

- Always use vacuum valves for gases that are heavier than air (butane, propane and mixed gases).
- Manifolds may only be installed above deck. Position them so that in the event of leakage, the gas or oxygen cannot flow into enclosed spaces.
- Close the valves on the manifold and disconnect the equipment and hoses both during breaks and at the end of working hours. This prevents gas and/or oxygen from spreading into the confined space.

Once again

Mixed gases, butane, propane and oxygen are heavier than air and remain suspended at the bottom.
Acetylene is lighter than air and remains suspended at the top of the room.

Handling gas cylinders

The following rules apply for the safe handling of gas cylinders:

- Always ensure that the bottles are upright and secured. If this is not possible, the bottle must be inclined at least 30 degrees with the head upwards.
- Bottles must be protected from extreme heating by direct sunlight or open flame.
- Bottles on a bottle cart shall always be separated from each other by a steel partition at the level of the reducer.
- The key shall always be on the valve when the bottles are opened.
- A fire extinguisher shall be within reach when a bottle cart is in use.

10 Electric welding

Electric welding is an important activity in shipyards. However, welding work can be dangerous, both to the welder and to his surroundings.

Therefore, please observe the following points:

- When starting work, ensure fire prevention (extinguishers, working environment, escape routes).
- Always check equipment and accessories for defects before use.
- It is compulsory to wear personal protective equipment when carrying out welding work. This includes a good welding mask or goggles, hearing protection, tight-fitting wool or cotton work clothes, gloves with long wrist guards and high safety footwear. Always wear the trouser legs over the shoes or boots because of the welding spatter.

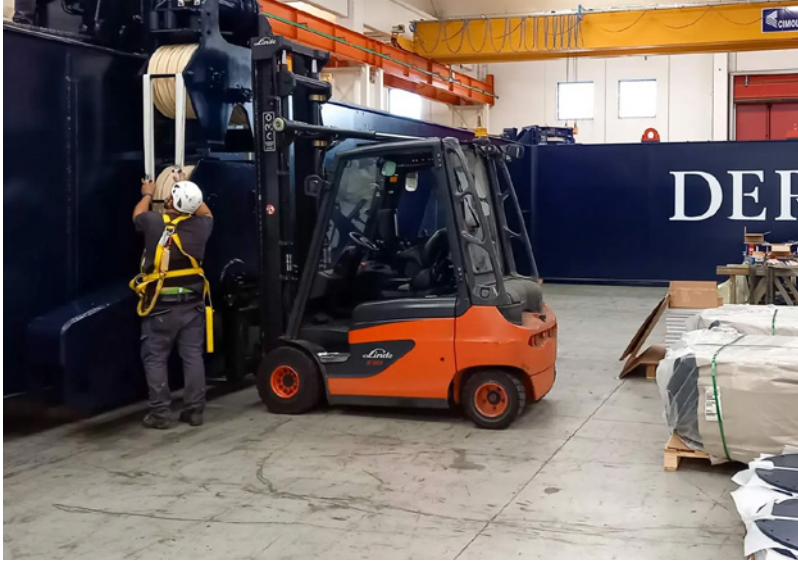
- If an AC transformer is used for work in tanks, it must be equipped with a voltage reduction relay.
- Never place the welding transformer in a tank.
- Only use welding and power cables that are in good condition.
- Ensure that the workpiece clamp is connected to the workpiece in a conductive manner (earthing).
- Always ensure good ventilation and use source extraction if possible.
- Use respiratory protection.
- When welding on workpieces that are provided with a protective layer, these layers must be removed at the welding spot (this is not always necessary for shop primer).
- Do not weld on a workpiece hanging in the crane unless proper earthing or insulation between the workpiece and the crane hook has been provided.
- After welding, check the surroundings for smouldering fires, etc.
- Switch off the welding transformer after use.
- If possible, use source extraction inside.
- Ventilation must be provided in more or less enclosed spaces (1 fan with a capacity of approx. 700 m³ per hour per welder or ironworker).
- Welders shall wear a welding mask and a disposable mask (FFP2), an overpressure helmet with powered TH2 filter or a fresh air helmet.
- Ironworkers wear a disposable mask (FFP2).
- During welding work in more or less confined spaces, the presence of other persons must be avoided as much as possible. If their presence is necessary, they must also wear a disposable mask (FFP2).

