

# Wastewater from an Industrial Process Conversion at Treatment

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## Short Communication

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## DESCRIPTION

Industrial wastewater treatment describes the processes used for treating wastewater that is produced by industries as an undesirable by-product. After treatment, the treated industrial wastewater (or effluent) may be reused or released to a sanitary sewer or to surface water in the environment. Some industrial facilities generate wastewater that can be treated in sewage treatment plants. Most industrial processes, such as petroleum refineries, chemical and petrochemical plants have their own specialized facilities to treat their wastewaters so that the pollutant concentrations in the treated wastewater comply with the regulations regarding disposal of wastewaters into sewers or into rivers, lakes or oceans. This applies to industries that generate wastewater with high concentrations of organic matter (e.g. oil and grease), toxic pollutants (e.g. heavy metals, volatile organic compounds) or nutrients such as ammonia.:180 Some industries install a pre-treatment system to remove some pollutants (e.g., toxic compounds), and then discharge the partially treated wastewater to the municipal sewer system <sup>[1]</sup>.

Recent trends have been to minimize such production or to recycle treated wastewater within the production process. Some industries have been successful at redesigning their manufacturing processes to reduce or eliminate pollutants. Sources of industrial wastewater include battery manufacturing, chemical manufacturing, electric power plants, food industry, iron and steel industry, metal working, mines and quarries, nuclear industry, oil and gas extraction, petroleum refining and petrochemicals, pharmaceutical manufacturing, pulp and paper industry, smelters, textile mills, industrial oil contamination, water treatment and wood preserving). Treatment processes include brine treatment, solids removal (e.g. chemical precipitation, filtration), oils and grease removal, removal of biodegradable organics, removal of other organics, removal of acids and alkalis, and removal of toxic materials. Sludge treatment in anaerobic digesters at a sewage treatment plant in Cottbus, Germany <sup>[2]</sup>. Sewage sludge treatment describes the processes used to manage and dispose of sewage sludge produced during sewage treatment. Sludge treatment is focused on reducing sludge weight and volume to reduce transportation and

disposal costs, and on reducing potential health risks of disposal options. Water removal is the primary means of weight and volume reduction, while pathogen destruction is frequently accomplished through heating during thermophilic digestion, composting, or incineration. Sludge is mostly water with some amounts of solid material removed from liquid sewage. Primary sludge includes settle able solids removed during primary treatment in primary clarifiers. Secondary sludge is sludge separated in secondary clarifiers that are used in secondary treatment bioreactors or processes using inorganic oxidizing agents [3]. Aerobic processes (such as the activated sludge process) tend to produce more sludge compared with anaerobic processes. On the other hand, in extensive (natural) treatment processes, such as ponds and constructed wetlands, the produced sludge remains accumulated in the treatment units (liquid line) and is only removed after several years of operation. Sludge treatment options depend on the amount of solids generated and other site-specific conditions. Composting is most often applied to small-scale plants with aerobic digestion for mid-sized operations, and anaerobic digestion for the larger-scale operations. The sludge is sometimes passed through a so-called pre-thickener which de-waters the sludge. Types of pre-thickeners include centrifugal sludge thickeners, rotary drum sludge thickeners and belt filter presses.

## CONCLUSION

Dewatered sludge may be incinerated or transported offsite for disposal in a landfill or use as an agricultural soil amendment. Energy may be recovered from sludge through methane gas production during anaerobic digestion or through incineration of dried sludge, but energy yield is often insufficient to evaporate sludge water content or to power blowers, pumps, or centrifuges required for dewatering. Coarse primary solids and secondary sewage sludge may include toxic chemicals removed from liquid sewage by sorption onto solid particles in clarifier sludge. Reducing sludge volume may increase the concentration of some of these toxic chemicals in the sludge [4,5].

## REFERENCES

1. Aljefri DM, et al. Vancomycin area under the curve and acute kidney injury: a meta-analysis. *Clin Infect Dis.* 2019;69:1881-1887.
2. Neil JCM, et al. Vancomycin therapeutic drug monitoring in children: new recommendations, similar challenges. *J Pediatr Pharmacol Ther.* 2020;25:472-475.
3. Olson J, et al. Intravenous vancomycin therapeutic drug monitoring in children: evaluation of a pharmacy-driven protocol and collaborative practice agreement. *J Pediatr Infect Dis.* 2020;9:334-341.
4. Patel J, et al. Vancomycin therapeutic drug monitoring in paediatrics. *J Paediatr Child Health.* 2020;56:563-570.
5. Chen J, et al. The relationship between vancomycin AUC/MIC and trough concentration, age, dose, renal function in Chinese critically ill pediatric patients. *Pharmacol Res Perspect.* 2021;9:885.