

NATURAL ORGANIC CHEMICALS FOR WASTEWATER TREATMENT

FOTO: PEKELS / PIXABAY



Most industrial production facilities generate wastewater, which has to be treated and purified.

For many years ACAT has been dealing with the various requirements of these cleaning processes.

Usually, the first step of a purification process is the separation of the solids, which is achieved by adding various chemicals. Precipitation and flocculation cause an increase in the density difference between the particles and the liquid phase making separation possible.

Example of a Typical Flotation Plant

For many decades, precipitants such as iron or aluminium salts have been used very successfully for the pre-flocculation to achieve the desired clarity of the solution. But in some

wastewater flows this process could cause undesirable side effects such as a reduction in pH, the introduction of metal ions, or an increase in salinity, etc.

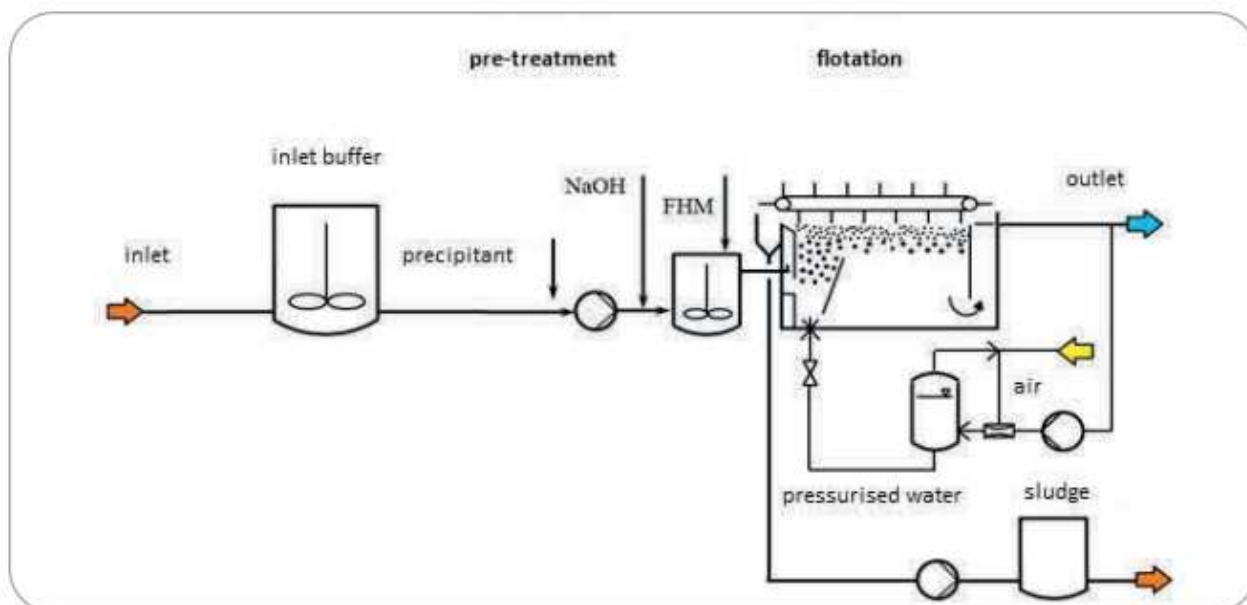
Sometimes the separated solids can be re-used, but the application possibilities are limited due to the use of conventional precipitants.

New Organic Polymers of Natural Origin

Currently ACAT is testing new organic polymers of natural origin.

Natural coagulants are present in two forms, first is plant based coagulants (PBC) and second is non-plant based coagulants. Natural coagulants are produced or extracted from different sources such as microorganisms, animals, or plants.

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FlocStar® N is a range of coagulants composed of natural extracts from plants, algae or animals.

FlocStar® N is based on polymers of natural origin, mainly polysaccharides, substances soluble in water from materials of vegetable or animal origin that act as coagulation and / or flocculation agents. The plant-based coagulants are broadly utilized for the purification of contaminated water.

Advantages of Predominantly Plant-derived Products

The predominantly plant-derived products have many advantages compared to traditional inorganic coagulants:

- Higher efficiency
- No introduction of metals or salts
- Full efficiency in the range of pH 4-10
- Reduced sludge generation

- No change in the pH value, therefore neutralization is not necessary
- Improved dewatering properties and much more

A good example of application is the agri-food sector as it is an important consumer of water for different stages of the process.

One of the advantages of the **FlocStar® N** products for these sectors is that they are metal free and, therefore, do not provide metal to the sludge. Due to the organic nature of the products, a valuable sludge is obtained that can be used in agriculture.

Finally, the quality of the sludge produced is maximized, which optimizes also the amount of biogas produced. With that range of new products ACAT follows the strategy to enlarge the product range with green technology treatment processes for special applications in water and wastewater treatment.

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