

SLURRY

WORKING SAFELY

WITH SLURRY



STOP AND THINK

SAFE

SLURRY **A**NIMALS **F**ALLS **E**QUIPMENT



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SLURRY

Working safely with slurry

Over the past two years incidents involving slurry have claimed the lives of six people in Northern Ireland. Many serious incidents have also taken place; the result of farmers being overcome by gas released from slurry during mixing. Hundreds of animals have been killed in similar circumstances.

Drowning has also occurred where people, exposed to the fumes, have fallen through openings into tanks.

Don't let it happen on your farm.

Please take time to read this leaflet based on the latest research, together with experience gained from many incidents and near misses.



Before working with or near slurry take a moment to Stop and Think!

**FAILURE TO FOLLOW SAFETY GUIDELINES
PUTS YOU, YOUR FAMILY AND YOUR
ANIMALS AT RISK.**



THINK about the job you are going to do and make preparations to do the entire task safely.

THINK about vital preparations: check that 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.

THINK about ensuring all openings are covered to prevent a fall into the slurry tank.

THINK about keeping animals and children well away when working with slurry.

REMEMBER slurry gas is heavier than air and during mixing will settle in a cloud over the top of the slurry. Bending down into the gas cloud for even a few moments can cause unconsciousness. Covered openings save lives.

REMEMBER the risk is variable and difficult to predict. You may not have noticed any problems until now but the gas is always there during mixing. A combination of conditions can easily result in you and your animals suddenly being in serious danger.

Slurry gases

Slurry gas is a mixture of gases including methane, carbon dioxide, ammonia and hydrogen sulphide, all produced by bacteria during the decomposition of slurry. While all these gases are unpleasant, some are also poisonous as well as being flammable.

Hydrogen Sulphide

The most dangerous gas is hydrogen sulphide - extremely poisonous to people and animals. A high concentration knocks out your sense of smell, causing difficulty in breathing, then disorientation. After only a few breaths, collapse and death can occur. This gas rapidly displaces air from the lungs and affects the nervous system.



Toxic release

Some gas may bubble to the surface but most remains dissolved in the liquid in a similar way to gas held within a bottle of fizzy drink. As soon as slurry mixing starts, the gas is released rapidly. The addition of other materials such as silage effluent may increase the quantity of gas produced.



Mixing slurry

The rate of gas release is variable and difficult to predict, adding to the danger. At high concentrations it is not possible to smell hydrogen sulphide.

The gas is generally given off in large volumes very soon after mixing starts in any area of the tank. The first 30 minutes are the most dangerous. As mixing continues, the quantity of slurry gas released falls off.

However, each time the pump is repositioned to mix another part of the tank, gas concentration rises again. Stay out of the building for at least another 30 minutes or longer depending on the size of the tank.

Exposure and effects

Gas concentration is measured, using special equipment, in parts per million of the atmosphere - **ppm**.

20 to 150 ppm - irritation of the eyes and respiratory tract.

200ppm - headache and dizziness.

Above 500ppm - very common in livestock buildings during tank mixing, causing nausea, disorientation and collapse. Death is possible if a person remains exposed to this concentration.

Above 700ppm - breathing stops and rapid death.

Gas concentration meters

Hand held monitors are readily available and can, if properly maintained and calibrated, provide an additional safety precaution. However monitors should always be regarded only as a back-up to a safe system of work, never a substitute.

More information

Visit **www.hseni.gov.uk/farmsafe** for questions that you should ask suppliers and manufacturers regarding personal gas detection monitors before you purchase or hire them.



WARNING

**SLURRY GASES
CAN KILL**

Pocket-sized meters to measure levels of hydrogen sulphide can be a useful guide before entering a building after mixing is complete to check the gas has had time to disperse. Never rely on a meter at the start of mixing; gas concentration rises so quickly it is dangerous to remain in the building. A meter will not give adequate warning or time to escape.

Some meters need to be calibrated every time they are used and returned to the manufacturer regularly (every 3-6 months) to be maintained and calibrated.

Will a facemask help?

A facemask will not help. Anyone 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. 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.

Helping someone overcome by gas

If possible, stop the pump and get the person to fresh air, but do not put yourself at risk in the process. If breathing is weak or stopped, artificial respiration may be effective. Get emergency medical attention immediately.





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Case study

Slurry Mixing Incident

Farmers frequently enter buildings to determine if slurry is being mixed at the opposite end of the house from where the pump is located. This is a dangerous practice as the pump will direct the slurry and the gas to the furthest point in large quantities. This situation is often encountered in many of the reported incidents, with the cattle collapsing in the pen furthest away from the mixing point.

One such incident occurred in the Kilkeel area during 2010. A farmer from Annalong, Co Down had started to mix his slurry tank with the help of his neighbour. He had made the decision not to remove the cattle from the house before mixing commenced.

A short time after the slurry pump had started his neighbour noticed cattle

going down in the pen furthest away from the main door. The farmer had gone to the cattle in an effort to save them but he too collapsed.

The neighbour saw what happened, stopped the slurry pump and made his way to where the farmer was lying. He dragged the farmer up the feed passage towards the exit door and outside. The farmer's son arrived on the scene and helped the neighbour get his father to safety.

An ambulance was called and the farmer spent some time in hospital before being released. A number of bulls were lost in the incident but it could have been much worse with the loss of human life, not only the farmer, but also others trying to save him.

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The 'Stop and Think' Checklist

ALWAYS

- ✓ Assume hazardous gas is present during mixing.
- ✓ Keep all unnecessary openings to slurry tanks covered.
- ✓ Follow the SAFE SYSTEM OF WORK outlined below to stay out of trouble.
- ✓ If possible, mix on a windy day.
- ✓ Keep children away from the area at all times when working with slurry.
- ✓ Take all animals out of the building before starting to mix slurry.
- ✓ Open all doors and windows.
- ✓ Use outside mixing points first.
- ✓ If slats are removed, cover exposed areas of the tank beside the pump/mixer to stop anything falling in.
- ✓ 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.
- ✓ If you have to go into the building, make sure that another adult who knows what you are doing stays outside and can get help if needed.
- ✓ If you have to re-enter to move the pump, or change the direction of the pump, 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.

NEVER

- Rely on filter type facemasks.
- Use gas monitors/meters as a substitute for a safe method of working.
- Rely on meters at the start of mixing.
- Have naked flames near slurry, as slurry gas mixture is flammable.
- Stand close to the pump/exhaust of a vacuum tanker when it is being filled.

Remember

There is no safe slurry tank. The gases can kill people and animals almost instantly. Prevent accidents and save lives by always following the safe system of work.

For more information please contact:

HSENI, 83 Ladas Drive, Belfast BT6 9FR

Phone: 028 9024 3249

Helpline: 0800 0320 121

Email: mail@hсени.gov.uk

Web: www.hсени.gov.uk/farmsafe

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