

Working in Confined Spaces

- A "Confined Space" can be defined as any space which is substantially enclosed e.g. storage tanks, pits, trenches, ducts, some areas or rooms within buildings, particularly below ground level, sewers, tunnels, box girders etc.
- The main risks associated with Confined Space Working are:
- Toxic gasses e.g. hydrogen sulphide, ammonia carbon monoxide.
- Explosive or flammable gasses, e.g. methane, petroleum spirit.
- Oxygen deficiency or enrichment. Air contains 21% oxygen. Any less than this, we can pass out and an excess can cause fire or explosion.
- You must not enter a confined space unless you have received special training.
- You must not enter a confined space unless a *Permit to Enter* has been issued and you have received a full briefing on the Permit Conditions and the Risk Assessment.
- A rescue procedure must be in place and a practice rescue carried out.



Q: What do we mean by a "Confined Space"?

Q: Name three risks of working in Confined Spaces?

Q: What is the normal level of oxygen?

Respirators – Working in Confined Space

Hazards associated with Confined Spaces fall into two categories:

- Hazards associated with conditions which exist in confined space before work takes place, e.g. lack of oxygen, toxic chemicals, explosive gases, etc.
- Hazards which can be introduced into the confined space by work to be carried out, e.g. fumes from welding operation, unsuitable electrical equipment etc.
- The effect, with certain gases can be very rapid or take place over long periods e.g. Hydrogen Sulphide (smells of bad eggs) and can be formed from decaying organic matter. Hydrogen Sulphide causes Chemical Asphyxia resulting in unconsciousness / death in minutes.
- Carbon Monoxide (Exhaust fumes from Internal combustion Engines) can cause Headaches, at low concentration over a period of hours, or death in a period of minutes if the concentration is high.

Q. What action should be taken before entering a confined space?

Respirators – Working in confined space

- Low level - Long Term Carbon Monoxide poisoning will cause permanent health damage such as Heart Disease and Brain Damage.
- All Equipment that produce Carbon Monoxide e.g. Power Packs, Compressors, Generators Etc. must be located outside the works area to enable the gases to vent to the atmosphere.
- **Portable Abrasive Wheels (Petrol Driven)** also produce Carbon Monoxide and should not be used in a Confined Space. Be Aware, when locating the Plant Equipment outside, that the fumes do not blow into the confined space. Remember also the wind direction can change.



IF ANY PERSON SUSPECTS THAT THEY ARE BEING AFFECTED BY HARMFUL GASES, THEN THEY MUST LEAVE THE WORK AREA IMMEDIATELY AND REPORT TO THEIR SUPERVISOR.

Q. Where should you locate your plant equipment that is engine driven?

Q. What action would you take if you thought you were being affected by harmful gases?

Respirators – Working in confined space

Monitoring and Control.

- The Site Supervisor will ensure that: The planned procedures, including any permit – for – work systems, are carried out as planned and that only trained and authorised persons are permitted to enter the confined space after monitoring for gases.
- Ensure all controls measures identified in the Risk Assessment's for the work has been implemented.
- Where necessary, the Health & Safety Department on request, can arrange any necessary training, air monitoring, and prepare relevant Safe Systems of Work, Permits for Work Systems etc. and will provide advice on any relevant equipment.

Q. Will a respirator (filter mask) provide protection against harmful gases such as carbon monoxide?