

SPECIFICATION SHEET: LMOOI/REVA
LAMELLA PASTE RECOVERY SYSTEM



Supplier: CTT Technical and Trading Limited

1.0 Process

To recover oxides from a floor sump in the form of an aqueous slurry and reprocess the recovered material for re-introduction into the slurry reclaim system.

2.0 Description

All lead containing waste water will be collected in drainage channels and will flow by gravity into the collection sump. All drainage channels will be protected by metal grids.

The recovery system comprises the following main items:

2.1 One reception sump incorporating an agitator and discharge pump

2.2 One Lamella unit incorporating an inclined filter screen and transfer pump

The stages of the recovery process for the Lamella Unit may be described as follows:-

Lead slurry effluents emanating from the plate filling department proceed through floor channels to the reception sump. The sump is designed with sufficient capacity to contain surges of flow at times of high effluent, e.g. during wash-down. A single propeller agitator in the sump maintains the solids in suspension although some premature lead settling at the extreme sump corners (fillet formation) may be experienced. Operation of the submersible sump pump for the transfer of effluent is achieved either automatically, by the use of ultrasonic level probes, or manually. Coarse foreign debris is retained by a sump screen. The slurry is pumped to a wedged wire filtration screen mounted above the settler where fragments are taken out of suspension.

Removal of these fragments eliminates the principal cause of fouling of the lamella plates with the result that the plant can be run for considerable periods before cleaning becomes necessary. The unique design of the screen wedge wire ensures that the loss of oxides from the slurry at this stage in the process is minimal.

From the rear of the wedge wire screen the slurry flows by gravity into the lateral header of the settler and then into the settler itself. Here the separation of the lead compounds from the water is promoted by a bank of parallel inclined plates which greatly reduce the distance that particles need to fall before they meet a collection surface.

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As the solids settle on the plates they form aggregates, some 2 - 3 mm thick, which eventually become unstable and roll down and off the plates and fall into a collection hopper in the base of the settler. When the collected slurry reaches the maximum advisable level a discharge is required. However, it is recommended when possible that the accumulated slurry is left overnight to be discharged the following morning. A greater sludge density is achieved in this way although settlement is assisted by two internal low amplitude vibrator screens mounted on opposite walls of the base hopper.

The recovered sludge is discharged under manual control via a wide throat positive displacement screw pump to the reclaimed slurry tank.

3.0 Product Specification and Output

The lamella unit will handle 7 to 8m³/hour of waste water.

To avoid contamination of the re-usable slurry it is essential that only water suitable for the process is used for cleaning the plant.

The clarified water discharged from the lamella will be stored for use as department washdown water.

4.0 Space Requirements

The space required is approximately 7 metres x 5 metres x 5.3 metres high. (including the flow sump construction)

5.0 Services

Connected electrical load: 4.4 kW, 380V, 3 phase, 50 Hz.

Compressed air: 560 litres/minute at 4.5 bar minimum

Service water: 120L/minute