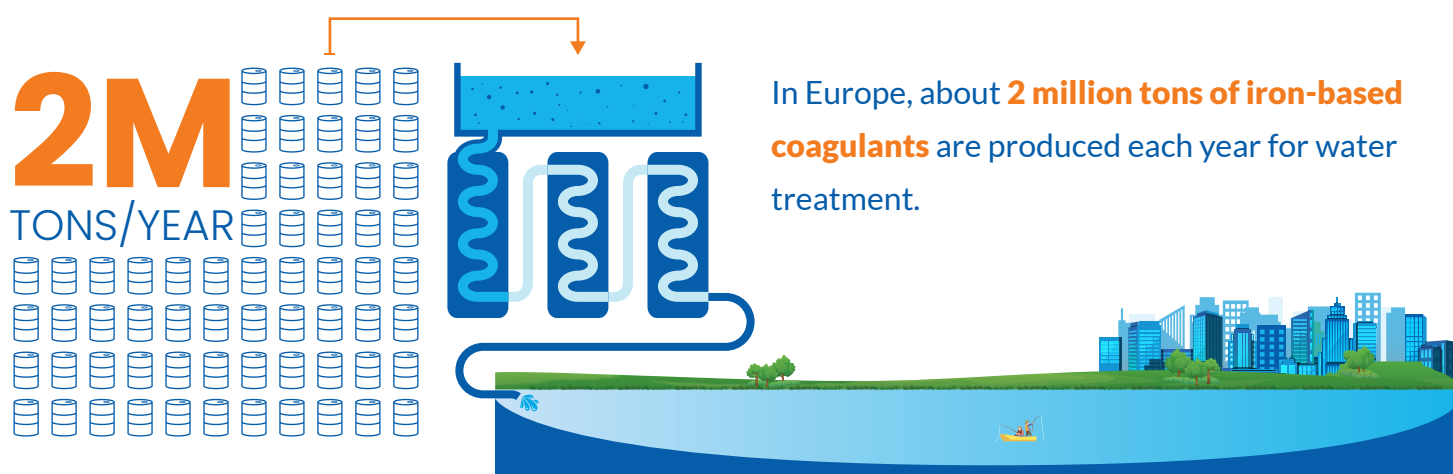


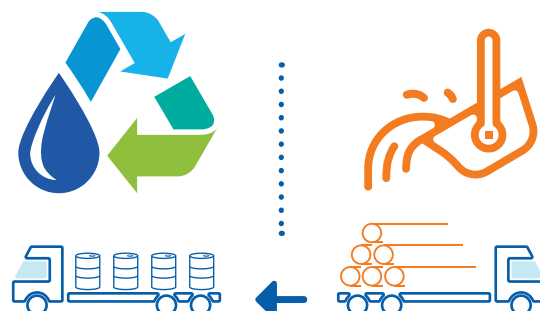
IRON-BASED COAGULANTS: A good example of the circular economy



Iron-based coagulants have been **used for more than 50 years** to treat water by precipitating fine particles and also to remove phosphates that cause the development of algae in rivers and lakes.



Due to the large volume of iron-based raw materials required to produce coagulants, **our sector cooperates with chemical and metallurgical industries** in order to utilise materials from titanium dioxide manufacturing or the steelmaking process.



TITANIUM DIOXIDE INDUSTRY:



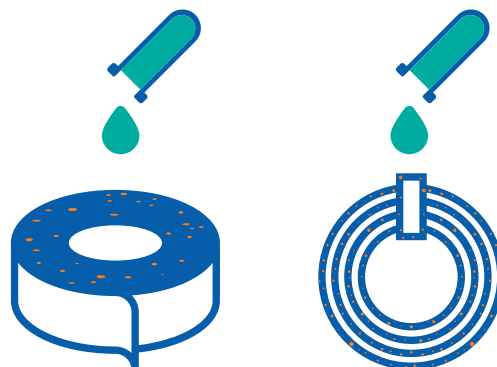
Iron sulfate ($\text{FeSO}_4 \cdot 7 \text{H}_2\text{O}$, “copperas”) is a **by-product of the manufacturing process** for **titanium dioxide** using the so-called sulfate process. The natural titanium ore ilmenite, consisting of titanium oxide and iron oxide, is in most cases the raw material for this process.

