



ITT

Water & Wastewater

# Ozone System WEDECO SMO/SMA series

The Benchmark for Ozone Generators



*Engineered for life*

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# The Benchmark for Ozone Generators

**WEDECO, as the world's leading brand for ozone systems, sets a benchmark in the field of compact ozone generators.**

Compared to conventional systems, the design of the WEDECO SMO/SMA series meets even greater demands by providing completely integrated systems in the production range of 200 - 20,000 g O<sub>3</sub>/h.

The ozone production vessel, power supply unit and control systems are installed on a compact, packaged skid requiring only the connections of services to complete the installation. Since all pipework, instrumentation and cabling are fitted and tested prior to delivery of each WEDECO EFFIZON®HP ozone generator, it significantly reduces the installation and start-up time required on site by 60%!

All WEDECO products fulfill the requirements for ozone generation systems used in water treatment in accordance with European Standard CEN EN 1278 and

German Industrial Standard DIN 19627. The equipment has TÜV certification [pressure vessels] and the electrical systems are in accordance with VDE [Association of German Electrical Engineers] standards.

All WEDECO SMO/SMA ozone generators are fitted with patented EFFIZON®HP electrodes providing efficient and reliable generation of high concentration ozone from oxygen or dry air feed gas. Typical production turndown is from 1% to 100%.



Power supply unit including medium frequency converter and high voltage transformer

## ADVANTAGES of SMO/SMA series

- ▶ Highest efficiency at guaranteed ozone production
- ▶ High operational reliability
- ▶ "Plug and play" systems (completely mounted and instrumented)
- ▶ Robust design for operation under rough ambient conditions
- ▶ Easy installation & operation
- ▶ Enclosure protection class IP 54
- ▶ Certified factory test prior to delivery
- ▶ 10 years replacement warranty on EFFIZON® HP electrodes
- ▶ Low-maintenance
- ▶ CE-Certificate

