



## Entry of tank equipment

### A confined space is:

- an enclosed or partially open environment.
- often with constricted access.
- not designed for accommodation of humans.
- a space where activities take place that pose health and safety risks.



For entering a confined space, the document VDB-GEN-TD-F-001-005 is applicable.  
Statement of work: entering a confined space necessary.



Form	VDB-GEN-TD-F-001-005 Statement of work: Entry of a confined space	Last review	12-10-2021
		Responsible	Manager Technical Dep
Scope	Technical department	Page	1 of 1

Statement of work: Entry of a confined space / tank container			
Tank / Container entry on	Date	Time From:	To:
Tank / Container number			
Department or location			
Reason for entry			
Name of the enterer of the tank			
Name of the manhole guard			
Name responsible person			
Previous load			
<b>Measures taken and monitored</b>	No	Yes	
Has the container been cleaned (incl. attachments)?	<input type="checkbox"/>	<input type="checkbox"/>	
What is the number of the cleaning certificate?			
Is the LEL (lower Explosion Limit) <b>max. 10% LEL</b> ?	<input type="checkbox"/>	<input type="checkbox"/>	
Is the oxygen concentration (EXY) between <b>20% and 21%</b> ?	<input type="checkbox"/>	<input type="checkbox"/>	
Is the <b>CO</b> (Carbon Monoxide) <b>max. 10ppm</b> ?	<input type="checkbox"/>	<input type="checkbox"/>	
Is the temperature in the confined space higher than 40°C?	<input type="checkbox"/>	<input type="checkbox"/>	
Are all manholes and the unloading bottom open?	<input type="checkbox"/>	<input type="checkbox"/>	
Are all pipes/hoses disconnected?	<input type="checkbox"/>	<input type="checkbox"/>	
Is the required protective equipment in use: <b>Safety harness, manhole guard &amp; gas meter?</b>	<input type="checkbox"/>	<input type="checkbox"/>	
Other measures taken:			
Signatures:			
Responsible	Manhole guard	Enterer of the tank	

Initial date: 17-11-2008

Revision History			
Rev.	Date	Revision description	Approved by
004	10-11-2011		Manager Technical Dep.
005	12-10-2021	Revision of tank entry documents	Manager Technical Dep.

- the person entering the confined space is responsible for registering the entry document.
- The space being entered must always have been cleaned at a cleaning station.
- Hazardous gases or substances such as nitrogen, tail gas, CO, natural gas, etc. must have been removed.
- The confined space should be ventilated, if necessary. Therefore, the advice is always to keep the manholes open after a cleaning.
- After unloading, all pipes connected to the confined space are either plugged by means of highly visible plugs or flanges or disconnected in a way that no gases or substances can enter the space from the pipes.
- For a container this means that no loading or unloading hoses are connected while entering the tank.
- If the confined space is equipped with agitators or other moving parts, these are disabled and secured.

The above work is carried out in a way that ensures nobody needs to enter the confined space. After all general precautions, including gas measurements, have been taken, a warning sign is placed at the entrance to the confined space. If persons are present in the confined space, the area around the entrance is cordoned off and access routes are kept clear.



### **Manhole guard responsibilities**

When working in a confined space, at least one extra person must be present (manhole guard). For a tank container, continuous and direct supervision of the person in the confined space applies; for a silo container, indirect supervision is sufficient; being aware of the person working in the confined space - provided all manholes and the unloading bottom are open. The manhole guard has the following duties:

- communication with, and supervision of, the person in the confined space.
- Responsibility for the person in the confined space.
- responsibility for taking any necessary measures.
- if necessary, provide immediate assistance or ensure mobilisation, without entering the confined space themselves.
- check the statement of work to ensure that it is fully completed before allowing the person into the confined space.

## Measuring Gas

Before entering a confined space, it must have been established that:

- the concentration of flammable gases and vapours in the room does not exceed 10% of the lower explosion limit (max. 10% LEL).
- the oxygen concentration is between 20% and 21%.
- the concentration of gases, vapours or dust does not exceed half of the MAC values (for CO, carbon monoxide, no greater than 10 ppm).
- the temperature in the confined space does not exceed 40°C.



Measuring and assessing concentrations is carried out by someone trained for this purpose and capable of correctly interpreting readings. Measurements are always recorded on the statement of work. The functioning of the measuring device (gas detection meter) is checked before each measurement.

Especially when:

- welding and cutting activities take place.
- work is carried out using solvents.
- residues (including soot) or rust are present.

When safety for those in the confined space cannot be assured, continuous monitoring for explosive, oxygen and toxic gas/vapour concentrations is carried out throughout the activities.

## **Ventilation**

After it has been established that the above-mentioned measures have been taken, the space is ventilated (naturally or artificially) for the duration of the activities. The ventilation is so that the concentration of hazardous substances or vapours always remains below the MAC values. When these conditions cannot be guaranteed, independent respiratory protection is used.

## **Welding and other heat activities**

During welding, sanding, and cutting work, open fire or if there is a risk of sparks, suitable extinguishing equipment is available within reach. Gas and oxygen cylinders used in the work should never be placed in confined spaces. When welding, ensure that no oxygen leakage can occur in supply lines due to faulty fittings. Burners, hoses, and hose connections are therefore checked for leaks outside the confined space before entering. Quick couplings inside confined spaces are prohibited.

A vacuum valve is incorporated into the supply lines of flammable gases used in welding and cutting, which immediately stops the supply of the gas when the gas supply line is disconnected. This feature can only be applied to so-called injection burners. Welding equipment is properly grounded.

## **Electricity**

The use of air-driven tools, lighting etc. is preferable. In case of explosion hazard, this is the starting point. When working in confined spaces where it has been clearly established that there is no explosion hazard, only direct current with a nominal voltage not exceeding 120 volts and alternating current not exceeding 50 volts shall be used. Mobile electrical equipment is equipped with a built-in power supply.

## **Personal Protective Equipment (PPE)**

The standard PPE must be worn when working in confined spaces: safety shoes or boots and a safety harness on a leash. Depending on the substance present in the confined space and the nature of the work to be carried out, additional PPE such as helmets, goggles or respiratory protection may be required.

When optimal ventilation is impossible and the risk of hazardous fumes being released is a possibility, wearing respiratory protection is mandatory. These consist of independent respirators, meaning not depending on the ambient air in the room. Filter masks, which bind or retain toxic compounds from the air, are not used in confined spaces.