Annual **production of copperas in European TiO_2 -plants amounts to 1 M tons/year.**

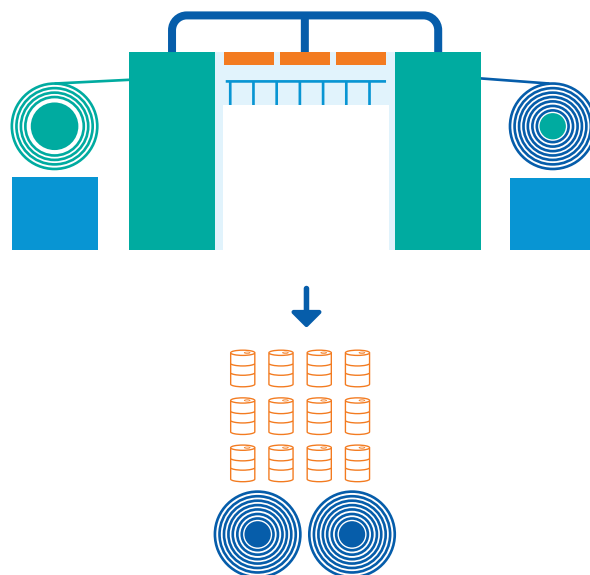
Depending on the iron content of the ore used (ilmenite), the sulfate process yields **up to 4 mt of copperas per 1 mt of TiO_2 .**



STEELMAKING INDUSTRY:

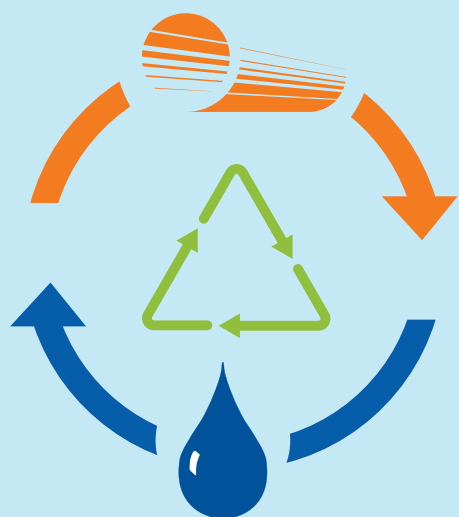


During the complete process, **iron oxides are formed** on the surface of the sheets and coils, requiring acid chemical cleaning before applying a surface **treatment on steel for the automotive, construction and packaging industries.**



This cleaning step generates **large volumes of spent acids containing iron** in solutions from the pickling lines.

These by-products are used as **secondary raw-material** for the production of iron coagulants.



Thus, a valuable long-term and **sustainable material stream** has been developed between titanium dioxide and steel industry on the one hand, and iron-based coagulant producers on the other hand.

By valorising these by-products **we contribute to save our resources**, such as iron ore, and at the same time we produce a key element to treat wastewater and protect our environment.





INCOPA is the European Inorganic Coagulants Producers Association. INCOPA's members manufacture inorganic coagulants (aluminium and iron salts), which are essential elements for water treatment, paper manufacturing, fertilizer production and other industries.



31
PRODUCERS



80
PRODUCTION SITES
IN EUROPE



4
MILLION TONNES
OF IRON AND
ALUMINIUM
COAGULANTS
PRODUCED
PER YEAR



>85%
OF THE EUROPEAN
COAGULANT
PRODUCTION CAPACITY

INCOPA members apply chemistry at its best, contributing to the circular economy and enabling safe and affordable water for all.

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