

PROCESS

SEMICONDUCTOR

SOLAR

PHARMA

POWER GENERATION

FOOD & BEVERAGE

PULP AND PAPER

CHEMICAL

OIL AND GAS

MINING

AEROSPACE AND TRANSPORT



ANAFIT®.CS

Cleaning of heavily mineralized waste water from industrial production processes in the food industry





ANAFIT®.CS in the beed sugar production

The clean way to a sweet product

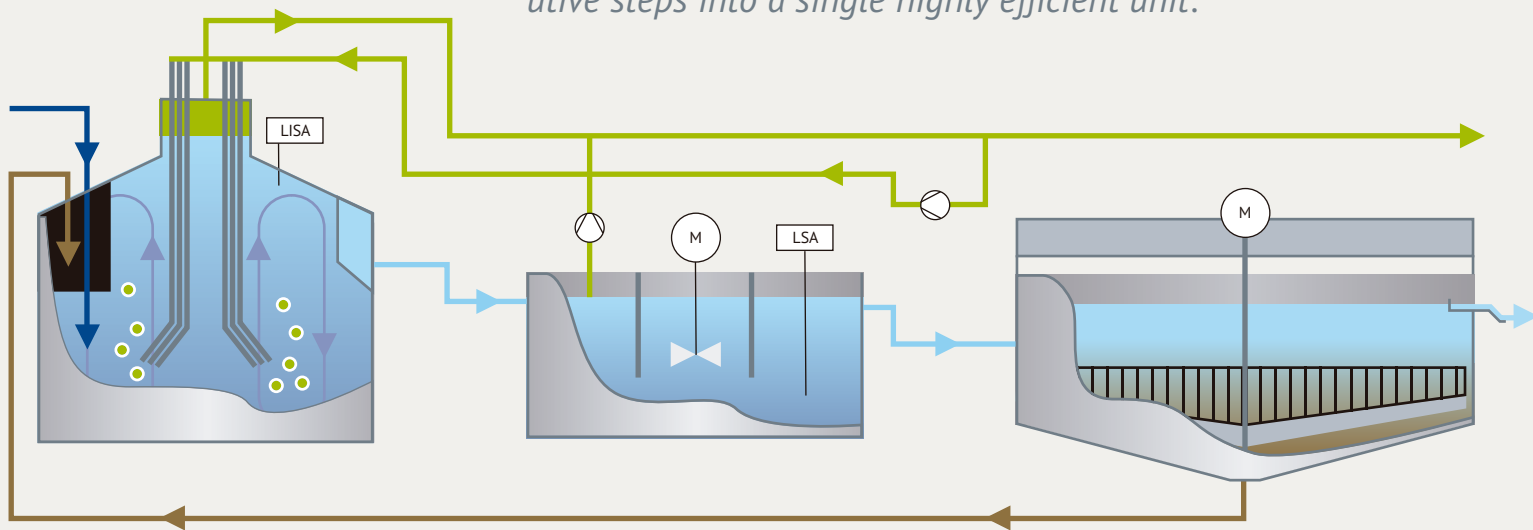
The manufacturing processes in the food industry often provide stringent process technology and engineering requirements for the necessary wastewater treatment plants. In many cases the only possible solutions are individually developed and use specifically matched processes.

The sugar industry in particular likes to use flume water circuits for the cleaning of processed crops. Abundant lime is added to the flume water prior to beet washing, which reduces the odours and results in a better settling of soil. In addition, the lime also reduces corrosion in the pipework and therefore keeps maintenance and service costs down. (-1)

However, this results in wastewaters with high calcium content and a tendency for mineral precipitation. Conventional wastewater treatment with UASB or EGSB reaches its limits here due to very large amounts of calcium carbonate precipitates that rapidly clog the equipment, thus degrading performance of the overall treatment process.

Process overview

ANAFIT.CS is a reliable, time-tested and very effective method for the treatment of just such wastewaters. It is based on the anaerobic contact sludge process and combines three consecutive steps into a single highly efficient unit:



In the **methane reactor**, a distribution system of stainless steel lances blows gas evenly into the supplied mixture of mud and water. With no moving parts suffering from wear and tear, the mixture is constantly agitated and kept liquid. Here both the calcium carbonate and the pollutant concentration are removed by precipitation and hence the COD is drastically reduced. At the same time, energy-rich biogas is produced in the methane reactor. This creates positive pressure through which about 90 percent of the gas is discharged.

In the subsequent closed **degassing stage** the mixture of water and sludge settles again. An agitator and a blower remove the remaining ten percent of the produced biogas, which is not only an important resource, but would also disrupt the operational processes in the third stage.

The **thickener**, as the final stage of purification, separates the liquid and solid components of the discharged mixture and feeds the thickened sludge back into the methane reactor as valuable biomass. There it goes through the process again in order to produce more biogas. Once enough sludge has been collected in the methane reactor, excess solids are removed at this point.

The last stage, thickener, stage of the ANAFIT®.CS process, specifically matched to the sugar production processes of a HAGER + ELSÄSSER customer in Turkey



Benefits

A system based on the ANAFIT.CS concept offers a high level of operational safety as well as easy monitoring and maintenance, and is particularly suitable for campaign operation.

The ANAFIT.CS treatment circulates the wastewater highly efficiently by injecting gas into it, thus reducing its organic load, and therefore its COD value, by up to 95 percent.