11 Transport equipment

Forklift trucks, tractors, etc. may only be driven by persons aged 16 and above who are sufficiently familiar with their function and operation.

In order to be able to handle this equipment properly and safely, the following regulations must be observed:

- Avoid overloading the lift truck by exceeding the maximum load capacity and/or by taking the load outside the prescribed centre of gravity distance (at the tip of the forks).
- The load must rest fully on the forks and against the fork heels. Unstable loads, such as bottles, must be secured.
- Lift the load just above the floor and test the steering.
- A lift truck can only be driven safely by:
  - Always look in the direction of travel.
  - Not taking bends too quickly.
  - Braking smoothly and carefully.
  - Driving backwards on sloping ground.
  - Tilting the mast backwards.
  - Pay attention to the clearance height.
  - Raising the forks just above the ground.
  - Keep arms and legs inside the vehicle.
  - Drive backwards when there is insufficient view due to the load.
  - Keep your distance from the vehicle in front of you.
- Without special provisions, the lifting of persons is prohibited.
- If no special seats are provided, no other persons may ride on the vehicle.
- Do not let the engine idle unnecessarily because of emissions, especially in workshops etc.
- Smoking or naked flames while refuelling or charging the batteries is strictly forbidden.



- Never repair malfunctions on the implement yourself. Alert the service department or follow the company's internal rules.
- Prevent unauthorised persons from driving the lift truck. Therefore always take the ignition key with you when you leave the lift truck.
- Keep to the local speed limit.

Vehicles without their own drive mechanism

- The load must be stable, i.e. so that it cannot shift or tip over.
- Coupled vehicles may not stand in the way. Also make sure that they cannot drive away on their own (e.g. on a ground that is not entirely horizontal)!
- The maximum load must be marked on each vehicle. Observe this!

12 Paint and paint products

Most types of paint contain substances that are harmful to health.
Many types are also flammable.

To handle these products safely, the following rules must be observed:

- Ensure that the product information/safety sheets of the products to be worked with are available and read them carefully so that you are aware of the risks.
- Read the instructions on the paint cans.
- Obtain, read and comply with the required work permit.
- Always provide for sufficient ventilation when processing the paint.
- Use the prescribed personal protective equipment. It is compulsory to wear them!
- Smoking and open flames are not permitted in the area surrounding the workplace.
- Be aware of the presence and location of first aid and fire extinguishers.
- Paint-spraying equipment must be earthed during use.
- Use explosion-proof equipment or pneumatic equipment.
- Ensure good accessibility of the workplace (accessibility, fencing, lighting, escape routes, etc.)
- Always clean hands and other dirty body parts before eating and drinking. Dirty clothing should be removed.
- Have injuries treated immediately to prevent infection.
- When burning off or sanding down paintwork, you must also bear in mind that the paint may contain harmful substances. The same applies here: ensure good ventilation and use the prescribed personal protective equipment.
- When carrying out the work, take account of others and coordinate the work with colleagues.

- Never work alone in a confined space and have the space regularly checked for oxygen content (21%), vapour/air mixture (less than 10% LEL: lower explosion limit) and/or the concentration of gases or vapours (below MAC value = maximum acceptable concentration).
  See also Chapter 5: Working in confined spaces.
- Antifouling paints often require additional precautions.
  Familiarise yourself in advance with the instructions for use.

European hazard symbols

Paint products, thinners, cleaning materials and similar products have hazard symbols on their labels. Make sure you know the meaning of these symbols, otherwise ask your supervisor.
Also read the label on the packaging. This will provide additional information on the risks and how to handle the product safely.

13 Electrical equipment

When using electricity, there is a real danger of becoming electrified (electrical continuity).
Please observe the following rules:

- When working on board, lay the cables in such a way that they do not cause unnecessary disturbance or damage.
- Electric hand tools must be double insulated.
- Only connect lights or power tools to normal sockets.
- For work in confined spaces, only use tools and lighting that operate on a safe low voltage (the voltage must be: 50 V AC or 120 V DC).
- If the above is not possible for technical reasons, an isolating transformer must be used.
- If an isolating and/or safety transformer is used, it must be installed outside the confined space.
- Do not carry out repairs yourself, but leave this to the electrician.
- Always switch off the equipment when carrying out repairs and when finishing work.
- Work on the electrical installations may only be carried out by skilled persons.

