OZONIA

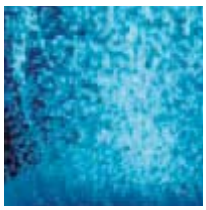
COP-CFV™ & COP-XF™

Containerised Ozone Generation Systems

HEADWORKS
BIOLOGY
SEPARATION
MEMBRANE
▶ DISINFECTION
BIOSOLIDS
SYSTEMS








OZONE | LOW COST | EFFICIENT | COMPLETE

← Applications

Containerised systems to all specifications for:
- **Drinking water treatment**
- **Waste water treatment**
- **Pulp and paper processes**
- **Cooling water systems**
- **Cooling tower applications**
- **Ozonolysis**
- **Leachate treatment, etc.**

In order to meet clients' demands for larger turn-key and fully assembled standard plant concepts, Degrémont Technologies can supply a range of containerised systems to complement their larger bespoke ozone systems as used in high-profile disinfection plants.
These containerised systems are based on the highly successful OZAT® CFV™ and XF™ bespoke ozone generators fitted with state-of-the-art dielectrics and can be supplied with all the necessary ancillary equipment required to meet the client's specification and requirements. These stand-alone type plants are built to a very high industrial standard.

MAIN FEATURES

→ **Typically, larger ozone generation plants are installed in purpose-built buildings involving high capital expenditure.**

→ **Equipment can be installed by Degrémont Technologies in box-containers.**

→ **Containers with generator unit capacities to over 250 kg ozone per hour can be supplied to meet all types of specifications and application criteria.**

OZONE GENERATION TECHNOLOGY: COP-CFV™ AND COP-XF™

Degrémont Technologies' ozone generation equipment offers users market-leading performance and well-proven design/technology for generating ozone. The main features are set out below - many of these are unique to Degrémont Technologies:

- Compared to glass dielectrics, ozone can be generated at much higher concentrations which dramatically reduces feedgas consumption and operating costs.
- Ceramic dielectrics are more robust than glass.
- The operating voltage of approximately 4000 V is lower than that of glass.
- Each dielectric element is tested at over twice the operating voltage before installation – glass cannot be tested in this manner.
- Degrémont Technologies' system of individual fuses for each tube is still employed ensuring that a single dielectric failure does not shut down the generator. Without this protection, projected dielectric failure rates equate directly to generator downtime.
- Vessels are compact as a result of the high ozone production per unit area of electrode and contain fewer tubes than glass systems.

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THE CONCEPT

The Containerised Ozone Plants have the same outstanding features as Degrémont Technologies' other bespoke plants, when it comes to product quality and are capable of producing ozone at very high concentrations from oxygen and air feed gas.

The technical features of the systems are exceptional:

- Very compact dimensions
- Integrated controls
- Very simple installation
- Oxygen or air feedgas
- High ozone concentrations
- Robust industrial quality
- High reliability and safety
- Stand alone design
- Minimum civil/building work

Ozone generator and pipework installed in container

Although designed and built to a tight budget there is no compromise when it comes to quality. Only components and materials which will ensure a long and reliable service life have been chosen.

In order to ensure long service intervals with very low maintenance, stainless steel components and ozone resistant materials have been selected for the piping and contacting system. The integrity of these systems is suitable for harsh conditions in industry or use with potable water or foodstuffs. The container itself is special in its own right and complies with most governmental specifications. Fitted with lighting, heating and internal cooling, the system leaves nothing to be desired when it comes to standing-up to all types of ambient conditions.

Complete plant seen from the outside

Scope of Supply - plant concept

The equipment supply for a container plant is divided into four sections:

- Ozone generation equipment
- Ozone contacting or mass-transfer equipment
- Feedgas preparation equipment
- Cooling water chiller equipment

Ozone Generation Equipment

This is essentially the basic or main supply and includes:

- Container(s)
- Ozone generator(s)
- Ambient analyser
- Container cooling system
- Control cabinet
- Power distribution
- Piping and fittings
- Wiring and fittings

Product Highlights

→ Fully assembled and tested
→ Minimum installation time
→ Minimum civil works
→ No building costs
→ Highest industrial quality
→ Optimized power consumption
→ Fully engineered concept
→ Backed by Degrémont Technologies' service

Depending on the application in question, the basic supply is to be complimented with additional equipment:

Ozone Contacting or Mass-Transfer Equipment

There are 3 main ways of introducing ozone to a medium: either with an injection system, porous diffusers or a radial diffuser.

