



# Working safely with slurry

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The Health and Safety Executive for Northern Ireland, HSENI, has been working with farmers on slurry safety for many years. The mixing and spreading of slurry is one of those jobs that has to be done regularly. Before spreading, the slurry is normally mixed or agitated in a slurry tank and this will inevitably produce dangerous slurry gases. The quantity of gas released can vary depending on:

- how long the slurry has been in store;
- if silage effluent goes into the slurry tank; and
- the type of feed being fed to the stock.

The advice in this article is based on experience gained from many incidents and near misses on farms. HSENI's advice is to take a few moments to think about what you are going to do and make preparations to do the whole job safely. Firstly:-

- take out animals before starting to mix;
- use outside mixing points if installed and open all doors and windows in the building; and
- cover all openings into which an adult or child could fall.

## What are the dangers?

Slurry gas is a mixture of gases including methane, carbon dioxide, ammonia and hydrogen sulphide. The most dangerous part is hydrogen sulphide. This is extremely poisonous to people and animals. A high concentration knocks out your sense of smell. It also causes difficulty in breathing then disorientation. Collapse and death can occur after only a few breaths at high concentration of gas because it displaces air from your lungs and also affects the nervous system.

**A facemask will not help!** Filter type masks are not suitable. Any person who enters a slurry tank must wear breathing apparatus with its own air supply. Such work is a specialist operation and is best left to fully trained competent contractors. They must be properly trained to use the equipment. The equipment must be regularly maintained, and the person entering the tank must be connected by harness and lifeline to two people outside the tank.

The gas is formed within the slurry and while some gas may bubble to the surface most remains dissolved in a similar way to gas held within a bottle of fizzy drink. When the mixer starts the gas is released very quickly.

**Always assume gas is present during mixing!**



Gas will be given off immediately, often around the mixing point but it also is released in large quantities where the jet of slurry hits a hard surface like a wall. The quantity of slurry gas released falls off gradually as mixing continues but each time the pump/mixer is repositioned to mix another part of the slurry tank the gas concentration rises again.

Very often farmers will go to a point well away from the mixer and bend down to check mixing is happening. Remember slurry gas is heavier than air and during mixing it will settle in a cloud over the top of the slurry. So bending down into the gas cloud for even a few moments can cause unconsciousness. That's why all openings should be covered – to prevent a fall into the slurry tank.

Pocket sized meters are available to measure levels of hydrogen sulphide. They can be a useful guide before entering a building after slurry mixing is complete to check the gas has had time to disperse. Do not rely on a meter at the start of mixing as the slurry gas concentration rises so quickly it is dangerous to remain in the building and a meter will not give adequate warning or time to escape. Some meters need to be calibrated every time before they are used and returned to the manufacturer regularly (every three to six months) to be maintained and calibrated.

#### **Other preparations:**

Check the tractor/tanker are in good repair, brakes and tyres in good condition and if they have to be positioned above the tank, make sure the slats can take the weight, particularly if using new heavier machinery.

- Do not stand close to the pump/exhaust of a vacuum tanker when it is being filled.
- Ensure all PTO shafts are fully guarded.
- Tackle the spreading operation on sloping fields with care, driving appropriately to avoid runaway or overturn.

#### **Safe System of work for mixing slurry**

1. If possible, mix on a windy day.
2. Keep children away from the area at all times when working with slurry.
3. Take all animals out of the building before starting to mix slurry.
4. Open all doors and windows.
5. Use outside mixing points first.
6. If slats are removed, cover exposed areas of the tank beside the pump/mixer to stop anything falling in.
7. Start the pump/mixer and then stay out of the building for as long as possible - at least 30 minutes or longer depending on the size of the tank.
8. If you have to go into the building make sure that another adult, who knows what you are doing, stays outside the building and can get help if needed.
9. If you have to re-enter the house to move the pump, or change the direction of the pump, then you need to leave the building as soon as this is done. Do not go back in for as long as possible - at least another 30 minutes or longer depending on the size of the tank.
10. Avoid naked flame, as slurry gas mixture is flammable.
11. Do not stand close to the pump/exhaust of a vacuum tanker when it is being filled.



Download [HSENI's slurry gas safety leaflet](#).

For further information and advice on working with slurry safely please contact HSENI's Helpline  
**0800 0320 121** or email [mail@hse.gov.uk](mailto:mail@hse.gov.uk)