Asbestos 14

The treatment and processing of asbestos is prohibited by law.
When repairing ships, it sometimes happens that asbestoscontaining material has to be removed. This work may only be carried out by a certified asbestos removal company.

Important
If asbestos is suspected or detected, stop work immediately, leave the area and warn your supervisor.

The management must take measures to minimise exposure to asbestos. The area where asbestos work is being carried out must be properly cordoned off and clearly marked with warning signs.

Before the repair work can be resumed, the workplace must have been cleared by a certified survey agency.

Different measures may apply to the removal of asbestos packaging. Consult the company management about this.

15 High-pressure water spraying & (grit) blasting

Carrying out work such as high-pressure water washing and grit blasting can lead to very serious injuries due to the high pressure and contamination.

Therefore, please adhere strictly to the following rules:

- High-pressure water spraying (hydro-jetting) may only be carried out by a certified company.
- High-pressure water washing and grit-blasting is only permitted to persons aged 18 and above who are sufficiently familiar with the operation and handling of the equipment.
- Check the equipment daily before starting and use the correct equipment (emergency stop, safety devices).
- The use of the prescribed personal protective equipment is mandatory!
- Maintain a safe distance of 6 metres from the sprayer and cordon off the area during high-pressure spraying.
- Consistently apply the specific internal rules concerning high-pressure spraying.
- Ensure good coordination of the work.
- Consult a doctor immediately in the event of injury.
- Do not disable any safety devices.

Enironment 16

The company and its employees at all levels must be aware of the impact that business activities can have on the environment.

All employees must be aware of the company's environmental regulations.

Handle environmentally harmful substances with care and adhere to the applicable disposal regulations.

The following rules of conduct apply:

- Prevent environmentally harmful substances from spreading to the environment and the surface water.
- Clean up spilt liquids and chemicals immediately.
- Dispose of dirty cleaning rags in the designated waste bin or special container.
- Dispose of waste oil in a timely manner in the appropriate drums or tanks.
- Provide an impermeable storage facility.
- Burning waste is prohibited.
- Collect waste separately as much as possible (sort by sort).
- Collect chemical waste in the appropriate containers.
- Discharging waste into the water, the sewer or the soil is strictly prohibited.
- When cleaning equipment containing chemical substances (paint, oil, etc.), effective measures must be taken to prevent environmental pollution.
- Always place liquids on the drip trays provided.

17 Reporting accidents and incidents

In the event of imminent danger, you must stop work.

You must always report accidents and incidents (dangerous situations, near accidents, material damage, environmental damage) as soon as possible to your immediate superior.

In the event of an accident with injuries, you must ensure that first aid is carried out.

The further follow-up is coordinated by the Emergency Response Officer or First-Aider.

In order to minimise port pollution resulting from the repair or dismantling of ships, the following rules shall be observed when working on board ships.

Welding

Inboard

Wastes from welding activities, such as electrode butts and slag should be collected after completion of the work and deposited in a designated container.

Outboard

Before carrying out welding work outboard, the area around the welding joint should be cleared (± 5 cm) of paint, for example by means of a vacublast pistol with corundum or basalt as grit material.

Spillage will be avoided by using tightly fitting brushes.

The electrode ends that are released must not be disposed of in water but in the appropriate container.

The work shall be carried out with the aid of a sound raft or work barge which is rigidly moored to the ship. The space between ship and bucket shall be sealed with non-flammable material.

Burning

Inboard

Waste resulting from fires must be collected and disposed in a designated container on deck or ashore.

Outboard

Before starting to burn outboard, the area around the burn line must be made free of the paint layer, namely 5 cm on both sides of the burn line, e.g. by means of a vacublast gun. For this purpose corundum or basalt is used as grit. Well-fitting brushes in the unit prevent spillage.

Any material released during fires, such as sheet with a paint layer, must be collected to prevent it from ending up in the harbour.
For these activities, a sound raft or work bucket is used, which is moored rigidly to the ship. The space between ship and bucket is sealed off with non-flammable material.

Paint

Inboard

The painting of parts on board the ship is carried out in such a way that no paint residue can end up on the jetty or in the water.
In special cases, plastic or tarpaulins are hung up to cover this.
Empty paint cans or cans with some residue should be collected in a separate storage area on board or ashore.