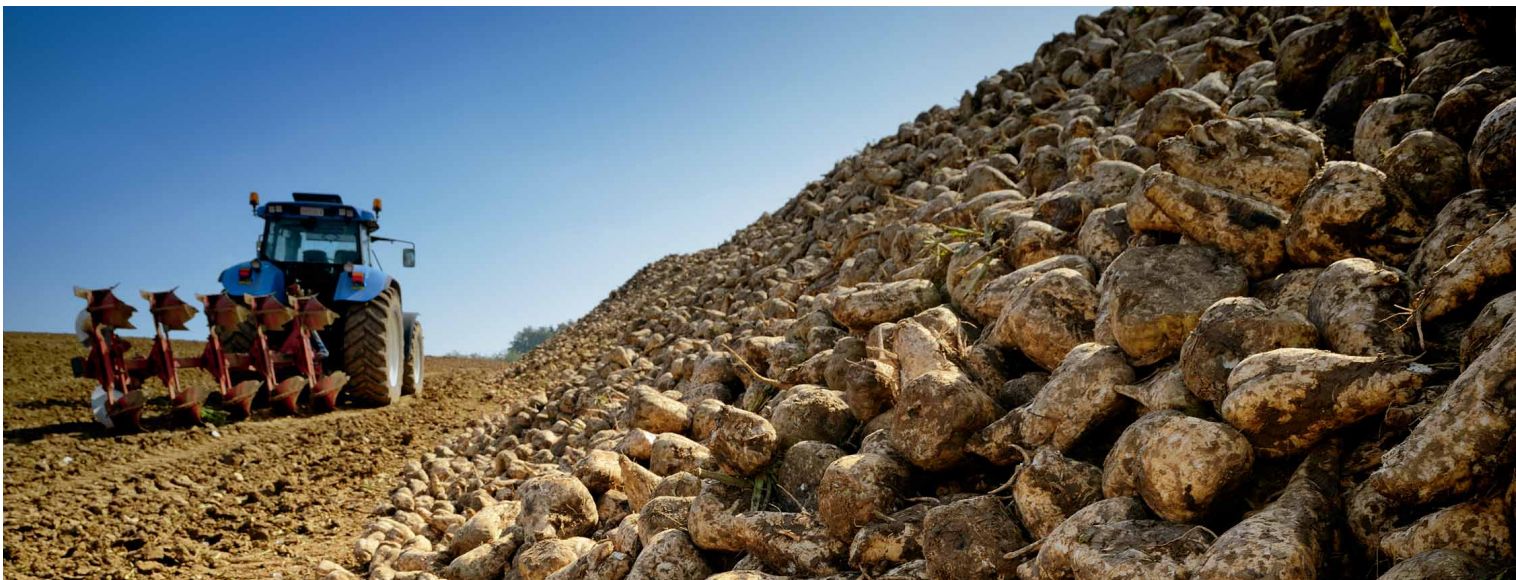
The high degree of homogenisation in the methane reactor guarantees the production of biogas of consistently high quality.

The consistently large proportion of biomass in the methane reactor ensures the stability of the degradation process.

The ANAFIT.CS method is completely unaffected by mineral precipitates, especially calcium carbonate.



ANAFIT®.CS methane reactor with degassing stage and attached operational building for a HAGER + ELSÄSSER customer in Egypt.



References – ANAFIT®.CS

Customer	Country	Year	t COD/d
Delta Sugar Company El Hamoul	EG	2014	57
Nordzucker Polska Chelmza	PL	2013	24
Nobaria Sugar and Refining Co. Ägypten	EG	2012	50
Nordic Sugar Kedainiai	LT	2012	20
Nordzucker Klein Wanzleben	DE	2011	20
Dakahlia Sugar Company, Belkas	EG	2009	30
Tambovskaya, Tambov	RU	2009	36
Konja Seker Fabrikasi, Meram-Konya	TR	2008	30
Nile Sugar Co., Kairo	EG	2008	26
Konja Seker San. Ve Tic. A.S., Konya	TR	2006	30
Povazsky cukor, a.s. Trenčianska Tepla (Mitglied der Nordzucker Gruppe)	SK	2005	29
De Smet S.A./ Orafti S.A. San Petro	CL	2004	25
Konya Seker Fabrikasi Meram-Konya	TR	2004	35
Nordzucker AG, Uelzen	DE	1995	40
Südzucker AG, Zeitz	DE	1993	21
Pfeifer und Langen GmbH, Elsdorf	DE	1991	35
AGRANA Zuckerfabrik Tulln, Tulln	AT	1990	29
Südzucker AG, Groß-Gerau	DE	1990	37
Nordzucker AG, Schladen	DE	1989	28
Pfeifer und Langen GmbH, Lage	DE	1989	35
Südzucker AG, Plattling	DE	1985	35
Zuckerfabrik Jülich AG	DE	1985	30
Südzucker Offstein	DE	1983	23

ANAFIT®.CS thickener, degassing
stage and final clarification stage for
sugar beet production at a HAGER +
ELSÄSSER customer in Egypt



Further available process technologies

BIOFIT®.N

The ideal position for the ANAFIT.CS wastewater treatment system lies between upstream acidification and downstream BIOFIT.N treatment for the safe removal of nitrogen by nitrification / denitrification in an aerobic stage.



Settling basin

HAGER + ELSÄSSER® not only offers the actual wastewater treatment plant itself, but also upstream technologies as preparation stages for wastewater treatment such as settling basins.



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