

## PROCESS

SEMICONDUCTOR

SOLAR

PHARMA

POWER GENERATION

**FOOD & BEVERAGE**

**PULP AND PAPER**

CHEMICAL

**OIL AND GAS**

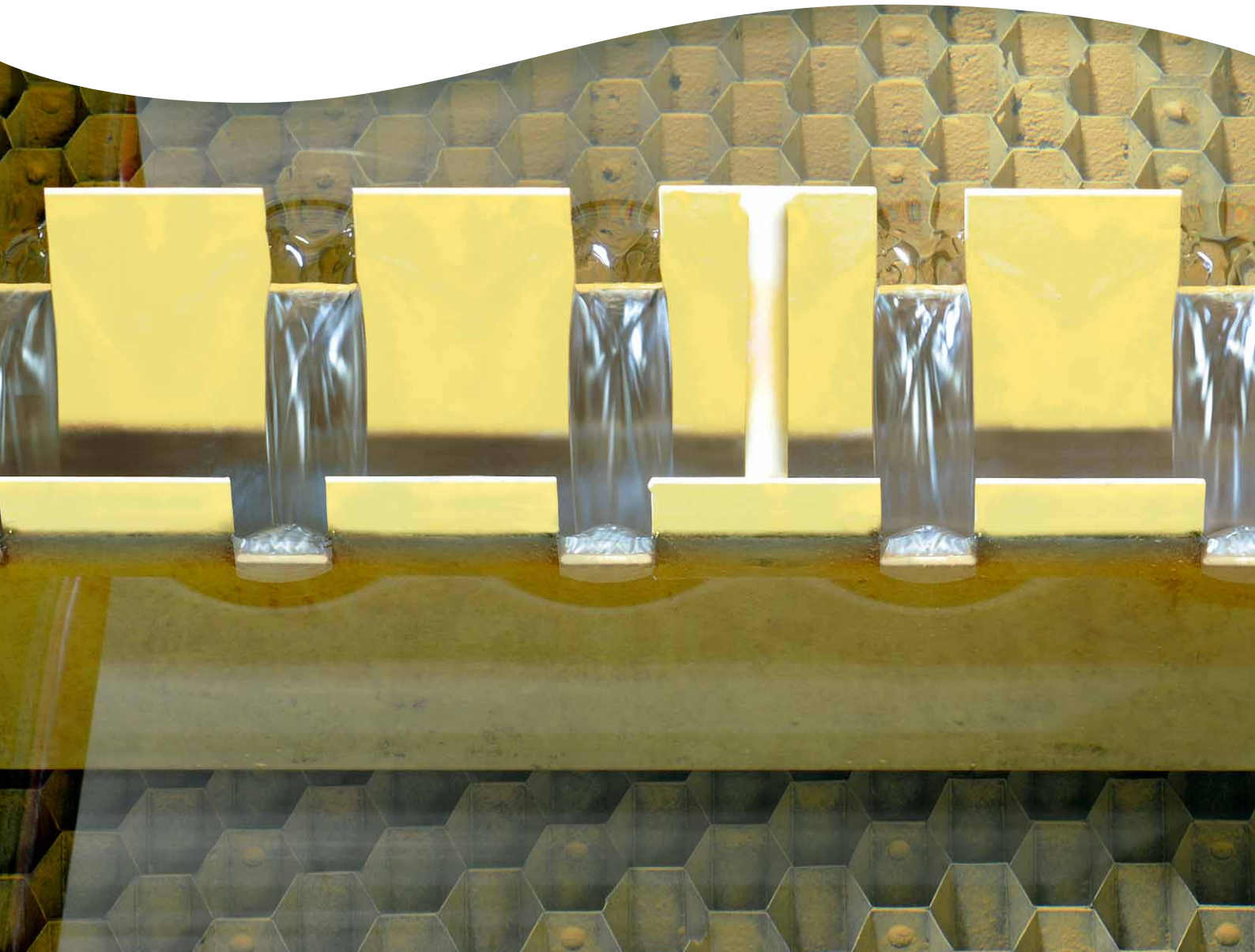
MINING

AEROSPACE AND TRANSPORT



# FLOCOPAC®.L

High performance clarifier with flocculation and sludge thickening





FLOCOPAC®.L is a key process for industrial water and wastewater treatment.

## Optimum clarification results in a confined space

*In industrial process water and wastewater treatment it is often necessary to remove soluble substances that have poor separation properties. Although not very cost- and space-effective, the process of flocculation and precipitation has been shown to work reliably for exactly this purpose.*

FLOCOPAC®.L is a flocculation and precipitation reactor combining several functions that can be used for various clarifying tasks, for example in the food and beverage industry, pulp and paper production, power generation, and oil and gas generation. It is based on

the principle of optimised flocculation and precipitation through contact sludge recirculation and characterised by almost ideal flocculation and a multi-zone clarification, in which specially designed honeycomb modules perform the last step of fine clarification.

# Benefits

FLOCOPAC®.L combines a number of process steps in a single unit and thus saves both space and material cost.

The projected sedimentation surface of FLOCOPAC®.L is 8.6 times larger than its base. This means that the achieved cleansing effect is also considerably greater than using a conventional method with the same surface area.

Its small hydraulic radius and the honeycombed cross section help the FLOCOPAC®.L achieve optimal efficiency.