Outboard

Airless painting off board is not permitted. If large parts or damaged areas have to be painted overboard, this must be done with a roller or brush.
Full paint cans on the jetty must be removed from the jetty immediately after completion of the work and must be placed in a designated place.

Dock work

Repairs to the propeller and the shaft may only be carried out after a provision has been made to collect the grease or oil from the stern tube.
This provision consists of placing a container under the stern tube to catch the released grease or oil when pulling the stern.
Also the rags with grease or oil from cleaning the shaft during pulling can be deposited here.

Rudder and rudder stock

The released grease or oil should be collected and disposed in a container (see Chapter 19. Dock discipline).

Cleaning

Inboard

All waste products generated during the work on board shall be removed after the repair and deposited in the appropriate waste bins before the deck can be rinsed clean.

Outboard

HD-cleaning outboard may not take place in the port during repair work, but only in the docks.

Oil

Waste oil should be taken directly from the ship to the designated collection point. It is not permitted to store used oil on the jetty or the shore. This collection point is separate from the other waste containers. The collection tank is placed under a roof and the floor is watertight in order to prevent soil pollution.

Oil pipes that are transported from board to shore must be covered on both sides (by means of plugs) in order to prevent oil leakage onto the ship and quay.

Any spilled oil should be treated with grit on the jetty and removed to prevent it from entering the port at high water.

Oil bunkering

Conditions for the owner or captain of the oil supply vessel:

- He shall have the state of the oil in the tank checked during bunkering in order to prevent overflow.
- He must ensure that his ship is well moored in order to prevent drifting during bunkering.

Conditions for the owner or captain of the ship under repair:

- He will have to comply with the regulations regarding waste oil and chemicals.
- It is forbidden to discharge into surface waters.
- During bunkering, he must have the oil level in the tank checked in order to prevent overflow.
- Calamities arising from bunkering oil are for the account of the oil supplier.

Shot blasting and/or paint spraying

If grit blasting and/or paint spraying activities are carried out on board, the following measures shall be taken.

In lockable spaces

- The entire area must be closed off as well as possible to prevent grit and/or paint from escaping.
- Install the necessary extraction system in the room to be treated and blow it through a filter.
- Dispose of the blasting grit with any paint residues in containers to a processing company.

In non-enclosable spaces

- Cover the areas to be treated with tarpaulins or plastic in order to create a ‘work tent’.
- Attach the tarpaulins or plastic to the surface to be treated by means of magnetic clamps or in some other way.
- Install an extractor in this ‘space’ and blow it through a filter.
- Dispose of the blasting grit with any paint residues in containers to a processing company.

When painting gunwales, railings and outer hull

- Closing off watertight ports and water spouts.
- Attaching tarpaulins or plastic to the hull to catch any paint splashes or spills.
- When working on the hull, also seal between ship’s side and workpontoon by using tarpaulin or plastic. Attaching the tarpaulin or plastic to the ship by using magnetic clamps.

Remarks

All disposal of waste and chemical waste shall be carried out through a company registered for this purpose and holding the appropriate permits.

Organisation and responsibility

The company manager is responsible for supervision and for implementing the company-specific measures.

Gevaren op de werkplek m.b.t. gassen

Zuurstof

- Normal concentration in air is 20.9%.
- Pure oxygen is slightly heavier than air.

Acetylene

- Flammable gas and lighter than air.
- Handle cylinder with care due to risk of gas decomposition (danger of explosion).

Mapp-gas

- Combustible gas and heavier than air (1.5 times).

Hazards

Oxygen deficiency

Can occur in poorly ventilated areas, e.g. when working with cutting torches or during welding.

Oxygen deficiency can also occur in rooms where mud or dirty water is present.

Oxygen concentration too high

If the concentration in air is higher than 20.9%, the main danger is the increased flammability of substances. Even substances that are normally hardly flammable will become flammable when oxygen concentration is increased.

Flammable gases

Hazards

Explosion – Oxygen deficiency – Poisoning

Explosion hazard

A flammable gas has a certain area in which it is explosive.

This explosion area is shown in percentage by volume in air.

Oxygen deficiency
Flammable and non-flammable gases can cause danger because they displace oxygen.
Poisoning
Many gases have an effect on the nervous system.

Safety measures

When working in poorly ventilated areas (tanks, double floors, etc.) carry out continuous gas and oxygen measurements.
If there is the slightest suspicion of gas or oxygen leaks, eliminate the cause of the leak immediately.