After the mass transfer has taken place, both systems require a reaction volume/time to enable the designed reactions to take place. Contact times between 4 and 20 minutes are quite normal in ozone applications. Because these reaction volumes are normally made of concrete and, consequently, fall into scope of the building contractor, they are not included in Degrémont Technologies' scope of supply.

Feedgas Equipment

The ozone generators installed in the special housing can be fed with either DRY AIR or DRY OXYGEN depending on the amount of ozone gas required and, to a certain extent, the ozone concentration. Typically, the dry air is produced on-site with a suitable compressor and dryer arrangement and the dry oxygen is drawn from a LOX or PSA/VSA system.

Cooling Water Equipment

This equipment will be required when the specified amount or quality of cooling water is not available on-site.

The chiller unit is typically supplied as a separate unit for installation outside the container. All other components will be installed inside.

Ancillary Equipment

In order to give clients the best possible service, Degrémont Technologies also markets and manufactures ranges of ancillary equipment. This equipment has been especially selected or designed to match the service parameters of the COP-CFV™ and COP-XF™ ranges of ozone generators.

Installation / Service

N.B.: The plant housing has been designed for outside service. However, if the container will be exposed to extended periods of extreme temperatures, in direct sunshine, it will be necessary to locate the equipment under a cover similar to a carport.

TECHNOLOGICAL ADVANTAGES AND HIGHLIGHTS

Prospect of a "green" chemical environment with ozone

Ozone is not only useful for disinfection, it is equally useful for synthesis purposes.

The advantages that ozone offers are manifold:

- A high reaction yield
- No waste products

With these benefits, ozone has a considerable - but to date little used - potential as the "green" chemical for all applications involving an oxidation process.

The applications for the new COP-CFV™ & COP-XF™ range of plants are countless. To name but a few:

Drinking Water Plants

The COP units represent a compact and complete standard solution and will be of special interest to clients operating drinking water installations such as those found on remote sites without a great deal of infra-structure.

Paper Industry

Ozone is extremely popular in the paper industry where one of its main uses is for the bleaching of the pulp both ECF and TCF. It is also used extensively for the treatment of the waste liquors.

Waste Treatment

Legislative pressure is forcing industry and municipal bodies to improve the quality of the waste before discharging to the environment.

Fish Hatcheries and Farms

To protect valuable stocks against water borne micro-organisms or pollutants and, at the same time, to increase production rates and quality levels.

Water Circulation Systems

In industry, i.e.: for washing foodstuffs prior to packing; the recovery of steep water in maltings; etc. Ozone in conjunction with filtration is an effective combination to treat many problems.

Influent Water Treatment

There are many applications where companies treat the incoming water from the municipal source to establish and maintain a consistent quality specification. Ozone, combined with granular activated carbon, results in a perfect treatment step.

Cooling Water Treatment

Ozone is an excellent biocide in circulating cooling water systems. With the move towards favourable solutions and the legislative pressure to reduce harmful emissions, operators and service companies are being forced to look for better means of keeping systems clean.

Technical Features

- → Low power consumption
- → High efficiency
- → Long service life
- → Low maintenance
- → High availability
- → Small footprint
- → Fully assembled and tested
- → Degrémont Technologies' quality

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DEGREMONT TECHNOLOGIES QUALITY AND CERTIFICATION

Degrémont Technologies operates a Quality Management System covering all aspects of business activity.
The system is supervised by a QA manager and is subject to regular internal audits and annual certification by the company Bureau Vertitas.

Ozone generator

The inside of the container showing the electrical power supply and control equipement

Typical containerised ozone generation systems

HOTLINE SERVICE

Take-over……. and then?

Having placed their trust in Degrémont Technologies' equipment, it is only logical that clients expect a professional and competent after-sales service plus technical assistance in cases of emergency. Degrémont Technologies has the structure to ensure that clients get the best support.

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