STANDARDS, RULES, AND ANALYTICAL TECHNIQUES FOR SEWAGE SLUDGE MANAGEMENT

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ABSTRACT

This article discusses the most common sewage sludge management techniques, as well as the unit activities and procedures that relate to them. Reclamation and adaptation of lands to specific needs; plant cultivation not intended for human consumption or food production; use in agriculture; use in construction; recovery of phosphorus, rare earth metals, or fats and use in industry; production of combustible pellets, granulates, or other usable materials such as absorbents; and storage on treatment territory Stabilization processing results in the creation of materials that may be contaminated with a range of organic chemicals. Because this method of management often involves dumping processed sludge on the ground, it has the potential to contaminate soil with unknown organic substances. Thermal processing of raw sewage sludge, on the other hand, virtually eliminates this possibility. The vast majority of organic stuff is converted to a simple, mineralized state. In this instance, the most serious concern is heavy metal poisoning of sewage sludge ash. The identification of heavy metals in ashes is, however, considerably easier than that of organic molecules. Chemical analysis may be extremely helpful in determining the environmental safety of sewage sludge that has been treated and handled. As a result, there are many analytical approaches in use that are likely to aid in the process of developing and implementing innovative economically and ecologically sound methods of sewage sludge reuse. The method of technical sewage sludge use at Gdansk's Wastewater Treatment Plant "Wschód" is also explained. The technical line has just been updated.

KEYWORDS: *Analytical Techniques, Disinfection, Fermentation, Sewage Management, Sludge Management*

REFERENCES:

1. C. Adam, B. Peplinski, M. Michaelis, G. Kley, and F. G. Simon, "Thermochemical treatment of sewage sludge ashes for phosphorus recovery," *Waste Manag.*, 2009, doi: 10.1016/j.wasman.2008.09.011.
2. J. Havukainen *et al.*, "Potential of phosphorus recovery from sewage sludge and manure ash by thermochemical treatment," *Waste Manag.*, 2016, doi: 10.1016/j.wasman.2016.01.020.
3. P. M. Melia, A. B. Cundy, S. P. Sohi, P. S. Hooda, and R. Busquets, "Trends in the recovery of phosphorus in bioavailable forms from wastewater," *Chemosphere*. 2017, doi: 10.1016/j.chemosphere.2017.07.089.

4. R. Li, W. Zhao, Y. Li, W. Wang, and X. Zhu, "Heavy metal removal and speciation transformation through the calcination treatment of phosphorus-enriched sewage sludge ash," *J. Hazard. Mater.*, 2015, doi: 10.1016/j.jhazmat.2014.09.052.

5. C. Adam, C. Vogel, S. Wellendorf, J. Schick, S. Kratz, and E. Schnug, "Phosphorus recovery by thermo-chemical treatment of sewage sludge ash – results of the European FP6-project SUSAN," *Int. Conf. Nutr. Recover. from Wastewater Streams*, 2009.

6. V. G. Greb, A. Guhl, H. Weigand, B. Schulz, and M. Bertau, "Understanding phosphorus phases in sewage sludge ashes: A wet-process investigation coupled with automated mineralogy analysis," *Miner. Eng.*, 2016, doi: 10.1016/j.mineng.2016.09.014.

7. C. Adam, G. Kley, F.-G. Simon, and A. Lehmann, "Recovery of nutrients from sewage sludge – Results of the European research-project SUSAN," *Water Pract. Technol.*, 2008, doi: 10.2166/wpt.2008.001.

8. B. Peplinski, P. Köcher, and G. Kley, "Application of the Rietveld method to the severely superimposed diffraction patterns of technical products containing a large number of solid solution phases," 2006, doi: 10.1524/zksu.2006.suppl_23.29.

9. G. Jungmeier, "The Biorefinery Fact Sheet," *Int. J. Life Cycle Assess.*, 2017.

10. J. Stemann, B. Peplinski, and C. Adam, "Thermochemical treatment of sewage sludge ash with sodium salt additives for phosphorus fertilizer production - Analysis of underlying chemical reactions," *Waste Manag.*, 2015, doi: 10.1016/j.wasman.2015.07.029.