Instructions before carrying out a Gas Explosion measurement

- Place a fire extinguisher (powder) at the entrance (manhole) of the area to be measured.
- Provide safe lighting (42 V) at the location of the area to be measured.
- Always measure with 2 persons.
- Always carry a pocket meter in the tank.

Important

Always ensure that the gas-free form is completed by the person authorised to do so.

Working with the oxygen/explosion meter

Always have this measurement carried out by the designated persons.
When working with acetylene and oxygen in a confined space, the suction hose must be suspended low in the space (both gases are heavier than air).
It is advisable to carry out regular measurements at various levels if you are working in a room for a long time.
If the gauge gives an alarm: leave the room immediately!

Dock discipline is understood to be the activities related to grit blasting, painting, HD-cleaning (of ships and/or structures in docks), to be organised and controlled in such a way as to cause as little nuisance to the environment as possible.

Problem definition

The source of all the problems is grit, paint residues, oil, grease and chemical products, which have a strong negative impact on the quality of the dredged material under and in the immediate vicinity of the docks.

Course of action and measures taken (procedures)

Responsibility and supervision
For practical reasons, the dock manager in charge of the execution of a project is responsible for the direct and daily supervision of the compliance with and implementation of the measures and regulations as set out in the dock discipline. He reports to the manager.
The coordination of supervision is the responsibility of the production manager. He reports to the director.

Managing Director
Manager
Dock manager
Dockhands

The dock manager has the authority to immediately stop the work carried out in the docks if violations or incorrect execution of the work according to the dock discipline rules are observed. He must report this immediately to the manager.

If necessary, the manager will assess this, a dock discipline consultation will take place in the manager's office. The participants in this consultation are subcontractors, project leaders and the manager.

The subcontractors are obliged to inform their employees by means of announcements and/or publications (also in foreign languages) and to keep them informed of regulations, agreements and changes made or to be made in connection with dock discipline.
They are responsible for their correct implementation.

Procedure (initial responsibility is indicated after the procedure)

- Dock the ship (dock master).
- As soon as dock floor is dry, immediately close openings (dock master).
- Close off ship's nozzles or fit with plugs or "top hat" with sufficient hose length (dock master).
- Clean the vessel with high pressure and make it oil-free (dock master).
- Screening, i.e. applying a fine mesh network to limit grit dust and/or paint overspray (dock builder).
- Grit blasting work and application of first layer of primer on blasted surface (subcontractor or dock master).
- Grit and dust removal from ship and dock floor, top of the dock, stairs and landings of the dock and immediate surroundings of the dock (subcontractor, dock boss).
- Rinsing the ship after all grit and dust has been removed from the dock (subcontractor, dock boss).
- Carry out further painting programme (subcontractor, dock master).

Reports

- The company manager has to report to the dock master whether or not grit blasting work is to be carried out.
- The subcontractor must report to the dock master when grit blasting is to be carried out.
- The subcontractor must report to the dock master when the de-icing of the dock is carried out. The dock master must be warned in good time when the dock can be inspected.
- "Dock ready for lowering" must be reported by the subcontractor to the dock master in good time to allow for proper final inspection.
- The dock master is instructed NOT to lower the dock if the final inspection shows that the dock has not been properly cleaned.
  He must report this to the manager immediately.

Agreements

- The shipyard will place special containers at the docks for: empty, half-full or full and opened paint cans.
- The shipyard will place special tanks and/or barrels at the docks for:
  – used oils from propeller and shaft work
  – diluted paint pumps, hoses and nozzles.
- Subcontractors are obliged to collect and dispose of their own grit, paint, etc. unless agreed otherwise in writing.
- The shipyard will place containers at the docks to collect waste, etc. The shipyard will take care of the disposal of the above mentioned full containers.
- The yard shall take care of the disposal of the above mentioned full containers etc., this must be reported to the manager in good time.
- All unnecessary obstacles on the dock floor, such as temporary lifting eyes, must be removed in time for the clearing of the docks.
- Paint pumps, hoses and nozzles must not be sprayed on the dock floor and dock walls. This must be done in the aforementioned tanks or barrels.
- No paint cans may be deposited in the previously mentioned containers during the paint work.
- All opened paint cans, empty, full or partly full must be collected on the dock floor in a central place until all work (per paint layer) is completed.
- All used paint remnants shall be collected and applied to the hull. It is absolutely forbidden to open more paint cans than strictly necessary.
- In connection with a possible maximum layer thickness, the empty, full or partly full paint cans must be deposited in the containers mentioned above under the supervision of the responsible subcontractors if the paint must not be sprayed on the ship's hull.
- Only completely empty paint cans may be put together due to the risk of explosion when destroyed.
- During the grit-blasting and/or painting operations and when clearing the docks of grit and dust, strict attention must be paid to ensuring that absolutely no grit and/or paint residue ends up in the water.

