Solar Drying

Sludge disposal costs are among the major burdens of wastewater plant operations.
Solar Drying

Free radiant energy from the sun provides an excellent opportunity to cost effectively dry sludges, thereby dramatically reducing the mass and volume of materials and hence disposal costs.

This is achieved by capturing the solar energy within a greenhouse and directing the heated air across the air sludge interface with high efficiency fans to absorb moisture in the air. Moisture laden air is exchanged with the external environment through natural wind action or, when necessary, via use of high efficiency fans and vents.

To avoid odour and maintain optimum conditions, the sludge is regularly 'turned' to create new drying surfaces and maintain aerobic conditions under which pathogen reduction is also improved and vector nuisance is substantially eliminated.

Operation of the chamber fans, circulation system, sludge turner and other equipment is controlled via a PLC controller that monitors both internal and external environmental conditions as well as a number of other operational parameters to enable the drying performance to be optimised.

Our unique experience with UV disinfection of waste streams has enabled us to develop a UV pathogen reduction system to improve the re-use potential of the dried product sludge.

Benefits

- Sludge volume and mass substantially reduced
- No odorous product
- Better acceptance for disposal
- Pathogen reduction
- PLC control of all major components

Enhancement Options

Aquatec Maxcon can provide a number of enhancements to the drying system to provide improved performance and versatility of the system.

- Automated Materials Handling systems for both feed and discharge of the sludge. These would be custom developed for the individual system and incorporate a range of conveyors (fixed, slewing, screw), pumping systems and storage bins.
- Use of external and potentially wasted energy to provide additional heating within the chamber to raise the internal temperature and increase the drying performance. The system would combine the use of radiators and fans with external heat sources. Ideal for anaerobic plants that produce excessive gas that is being flared off at waste gas burners.
- Use of gas powered MicroTurbines to provide both power generation and heat energy for operating the plant. At plants where significant gas is flared off, this option has the potential to provide a cost effective power source whilst enhancing the drying performance through the recovery and use of the heat generated.