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HUBER Septic Sludge Treatment in Kuching/Sarawak



HUBER ROTAMAT® Sludge Acceptance Plant with integrated grit separation



Tanker delivering septic sludge into the HUBER ROTAMAT® Sludge Acceptance Plant Ro 3.3



Complete mechanical preliminary treatment: removal of screenings and grit by the HUBER ROTAMAT® plant



Sludge dewatering up to 40 % DS with HUBER ROTAMAT® RoS3



Complete plant model

Kuching with 350,000 inhabitants, is located on Borneo, Malaysia, about 200 km north of the equator. The city uses mainly the system of cesspools to which the individual households are connected.

The septic sludge settles in the cesspools while the supernatant liquor is discharged through a sewer system directly into the recipient. Since they did not have an evacuation concept for the 77,000 cesspools in Kuching until a few months ago, overflow of the pools was

inevitable and the septic sludge made its way directly into the recipient, which led to significant hygienic and health problems for the population living on the Kuching river.

To manage the problem, they began in 1998 to plan a central septic sludge treatment plant which was finally put into operation in March 2000 and has been working without problems since that time. The HUBER ROTAMAT® products supplied contributed a lot to the short construction time and efficient and trouble-free treatment of the septic sludge. The ROTAMAT® machines handle the major part of mechanical treatment. Main part of the plant are the well-proven HUBER ROTAMAT® Sludge Acceptance Plant Ro3 and Sludge Dewatering Plant RoS 3.

The septic sludge is delivered by tankers and fed into the Sludge Acceptance Plant. The integrated Fine Screen Ro1 removes the coarse material which is discharged into an intermediate storage tank, from which it is fed into the ROTAMAT® Sludge Dewatering Plant by adding coagulant agent. Most of the solids are separated from the sewage/sludge mixture by this two-stage treatment system which is a mere mechanical system. The two treatment stages achieve a reduction of the COD concentration by up to 90% and of the phosphorus concentration by approx. 80%. These results allow problem-free treatment of the sludge in a conventional subsequent biological treatment stage.

DETAILS OF MECHANICAL TREATMENT:

The septic sludge is delivered by tankers to three parallel installations of Sludge Acceptance Plants Ro3.3 with integrated grit trap and stored in the following intermediate storage tank, from where four parallel Sludge Dewatering Plants RoS 3, size 2, are fed, adding polymer. The total plant is designed for a capacity of 350 m³/day. Inside the Ro3.3 the sludge flows through the integrated ROTAMAT® Fine Screen Ro 1 which is a well-proven screen that is ideal for this application due to its wear-resistant and sturdy design.

After removal of the coarse material (> 10 mm) the sludge flows into the integrated grit trap which separates gravel and grit particles. After mechanical treatment the sludge is pumped into storage tanks which have stirrers integrated to produce a homogeneous sludge that is suitable for dewatering.

Polymer is added and the septic sludge pumped into the Sludge Dewatering Plant RoS 3. A slowly rotating conveying and compacting screw (1-8 rpm) integrated in the RoS 3 removes the sludge that has been separated by a wedge wire drum and dewateres it in the course of the process. Due to this principle of slow rotation the forces acting on the structure are considerably reduced and a special foundation or support is unnecessary. Also wear of the machine is reduced to a minimum and maintenance work virtually eliminated. The energy demand is very low (approx. 2 kW per main drive per machine).

The results are impressive: Sewage sludge with an average solids concentration of 3% is dewatered to a DS concentration of approx. 40%. The removal rate in the filtrate water lies at approx. 95% and can be increased to up to 99% by using a filtrate return pump. As the dewatering rate is high, addition of lime after the dewatering plant can be minimized and is only required for disinfection.

The totally closed design of all HUBER plants minimizes annoying odors. The special climatic conditions required modification of individual plant components. The control panels for example were equipped with cooling systems to ensure problem-free plant operation in such a dry area. This is another project which proves impressively that HUBER is able to supply high-efficiency plants at a competitive price. Since this technology is furthermore easy to apply, and has been applied, to other processes as well (e.g. treatment of manure from animal farms etc.), we received an extraordinarily positive feedback from many interested customers already within the first months after plant start-up. Similar plants will soon be realized in cooperation with our partners in Malaysia and will certainly underline the capability and adjustability of the well-proven HUBER Technology.

Related Products:

- [HUBER Sludge Acceptance Plant ROTAMAT® Ro3.3](#)
- [HUBER Screw Press S-PRESS](#)

Related Solutions:

- [HUBER Solutions for efficient Sludge Treatment](#)
- [HUBER Solutions for Septic Sludge Treatment](#)