The subcontractors and dock manager are primarily responsible for this.

- Adjacent areas must be kept clean. Full paint cans must be returned to the supplier.
- It is forbidden to carry out grit-blasting and/or painting work on ships in the water where there is a risk of grit and paint residues ending up in the water.
- The subcontractors are responsible for plugging the scuppers.
- Zinc residues should be collected in the appropriate bins.
- Barriers should be put in place where possible in case of grit blasting and/or paint spraying.
- Materials arriving from ships such as oil drums, drums with chemicals etc. must be collected within 12 hours after departure of the ship and offered to a recognised collector.
- Spillage of paint must be avoided. Should this nevertheless happen, the spilt paint must be absorbed with sawdust (as oil) and collected in empty paint cans that must then be disposed of in the designated container (this should also be reported to the dock master). (The dock master must also be informed about this).
- Application of paint programme: when spraying paint, the direction of the wind must be taken into account to prevent damage to the surroundings (paint splashes) and pollution of surface water.
  Prevent damage to surroundings (paint splashes) and pollution of surface water. In case of doubt, consult the manager.
  Nozzle-object distance must be optimised.
- Before the dock is allowed to subside, an inspection must be carried out by the dock manager at all times.
- Subcontractors must ensure proper supervision of the work carried out by their employees.
- The company manager is responsible for proper coordination between the various disciplines.

Regulations for entering and working in confined spaces

Definition of a confined space

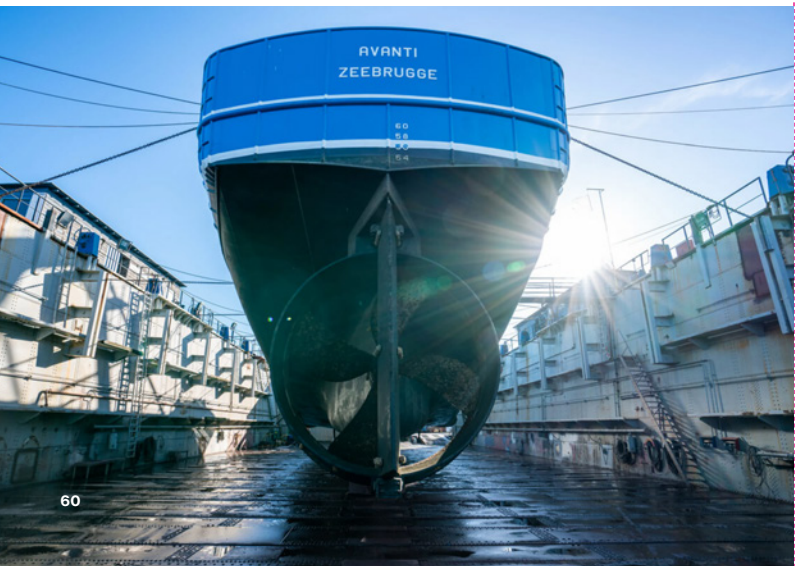
A confined space is a space that is not easily accessible and has no or insufficient ventilation.

Characteristics of a confined space

- No ventilation.
- Difficult to access and, in the event of a calamity, difficult to leave.
- There may be substances in the space that extract oxygen, fire and explosion hazards. Substances that withdraw oxygen from the area, pose a fire and explosion hazard or can be harmful to the health of employees.

Examples of confined spaces on ships

Tanks, double bottoms, cofferdams, forepeak, etc.



