EISENMANN
Environmental Technology
Member of Deurotech Group

ENVIRONMENTAL TECHNOLOGY
WATER RECLAMATION – SOLUTIONS FOR THE ALUMINUM INDUSTRY

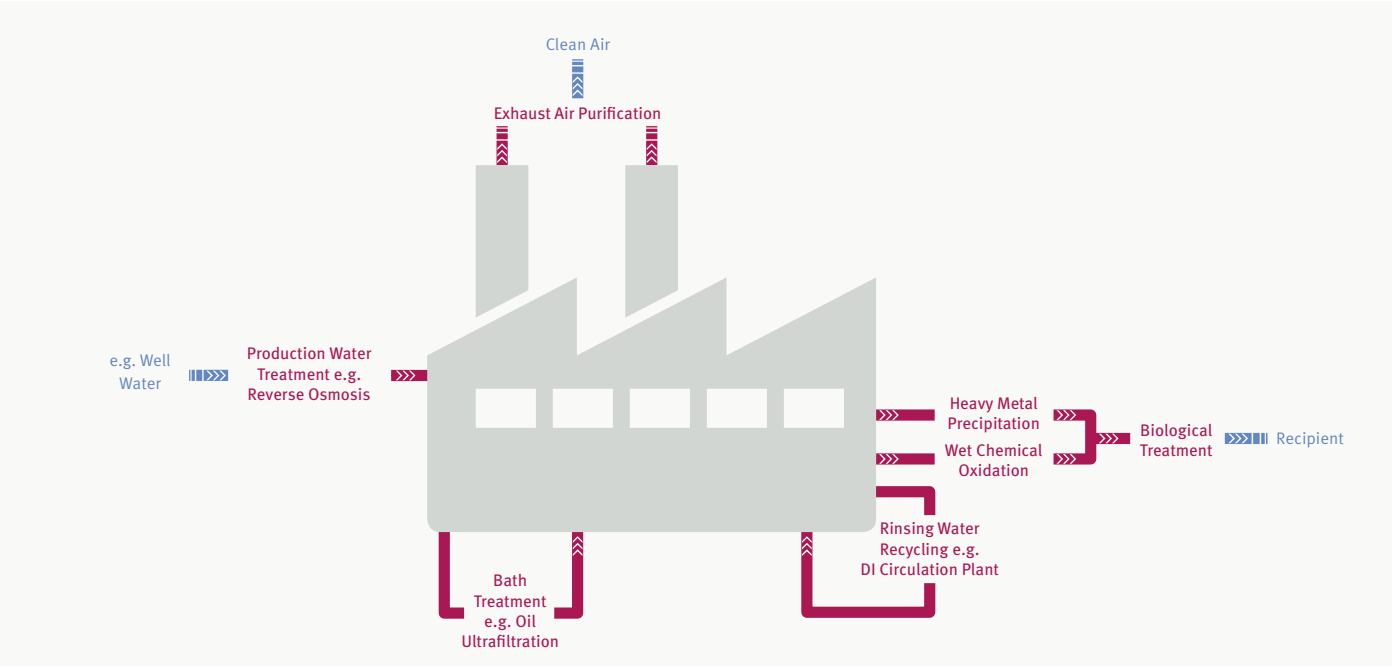
Due to its high stability, its low weight and the relative ease of recycling, the demand for aluminum as a raw material in the automotive sector is continuously increasing. In order to obtain the required attributes, the coils has to be degreased, tempered and etched in various acidic and alkaline solutions.

The subsequent rinsing steps require the use of process water with very low salt content. These streams can be partially re-used after adequate treatment. It is possible to extend the lifetime of the etching solutions by integrating either degreasing systems or ion exchange systems for the selective removal of specific substances.

