

Crack Those Leaks

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Slurry tanks are empty and stock are due in for the Winter. This is a good time to search for leaks at cracks and joints and take a close look at your slurry storage structures for defects.

Where tanks have been around for some time there may be some small leaks through joints or cracks in the walls or floor or both. These can usually be rectified fairly easily provided the structure itself is sound. Sealing holes in the floor or snap tie holes in walls are some of the other jobs you could be faced with.

Joints or Cracks

It is important to distinguish between joints and cracks. Joints are cracks that are cast into the structure deliberately during construction. They usually occur in a straight line and are fairly easy to seal. Whereas, cracks occur where joints have been omitted or where too few joints are made. They usually occur in a zigzag fashion and are difficult to seal.

Cracks in walls can be either horizontal or vertical. The vertical steel in walls prevents horizontal cracks and, in effect, supports the wall. The horizontal steel prevents vertical cracks. Horizontal or diagonal cracks in walls are worse than vertical ones and generally point to more serious structural damage.

New Tanks

Problems have been known to occur with new tanks. Even with good workmanship and adherence to the Farm Development Service specification (S123), sometimes cracks and honeycombed areas appear. These are easy to fix provided the job is tackled just after the tank is constructed and before backfilling is done. It is essential to repair any damage or seal any cracks on the outside before the tank is backfilled. Repairs on the outside prevent groundwater from seeping in and repairs inside prevent effluent from seeping out. It's not impossible to seal out the groundwater from the inside, it's just more difficult.

While I'm on the subject of new tanks it may sound funny to say, "don't build tanks down in a hole". It is not much good having a tank that's perfectly sealed if the water comes in over the top or at a slot for a beam. The heavy rain and flooding this time last year had some of these tanks full ever before the start of the Winter. In a new job the importance of setting the correct height for the top of the tank cannot be over-emphasised.

Sealing Joints/cracks in floors

Repairing honeycombed areas in walls

Sealing snap tie holes

Sealing holes in floors

Small holes in the floor may be repaired in a similar manner. The sub-base under the repair must be secure. Fill the hole with concrete, topping it off with the SBR repair mix and finish flush. Bond the repair at the edges with a slurry coat.

Sealing Joints/Cracks in concrete slabs

Initially power hose the joints/cracks. This will help to determine their width, how active they are and the soundness of the concrete. Use a concrete road-saw or hand-held concrete saw to cut out and prepare joints and cracks. Any loose or damaged concrete will have to be cut away to form a track to hold the sealant. The ideal size of track should be narrow and shallow and falls within the range of 12mm x 12mm to 20mm x 20mm.

The appearance of the joint/crack after cleaning and cutting back to sound concrete will determine the type of repair that is required. Where the joint/crack is narrow and shallow, it is only necessary to prime the sides and use a sealant. The primer is brushed on and sticks tightly to the prepared surface and the sealant sticks to the primer. There is no need to brush the primer to the bottom of the joint, in fact the sealant works better if it sticks to both. Hot poured rubberised bitumen is very suitable. Non-flexible blown bitumen (roof pitch) is brittle when cold and should not be used for sealing joints/cracks in concrete slabs. Gun applied sealants, such as polyurethane, are also very effective.

Cracks/joints, which initially look narrow, will often double in width when cut back to sound concrete. Depth may extend to the hardcore material. In these situations, the prepared joint should be filled with and SBR (Styrene Butadiene Rubber) repair mix with a slurry coat used to form a bond.

Where the joint/crack is not too wide, fill to within 15-25mm of the surface. The track that is left may be primed and sealed with hot-poured rubberized bitumen after a few days.

Where the joint/crack is very wide, the SBR repair mix should be brought to the surface. Ideally, in this case, a joint should be cut and sealed. This will allow for movement in the floor. Although it might be better to wait a year to see if a crack develops. If it does it can be sealed at that stage.

The success of these repairs depends on the structural stability of the floor and the attention to detail in carrying out the work.

SBR slurry coat and SBR repair mix

The repair mix consists of sand, cement and SBR, e.g. 150kg sharp sand, 50kg cement and 10 litres of SBR. The aim is to achieve a stiff mix, but some water may be added if necessary. The bonding coat, or slurry coat as it is called, consists of two parts cement and one part SBR. These are mixed to form a slurry-type consistency. The slurry coat is brushed on to the prepared surface followed by the repair mix which must be placed and finished before the slurry coat dries (i.e. wet on wet). Covering the joint to cure it is worthwhile to prevent it drying out too fast.

The manufacturers' recommendations must be followed carefully, because formulations and procedures vary from manufacturer to manufacturer.