Hazards/risks

- Fire/explosion hazard
- Poisoning
- Stunning
- Choking
- Falling/slipping

Before entering a confined space, first establish

- Oxygen content
- Presence of explosive vapour/air mixtures
- Presence of toxic vapours/gases (if room(s) are used for storage of toxic substances)

Criteria for the safe entry of confined spaces

- Oxygen content: 20 - 21 % vol.
- Concentration of explosive vapours/mixtures: < 10% LEL (Lower Explosion Level)
- No toxic vapours/gases (Mac. value)

The determination of both the oxygen content and the explosive vapours/mixtures is done with a combined oxygen/explosion meter, which is available from the management.
The meter is operated by designated persons.
Pocket oxygen meters are also available from the company management and must be carried by the employee concerned.
In the event of an increased/decreased oxygen content, an alarm is issued.
If the set values are not met, measures must be taken such as ventilating, rinsing, etc., after which new measurements must be taken before entering the space.

When working in confined spaces, the space must be effectively ventilated artificially; this means that contaminated air must be removed by using ventilators and fresh air must be supplied.

If explosive/flammable substances/mixtures have been found in a closed space (tanks), e.g. fuel, a safe working certificate must be issued by the authorised person before work can commence.

Harmful/toxic vapours are often found on repair vessels or in areas where fuel/oils have been stored.

During the period that work is carried out in the confined space, one person must stand guard at the entrance to the space and maintain constant contact with the employee concerned.

Oxygen levels and the presence of explosive vapours/mixtures should also be monitored during this period..

(Auxiliary) tools

Lighting

Lighting in confined spaces should use light fittings with a safe voltage.

Note

If an explosive mixture can occur in the room as a result of the work to be carried out (e.g. conservation techniques), explosion-proof lighting must be used.

Electric tools

It is not permitted to use electrical tools unless they are operated at a safe voltage.

Note

If an explosive mixture is likely to occur in the room as a result of the work to be carried out (e.g. conservation techniques), explosion-protected tools must be used.

Welding equipment

Welding transformers shall be equipped with a voltage reduction relay so that the open voltage may not exceed 42V.

Ventilation

For ventilation, only fans may be placed outside the relevant spaces and fresh air may be supplied to the tank via hoses of sufficient size.

Cutting tools

Hoses must be attached directly to the cutting torch (no couplings).
It is also not permitted to use intermediate pieces if gas/oxygen hoses are in the confined spaces.

Scaffolding/running boards

Where necessary and possible, proper shelves should be used to prevent the employee from falling/slipping.

Safety measures to be implemented by workers

- Ensure good ventilation.
- Inspect tools to be used before commencing work.
- Keep hoses out of reach of glowing splashes.
- Repair any leaks in the equipment immediately and report to the manager.
- Never use the oxygen from the burner for any purpose other than maintaining the flame.
- Do not let the burner burn unnecessarily
- When interrupting work or leaving the confined space (e.g. coffee break, break for lunch, temporary work in the workshop etc.), the hoses must be disconnected at the supply point (distribution station).
- At the end of the working day, the hoses must be disconnected at the supply point and removed from the confined space.
- Place the fire extinguisher within easy reach.

The above also applies to hazardous areas.

Safety measures to be carried out under the supervision of the manager (assistant manager)

- Beforehand carry out a test for the presence of sufficient oxygen (20 - 21 vol%) and possibly flammable gas in the air (<10% LEL).
- Removal of rust, paint layers and other flammable material.
- Placing a fire guard or manhole guard at the entrance of the room.
- Checking the oxygen content in the air during work (20 - 21 vol%).
- Checking for presence of explosive vapours/mixtures during work (<10% LEL) (in special cases)
- Taking further measures that are necessary in given situations to remove or reduce risks arising from working with oxyfuel burners.

The supervisor (foreman/assistant manager) must complete a checklist before entering a room and during work. This is available from the company management. After completing the checklist, the employee must hand in an initialled copy to the company manager.

Control of measures should be carried out by foremen/assistant managers.

Fire/explosion

- Call **+31 (0)187 68 50 11** and if necessary **112**.
- Tell (1) who you are, (2) where the fire is, (3) the location of the fire, (4) your own location.
- Try to fight the fire yourself.
- Close all windows and doors (do not lock them!).

Accident/injury

- Call **+31 (0)187 68 50 11** and if necessary **112**.
- Tell (1) who you are, (2) what is going on, (3) the location of the victim, (4) your own location.
- Do not give the victim anything to drink.
- Do not leave the victim alone.

Evacuation

- Close all windows and doors (do not lock them!).
- Remain calm and leave the building quietly, do not run.
- Assist during evacuation whenever possible.
- Never go back into the building.
- Go to one of the assembly areas.

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