

HalloPrep - preparations for enhanced biogas production

What is HalloPrep?

- series of preparations that is based on **halloysite**, an aluminosilicate clay mineral $[Al_2Si_2O_5(OH)_4]$
- dedicated as a supplement for anaerobic digestion of municipal and industrial wastewater sludge
- the application of HalloPrep in fermentation tank contributes to the increase in microbial biomass and the biological activity, which leads to enhanced biogas yield and improved biogas quality



How does HalloPrep work?

It acts as a **carrier for microorganisms**

- colonization occurs naturally or by immobilization of a certain functional microbial group

It acts as **carriers for trace elements**

- trace elements act as cofactors for enzymes
- microorganisms multiply more quickly and their activity is enhanced

It **capture of toxic fermentation products**

- adsorbs compounds which may be toxic to microorganisms (like NH_4)
- binds H_2S and thus improves the quality of biogas

Productivity of HalloPrep

HalloPrep is used at the concentration of 0.1 - 5 kg/m^3 , 1-2 times per week

HalloPrep **HL**

- contains unconditioned sorbent
- improves the efficiency of biogas production up to 50%

HalloPrep **HL-Bac**

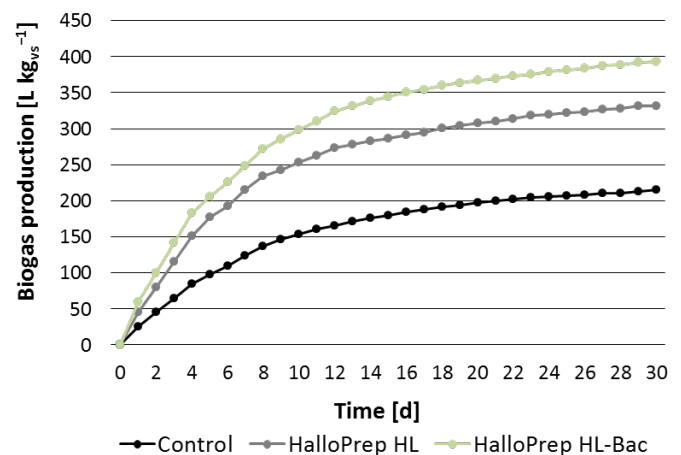
- sorbent conditioned with hydrolytic bacteria
- improves the efficiency of biogas production up to 80%

Using HalloPrep will help you to:

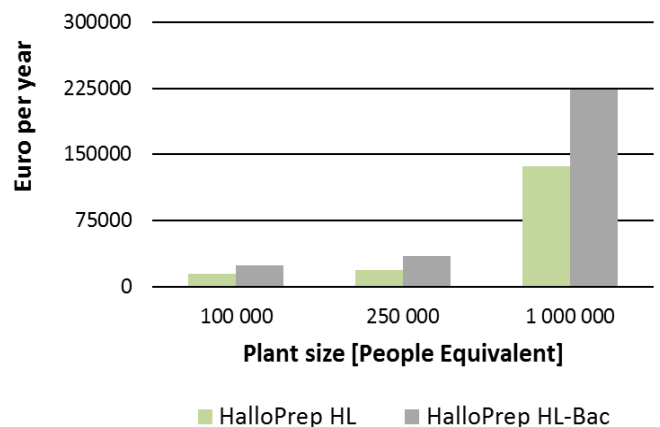
- Increased biogas yields and quality
- Maximize sludge utilization
- Reduce residence time
- Increase the production of electricity and heat

Development of the present invention was supported by the Research Project founded by National Science Centre, Poland [Project number = No. 2015/19/N/NZ9/00478] and National Centre for Research and Development and National Fund for Environmental Protection and Water Management, Poland [Project number = No. 266405].

Biogas yield in batch-tests



Using HalloPrep in different plant sizes



IPR status: Polish Patent Application No. 421577 - 2017

Inventors: Wojcieszak M., Drewniak L.

University of Warsaw, RDLS Ltd.

Contact: Idrewniak@biol.uw.edu.pl