



## LKL Safety Note

### Raising Awareness of the Hidden Dangers of Slurry Handling



There have been many fatalities on farms from people being overcome by toxic slurry gases or falling into slurry pits and tanks and drowning. The most at risk group from drowning is children and the elderly.

When slurry decomposes it releases gases that contain methane, ammonia, carbon monoxide and toxic hydrogen sulphide. **One breath of hydrogen sulphide can kill.** Hydrogen sulphide is a colourless and heavy gas, which will stay close to the ground especially on calm still days. At very low concentrations it smells like rotten eggs but at high concentrations it knocks out your sense of smell and you will be unaware it is there. At concentrations over 500ppm it will cause nausea, confusion, and unconsciousness and can kill in seconds.

It will be present in slurry mixtures and when the slurry is disturbed e.g. when agitating, mixing or emptying volumes of gas will be released. It's a heavy gas so can collect in enclosed, poorly ventilated areas indoors such as slurry tanks, pits, pump chambers and around sheltered farm buildings and structures outdoors.



The concentrations are particularly high when the slurry has been decomposing over a number of months and a crust has formed, trapping the gas. Addition of animal bedding products to the slurry such as gypsum and silage effluent can increase the volume of gas released.

Slurry on farms also can create a risk of drowning and in Ireland between 2000/2010 it was the most common cause of child fatalities on farms.

#### What precautions can you take? - The Slurry Mixing code



Ensure everyone on the farm knows what you are doing and understands the dangers – take action to inform and protect those at risk, e.g. other workers, family members (including children), contractors or delivery drivers. Suitable warning signs can help. Where possible fence an area 6 m radius around the tank agitation area.

- Ensure that children are kept away from the area at all times when working with slurry
- If possible, mix on a windy, breezy day
- Open all doors to get good ventilation. (Buildings above slatted storage can have an aerator installed which helps disperse gases slowly and safely)
- Take all animals out of slatted buildings or those incorporating slurry storage before starting to mix slurry or buildings adjacent.
- Check that the PTO guard on the slurry tanker and agitator is in place
- Avoid vigorous agitation if mixing in a confined space area.
- Use outside mixing points first.
- If slats are removed, cover exposed areas of the tank beside the pump/mixer to stop anything/anyone falling in.
- Start the pump/mixer – then get out and stay out of the building for as long as possible – at least 30 minutes – 1 hour. Don't stand over mixing points or areas where gas can be emitted such as slats.
- Methane can also be released which is flammable so avoid any naked flames or sparks nearby which can ignite gases.
- If you have to go into the building, make sure another adult who knows what you are doing stays outside and can get help if needed.
- Farmers must stay out for a minimum of 30 minutes after starting mixing or after moving or redirecting the pump.
- Don't attempt any maintenance or repair work on valves and pipework that can lead to a spillage of slurry and release of slurry gases including hydrogen sulphide.



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Routine maintenance work can only be undertaken when the plant is empty of slurry, and washed through to ensure it is as clean as possible -or by a trained specialist contractor with the right equipment.

### **Confined Space risks**

You must never enter a slurry tank or slurry storage system unless you are equipped, trained and competent to use air-fed respiratory protective equipment (RPE), specifically breathing apparatus. This requires a planned and rehearsed emergency procedure with knowledge of the use of the breathing apparatus, harness and lifeline and the rescue procedures and unless you have this high level of training it must be left to specialist contractors.

### **What if there is an accident?**

- Don't go into the building or store, stay outside and if safe - stop the pump.
- Don't put yourself at risk - Dial 999 and explain the nature of emergency and specifically say SLURRY so that emergency services send the right people with the correct equipment fast.

### **Secure Slurry storage and reducing risk of drowning**

For slurry lagoons or open tanks or pit a childproof safety wall or security fence of at least 1.8m in height with equally high and locked and padlocked access gates should be fitted. A child should not be able to climb the fence or access it via a platform or the tank wall or at lower levels.

Scrape holes on outdoor lagoons or apertures for suction pipes should be adequately protected to the same standard as the remainder of the fence. (Fencing also applies for stored water)



Avoid stacking any materials near a fence or wall near an above ground storage tank so that it provides a means of climbing over it and remove any ladders that give access to above ground storage tanks when not in use.

Ensure suitable warning signs are displayed to advise visitors and children.



When slats or manhole covers are lifted ready for agitation the openings must be protected. Where possible safety access manhole covers should be fitted or use a grid with an opening for the hose.

Surfaces around agitation points should be free from obstacles that could cause trip hazards and ensure adequate lighting.



### **Preventing vehicles entering slurry storage areas at scraping points.**

Provide a Tractor stop barrier on the scraping ramp to prevent accidents. Ensure other vehicles do not enter the slurry pit area.



Barriers need to be at least a third of the height of a rear tractor tyre and made of steel, concrete or other strong material, not wood. They should be capable of withstanding the weight of your vehicle at slow speed.

**For more information on Slurry safety see:** - <https://www.hse.gov.uk/pubns/ais9.pdf>

**For more information on safe storage see:** - [Slurry storage information booklet by HSENI](#)

<https://www.lmcni.com/site/wp-content/uploads/2018/01/Slurry-Storage-Booklet-for-web.pdf>

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