Air conditioning systems for electrical cabinets

**Standard ozone system SMO 800**



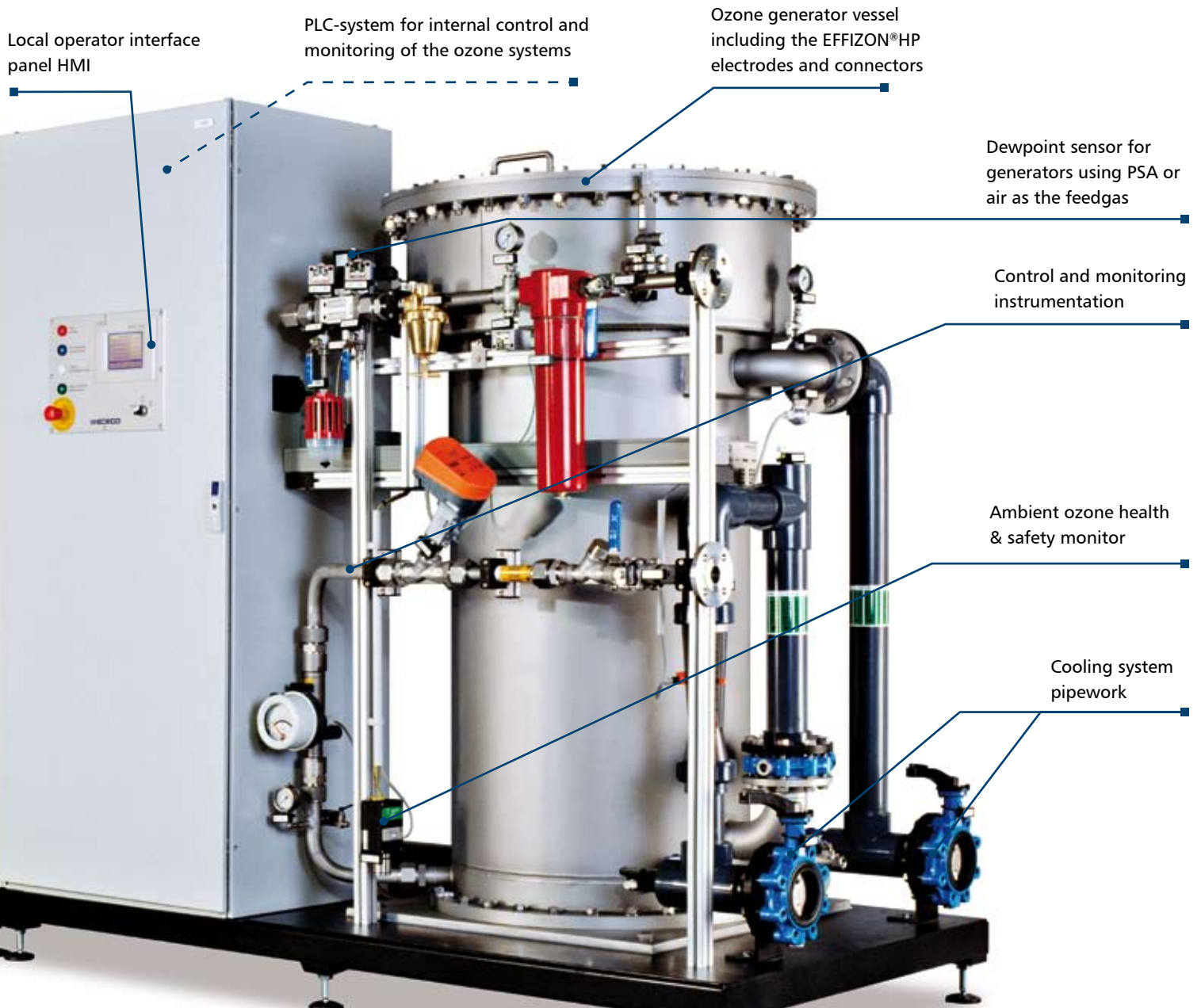
# Unique EFFIZON® HP Technology

EFFIZON®HP technology provides the most efficient and reliable ozone production element available in today's market! As a result of this robust design, ITT Water & Wastewater offers a 10 year replacement warranty on their production elements and ensures that there are no requirements for routine cleaning or regular replacement of the electrodes, as required by conventional systems.

Reduced energy costs and less maintenance in connection with extremely high plant availability are some of the considerable benefits for operators of WEDECO ozone systems.



**WEDECO EFFIZON® HP electrode**










**Standard ozone system SMO 100**



A number of options are available for control of the process which can be incorporated into the package during manufacture. All necessary instrumentation, PLC logic etc. will be included to provide the required level of control.

In addition customer specific control philosophies can be accommodated on discussion with ITT's design department in Herford.

**Options for WEDECO SMO/SMA systems**

<p><b>Containerized systems</b></p>		<ul style="list-style-type: none"> <li>• Insulated, lighted and painted container</li> <li>• Complete alarm and safety concept acc. to international standards</li> <li>• Electric heating and ventilation fans</li> </ul>
<p><b>Network communications / Electronic process control</b></p>		<ul style="list-style-type: none"> <li>• Profibus, Modbus, Ethernet, etc.</li> <li>• Operation panels</li> <li>• Overall process control and SCADA systems</li> <li>• Remote access / maintenance</li> </ul>
<p><b>Instrumentation &amp; Control systems</b></p>		<ul style="list-style-type: none"> <li>• Ozone concentration control</li> <li>• Ozone residual in water</li> <li>• Redox</li> <li>• Alarm monitoring and indication</li> </ul>
<p><b>Feed Gas supply systems</b></p>		<ul style="list-style-type: none"> <li>• PSA-oxygen (Pressure Swing Adsorption)</li> <li>• Air preparation comprising air compressor, desiccant dryer, filtration</li> </ul>
<p><b>Ozone mixing and contacting equipment</b></p>		<ul style="list-style-type: none"> <li>• Side stream injection systems</li> <li>• Fine bubbles diffusers</li> <li>• Closed reactors</li> <li>• Reaction and degassing tanks</li> </ul>
<p><b>Ozone destruction systems</b></p>		<ul style="list-style-type: none"> <li>• Catalytic ozone destructors</li> <li>• Thermal ozone destructors</li> <li>• Blowers</li> <li>• Demisters</li> </ul>
<p><b>Cooling water supply systems</b></p>		<ul style="list-style-type: none"> <li>• Air / water cooled chiller units</li> <li>• Heat exchangers</li> </ul>



