


Coagulants

natural products
for water treatment



incopa
www.incopa.org



“Many of us are suffering from the outdated view that there is an unlimited supply of clean water.”

Derk Kuiper, Deputy Director, Global Freshwater Programme,
World Wide Fund for Nature (WWF)

“The freshwater crisis is the most urgent and serious problem to our planet.”


Dr. Klaus Töpfer, Executive Director UNEP

A natural way to treat water

Water. The word gives rise to many associations. The beautiful and wild sea, calm lakes at sunset, roaring rivers, quenching of thirst, refreshing rain, a nice swim, fishing, a hot and relaxing shower. In developed countries we are fortunate to be able to take clean water for granted. Unfortunately this is not true for a major part of the world. And yet it is so simple and inexpensive to provide people with fresh, clean water.

The guarantee for potable water of good quality is the use of coagulants, which are salts based on aluminium or iron. Aluminium and iron are two of the most common substances in the earth's crust.

Coagulants offer a natural way to treat water. Our mission is to get the world to understand this message.



The word coagulant comes from coagulate, i.e. the same process that occurs when blood leaves the body. It is the iron content in the blood that contributes – just as the iron or aluminium in coagulants work when coagulating the impurities in water.

As late as the mid-1800s, water was considered dangerous. Therefore people used powder and perfume instead of soap and water to prevent bad odour.

The start of modern Europe came with the possibilities of better hygiene. Thanks to the use of coagulants people got access to clean water.

Coagulants have been used for thousands of years. The use of such products for water purification is mentioned already in the Bible.

Natural substances

for treatment of water

Coagulants are salts based on aluminium and/or iron, and are used mainly for water treatment and paper manufacturing. The base is aluminium or iron, two of the most common elements in the earth's crust, with a share of 8.1% and 5.1% respectively. Coagulants are produced either directly from ores taken from the crust or via side streams from other production processes in which iron or aluminium ores are raw materials.

Coagulants can be considered completely harmless to the environment and to human beings when properly used. Both aluminium and iron salts are components in pharmaceuticals and are used as food additives as well.

The past

The use of coagulants for water treatment started during the 19th century. Before that water was collected from the environment, normally without any purification. In populated areas, however, access to pure water was scarce, since it was often polluted and was therefore usually considered to be dangerous. With coagulants it was suddenly possible to use surface water as a source to supply society with clean and cheap drinking water.

The access to pure water is a prerequisite for the development of modern society and is still today the most important element of ensuring good health.

Use of water produces waste

The access to good quality drinking water at a very low cost has meant that drinking water is the best and cheapest way to transport waste in the form of sewage to centralised sewage treatment plants where the water is purified before returning it to nature. Coagulants play an important role here too. In modern advanced sewage water treatment

plants coagulants, in combination with biological treatment, not only remove the organic pollutants, but also nutrients. Nutrients like phosphorus cause a secondary pollution problem in the form of algae growth in lakes and rivers. This secondary pollution can be much more serious than the primary one for the life in our waters.

The technique

Using coagulants for water treatment is a very simple process. A small dosage of the salt is added to the water under agitation. Aluminium and/or iron reacts with the water forming a precipitate of hydroxides – so called flocks – absorbing the impurities and chemically binding other impurities like phosphorus. This process is exactly the same that naturally happened in waters in the past.

The hydroxides together with the impurities in the water are easy to remove by gravity in a settling tank, giving pure and clear water as a result.

The sludge coming from the treatment process can be returned to the soil as long as the sludge does not contain harmful substances from the treated water. Aluminium and iron sludge given back to the soil will slowly return to its origin in the crust. We are thus only borrowing from the crust in order to purify water before we give it back in order to close the circle.

We care

about everything around our products

Safe handling and use of chemicals are today on the agenda for all chemical producers. The member companies of INCOPA want to take it a step further and see it as a must to be in the front line regarding development, use and safe handling of its products.

We care about everything concerning our products, from the raw materials throughout the production process to the final products and their end-use. But our responsibility doesn't end there. INCOPA members are voluntarily implementing the High Production Volume (HPV) programme for coagulants. It means that profound studies regarding toxicity and consequences for use have been conducted. Toxicity tests have shown that

even very high concentrations are not giving any negative effects on the environment or human beings.

INCOPA have been pioneers in forming a REACH Consortium. REACH stands for Registration, Evaluation and Authorisation of Chemicals and requires industry to register all existing substances with the European Chemical Agency in Helsinki.

Coagulants are easy to apply. Moreover they are cheap and accessible products. INCOPA's members can guarantee a safe supply from production plants in all European countries. The members of INCOPA are on an annual basis giving more than 250 million people access to good quality drinking water. This is possible at a cost less than 0.50 € per person per year.

Advanced treatment of sewage is achieved by use of coagulants. To protect the environment in sensitive areas, more than 100 million Europeans are connected to advanced waste water treatment at a cost of only around 1 € per person per year.

The coagulants industry is an important receiver of side streams from other production processes in which iron or aluminium containing ores are raw materials. The production of coagulants is thus turning a waste into a resource for the environment.

“Access to water purification using coagulants is the best guarantee for safe and clean water.”

“ Despite good access to coagulants at low cost the lack of water purification in developing countries means that 5 million people die annually of waterborne diseases. ”

“ Access to clean water is the prerequisite for all life and is man’s most important provision. ”

“ More than 1 billion people lack access to a safe water supply. ”



INCOPA,

Inorganic Coagulants Producers Association,
is a Sector Group of Cefic,
the European Chemical Industry Council.

INCOPA is the voice of the European
coagulants producers. Coagulants are aluminium
and/or iron salts used mainly for water treatment
and paper manufacturing. Other customers are the
cement industry and fertiliser producers.

INCOPA supports the organs of the national
and European legislation and the process of
standardisation and harmonisation within the
European Union.

The Sector Group's key objectives are:

- Monitor the regulatory developments within the European Commission with regard to drinking water production, waste water treatment and sludge disposal and provide the Commission with the appropriate information when needed;
- Represent the industry with the regulatory bodies and trade associations active in the field;
- Promote and defend the merits of drinking water production and the treatment of waste water with chemical coagulants by bringing forward evidence of their safety, efficiency and cost effectiveness.

www.incopa.org

This brochure has been offered to you by: