

Groundwater

We deliver:

- Color removal by iron precipitation
- Most effective manganese removal for taste improvement
- Reduction of scaling in piping and sanitation systems



The Industry Challenge

Drinking water is one of the most controlled and protected food products. It must not only be free of pathogens, germs and toxic compounds, but also of color and smell.

Iron and manganese are drained from sediments and dissolved in groundwater.

Iron ions create a rust-brown color of the water, and a high content of manganese adds a bitter taste.

Additionally, iron and manganese cause precipitation in piping and sanitation systems.

It is therefore essential to remove both metals from drinking water.

Your Solution

A comprehensive gas solution designed for and adapted to your specific needs, **Nexelia™ for Groundwater** combines a specific oxygen quality that's compliant with the EN12876 European standard, application technologies and expert support. As with all solutions under the Nexelia™ label, we work closely with you to predefine a concrete set of results, and we commit to delivering them.

Nexelia™ for Groundwater is an all-in-one gas solution which consists of injecting oxygen into the water to form iron and manganese oxides that can be easily removed by filtration. It encompasses everything from the most suitable oxygen supply, dosing and control cabinet, and injection system such as static mixer.

Your Advantages

▪ Higher purity

The fewer gas bubbles, the larger the adsorption surface available to oxidize and remove iron and manganese in a sand filter. Using pure oxygen instead of compressed air reduces the required gas volume tenfold, which results in fewer bubbles and higher water purity.

▪ Fewer power consumption

The less gas bubbles, the less pressure drop inside a sand filter. As using pure oxygen reduces the formation of bubbles compared with compressed air, the pressure drop is lower – typically 0.45 bar vs. 0.6 bar – which results in a lower power consumption to pump the water from the well to the drinking water system.

▪ Maximum run time

The reliability of our static mixer and its low maintenance, combined with smoother operation, allows for less filter cleaning and risk of blocking.

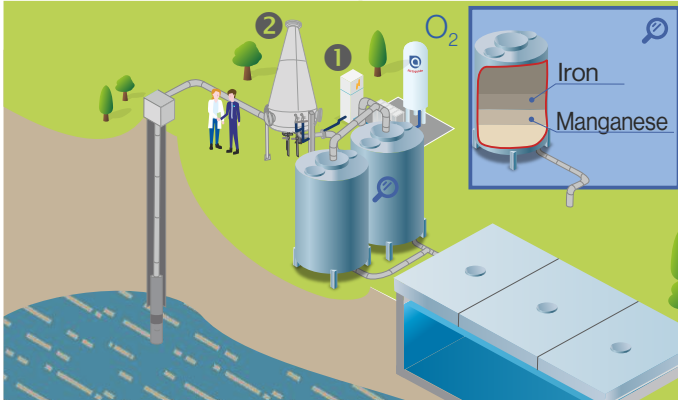
▪ No smell or corrosion

When using compressed air, which provides a constant flow rate, oxygen dissolution decreases as filtration generates an increasing pressure drop. Using pure oxygen ensures that the dissolved oxygen content is above the regulated lower limit of 5 mg/l whatever the pressure drop in the filtration process. This avoids bad smell at the tail end of the water system and its corrosion.

Core Features

Nixelia™ for Groundwater consists of:

- **Oxygen supply** in liquid storage.
- **Application technologies:**
 - The **GAS CONTROL CABINET (1)** is a valve train unit, which is suitable for gas injectors to control electrical motors up to 22 kW / 45 A when required and a dosing system to inject up to 200 kg/h.
 - The **BICONE (2)** is able to solubilize oxygen (O₂) into water with a very low pressure drop less than 0.2 bar.



All systems are installed quickly and easily. The **GAS CONTROL CABINET** is placed close to the point of injection and can be operated either as stand alone system or an integrated one in your process control system. It contains all safety and emergency functions.

You benefit from full support of our water treatment experts, from the auditing of your current system capacity to the preliminary and detailed designs, as well as the complete implementation in just a few days, which includes commissioning, monitoring and maintenance.

Case Study

- **Customer need: removal of iron and manganese from groundwater**
 - Water flow rate up to 1 200 m³/h
 - Specific oxygen enrichment: 6-7 mg/l
- **Our solution:**
 - Pure oxygen injection into the water from the well
 - Implementation of an **BICONE (BC900)**
- **Benefits:**
 - Iron removal from 6 mg/l to less than 0.2 mg/l and manganese removal from 1.6 mg/l to less than 0.05 mg/l, which is safely below the limits of the EU drinking water directive 98/83/EG.
 - 15% reduction of power consumption
 - 20% more hydraulic capacity during peak flows

Related Offers

- **Nixelia™ for Water Purification**
- **Nixelia™ for Remineralization**

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