The higher surface load than used with conventional clarifiers also contributes to a particularly economical operation.

The use of honeycombed modules in the fine sedimentation stage leads to laminar flow conditions which result in an improvement of the separation performance and therefore higher quality treated water. At the same time, they allow a significant scaling down of the sedimentation tank size.

Sludge thickening and even sludge storage can be handled in the sedimentation stage of FLOCOPAC®.L, rather than in a separate tank.

The whole functionality of FLOCOPAC®.L is based on the repeatedly proven process technology of H+E, already used in many projects.



FLOCOPAC®.L in the paper industry

# Process components

*In a single closed system, FLOCOPAC®.L manages the following tasks:*

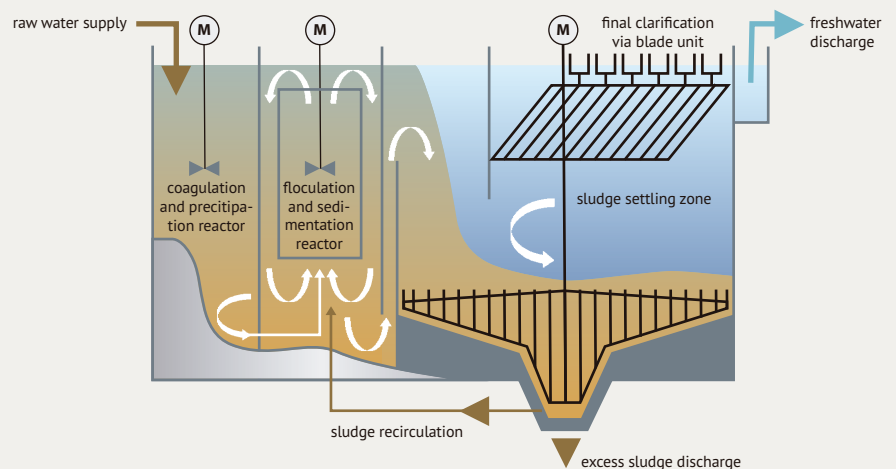
**Coagulation:** The colloids contained in the water normally have identical electrical charges and therefore repel each other. By adding a metal salt this electrical charge is removed; the colloids then agglomerate into micro flakes.

**Precipitation:** The treated water is de-carbonised by adding milk lime.

**Flocculation:** At this stage the actual flocculation reaction takes place through sludge circulation. Long-chain hydrocarbons act as a flocculant.

**Sedimentation:** The mixture of water and flocs is distributed evenly across the entire area of the sedimentation tank and, from here, pass to the settling zone located below the fine sedimentation zone. Most solids, in particular the larger particles, are separated from the liquid in this part of the system.

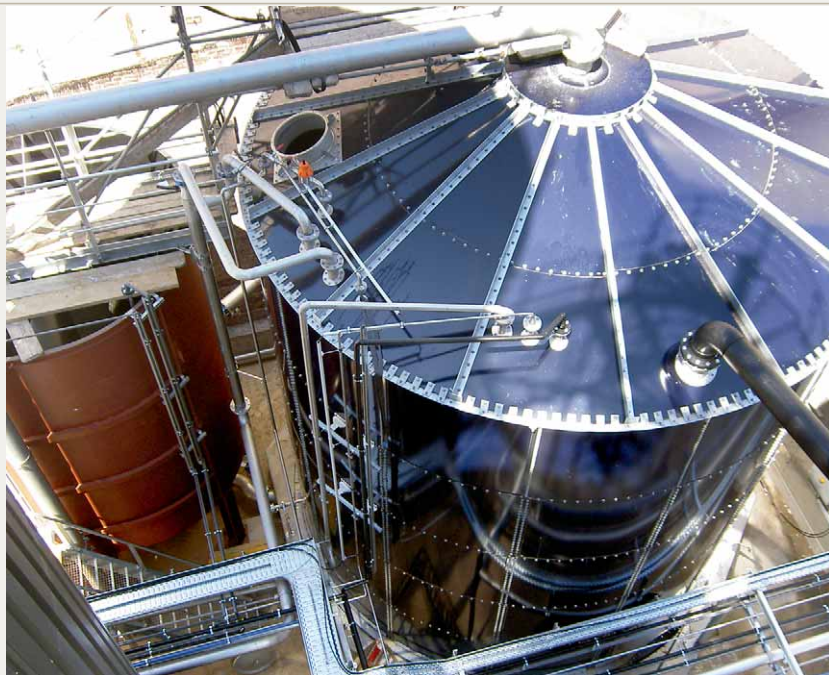
**Fine sedimentation / Clarification:** The roughly clarified water then passes into the fine sedimentation zone with its honeycombed modules fixed at a 60 degree angle, in which highly efficient removal of the remaining solids takes place.



# Further available process technologies

## DECAFIT

Developed by H+E, the DECAFIT method is used mainly in the pulp and paper industry for lime removal from wastewater following anaerobic pre-treatment. Together with the AEROFIT®.V aeration system, FLOCOPAC®.L is a key element in this process.



## AEROFIT®.V

Together with DECAFIT, the AEROFIT®.V medium-bubble aeration system is the ideal choice for wastewater treatment in the pulp and paper industry for waste waters with high lime concentrations.



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