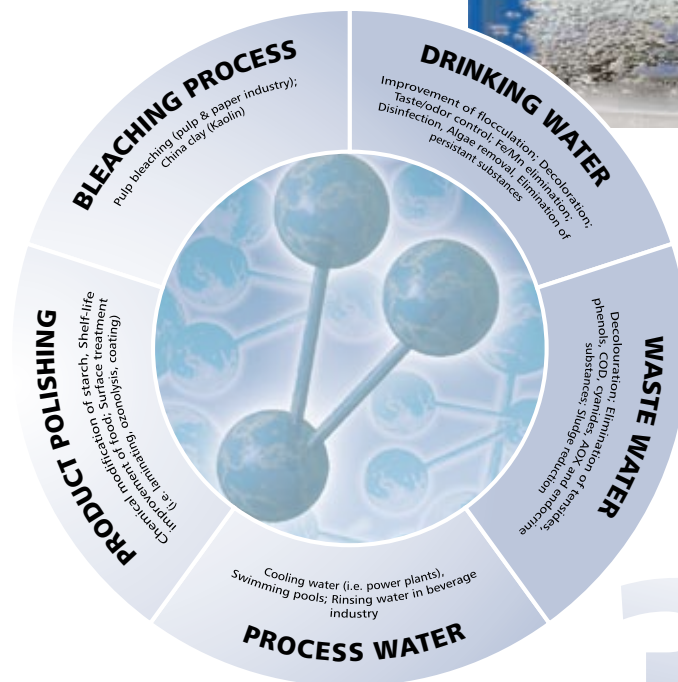
## Ozone in Use

Ozone is one of the most powerful technically produced gaseous oxidants. It is eminently suitable for treating water and industrial products. Its great advantage is its environmentally friendly mode of action. Pollutants, coloured substances, odours and microorganisms are directly destroyed by oxidation, without creating harmful by-products or significant residues.

By decomposing to oxygen as it reacts, ozone provides a cost effective and environmentally friendly alternative to halogenated oxidants (i.e. chlorine), absorption (i.e. activated carbon) or separation processes (i.e. reverse osmosis).



**Ozone introduction:**  
Once inserted into water ozone breaks pollutants down by oxidising them effectively



# 3

### ADVANTAGES OF OZONE

- ▶ Ozone eliminates bacteria, viruses and most other organic and inorganic contaminants
- ▶ Ozone can significantly reduce levels of critical chemicals such as chlorine
- ▶ Ozone acts as a microfloculant aiding in the removal of minerals such as iron and manganese
- ▶ Ozone leaves neither chlorinated by-products nor unpleasant chemical taste or smell
- ▶ Ozone is generated on site and on demand from air/oxygen and energy
- ▶ No storage & handling of chemicals

### The Oxidative Action of Ozone

Ozone reacts quickly with a large number of compounds. In doing so these compounds are attacked either directly by the ozone molecule or indirectly by the intermediately occurring hydroxyl radicals. Preferable the ozone is completely consumed in this reaction process, releasing only oxygen. In case of remaining ozone in the off-gas these residues are converted to oxygen by a residual ozone destructor. By combining ozone with UV or peroxid advanced oxidation processes are formed which are able to mineralize even most persistent substances. These advanced oxidation processes (AOP) help to render other, previously non-degradable, water pollutants harmless.



North and South America. Headquartered in Sweden, ITT Water & Wastewater has 5,800 employees and turnover exceeding \$1.6 billion (2007). The company is wholly owned by the ITT Corporation of White Plains, New York, supplier of advanced technology products and services.



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