THE PERFORMANCE OF THE GREASE DEGRADING BIOPRODUCT GREASOLUX IN THE MEAT MANUFACTURING FACTORY AND MUNICIPAL WWTP

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GREASO LUX

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Problem

- A municipal waste water treatment plant in one Baltic town continuously had problems with the fat, oil and grease (FOG) accumulation in the sewer lines, lift stations and waste water treatment plant, since the start up of a local meat processing facility. The highly polluted waste water directly impacted the treatment plant in the following ways:
- Increased grease accumulation in sewer lines and lift stations;
- Poor sedimentation of the active sludge in the secondary clarifiers;
- High sludge volume index (SVI- ~200);
- Poorer sludge dewatering results: lower solids content in dewatered sludge;
- Greasy sludge blanket on the top of the treatment plant (see pictures).

The meat factory also faced the increased maintenance for (FOG) accumulation in grease traps, and sewer lines clogging plus increased fees for the discharge of highly contaminated waste water to the municipal sewer lines.

Brief description of waste water treatment system of the meat factory and the town

- The meat factory is discharging app. 200 m^3 per day of waste water to the municipal sewer lines.
- The wastewater is treated in 3 grease traps and the sedimentation-collection tank in a row at the meat factory.
- After the primary treatment the waste water is discharged to the municipal sewer lines.
- The municipal sewage system and waste water treatment plant consists of: couple kilometers of sewer line from factory to WWTP, lift station, primary sedimentation tank, aeration tanks, secondary clarifiers and sludge dewatering department.
- Total daily waste water flow to municipal WWTP is from 5000 to 8000 m^3.

Solution

For the solution of grease accumulation problems GREASOLUX cartridges were proposed. They were placed in the sewer system of the meat factory. GREASOLUX cartridges are rugged, submersible cylinders, containing highly concentrated environmentally–safe, naturally occurring, microbes and fermentation media, that slowly dissolve and are released to the waste water. The main tasks of using GREASOLUX are:

- Reduce total contamination of the meat factory waste water.
- Reduce grease accumulation in the sewer lines, grease trap and lift station.
- Reduce grease concentration in the active sludge, increase the overall performance of waste water treatment and sludge dewatering processes in the municipal waste water treatment plant.

Dosing

- The GREASOLUX application commenced in the middle of June 2012.
- 4 units of GREASOLUX-M were used in total.
- Three GREASOLUX-M cartridges were submersed in grease traps (single cartridge to every grease trap) and one GREASOLUX-M unit was submersed to the sedimentation-collection tank in the area of meat manufacturing factory.
- The GREASOLUX cartridges are then replaced after approximately 2 months

Results

After three months of GREASOLUX use the following results were observed:

At the meat factory:

- Using of GREASOLUX helped to avoid blockages of pipes and reduce grease accumulation in the grease traps, equalization tank, and lift station.
- Also GREASOLUX helped to decrease the contamination of the wastewater discharged to the municipal sewer system.

Table 1

Data of meat factory waste water quality before and during the use of GREASOLUX

Parameter	Before use of GREASOLUX	During the use of GREASOLUX
COD, mg O_2/l	2000 - 3000 mg O_2/l	1200 - 1900 mg O_2/l

At the municipal waste water treatment plant:

- The grease degrading microorganisms successfully inhabited the aeration basins of the treatment plant. The present population of the active sludge microorganisms was expanded with the special, grease degrading microorganisms – the efficiency of grease biodegradation was considerably increased.
- After a few months of GREASOLUX use the blanket of the greasy sludge disappeared from the surface of the aeration zone and sedimentation tank of the wastewater treatment plant.
- The sludge sedimentation conditions in the municipal waste water treatment plant improved - the sludge volume index dropped down. The use of GREASOLUX eliminated the washouts of active sludge from the secondary clarifier, determined by the poor sedimentation conditions of the active sludge.

Table 2

The variations of the sludge volume index (SVI) during and before GREASOLUX dosing

Parameter	Before use of GREASOLUX	During the use of GREASOLUX
Sludge volme index (SVI)	~200	70 - 80

THE EXAMPLES OF THE MUNICIPAL WASTE WATER TREATMENT PLANT BEFORE AND DURING THE USE OF GREASOLUX


1 pic. *Waste water treatment plant before and during* GREASOLUX *use*


2 pic. *Effect of* GREASOLUX *on active sludge in aeration tank*


3 pic. *Secondary sludge settling tank before and during the use of* GREASOLUX

If you have any questions on use of GREASOLUX, please contact us and we will kindly provide a consultation