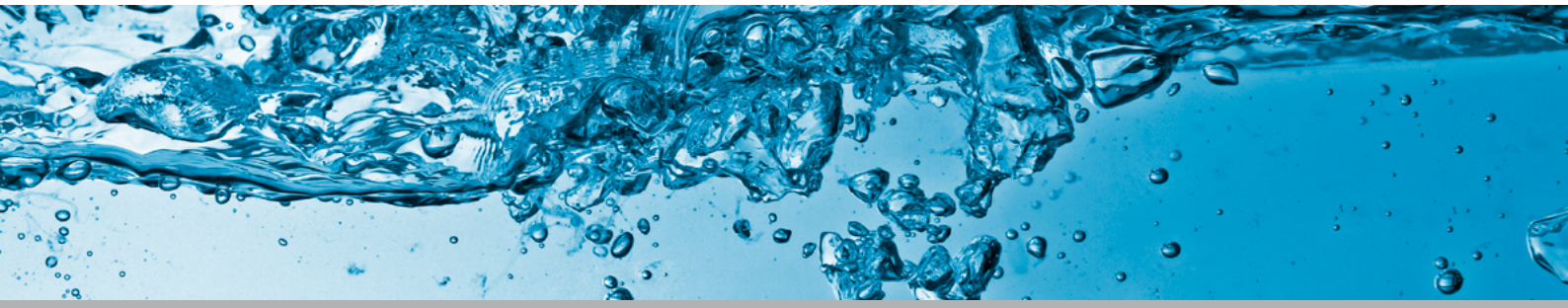
The resulting waste water has to be treated according to the legal regulations for the effluent. Removal of organic compounds from exhaust air streams can be an issue as well. This can be accomplished by a variety of thermal oxidizing steps.

EISENMANN provides a wide range of systems within the environmental technologies spectrum:

- Water circulation and bath treatment
- Waste water treatment
- Production of process water
- Exhaust air purification



Solutions for the aluminum industry.



ENVIRONMENTAL TECHNOLOGY
WATER RECLAMATION – SOLUTIONS FOR THE ALUMINUM INDUSTRY

Water circulation and bath treatment
Oil and grease accumulate in the baths along with the etching particles. By removing these components directly at the site where they occur the total amount of waste water can be reduced substantially. The treated water with relatively low contamination can be used again as rinsing water. The rinsing water with relatively low contamination can be recycled. EISENMANN offers the following:

- **Ultrafiltration system** for the continuous treatment of the de-greasing step
- **Ion exchange systems** for the treatment of the rinsing water. This is usually realized via a very efficient fluidized bed system
- **Selective ion exchange systems** for the removal of single components from the baths

Waste water treatment
The waste water is contaminated by high concentrations of oils, fats and dissolved organic substances as well as heavy metals. In addition, high concentration levels of organic phosphorous might be present. EISENMANN offers the following:

- **Physico-chemical treatment** (neutralization, flocculation, precipitation, sedimentation, filtration and possibly post-treatment) to remove heavy metals, fluoride, chromate, arsenic, nitrate, sulfides
- **Biological treatment** (anaerobic or aerobic) to remove organic components
- For **Oxidation** to remove phosphonic acid or cyanide EISENMANN offers its patented Fentox process
- **Evaporator** to minimize wastewater streams or to comply with ZLD requirements

Production of process water
A conductivity of ‹10 µS/cm is a common requirement for process water. Depending on the raw water analysis and the general requirements, EISENMANN will select the appropriate combination of treatment steps involving the following treatment options:

- Precipitation and flocculation
- Filtration
- Reverse osmosis

Exhaust air purification
Depending on the nature of the system employed it is possible for exhaust air streams to be contaminated with VOCs. EISENMANN offers the following treatment options:

- **Thermal oxidation** if warm air streams can be used
- **Regenerative thermal oxidizers** are especially efficient when exhaust streams with high contamination (g/Nm³) are present
- **Adsorption wheels** to concentrate large volume airflows with low contamination levels

Our solutions impress with a long lifetime, optimal adaptation to the basic parameters and high efficiency but low energy and chemical consumption.

EISENMANN
Environmental Technology

Eisenmann Environmental Technology GmbH | Max-Eyth-Straße 42 | 71088 Holzgerlingen | Germany
Phone: +49 7031 44809-0 | office@eisenmann-environmental.com | www.eisenmann-environmental.com