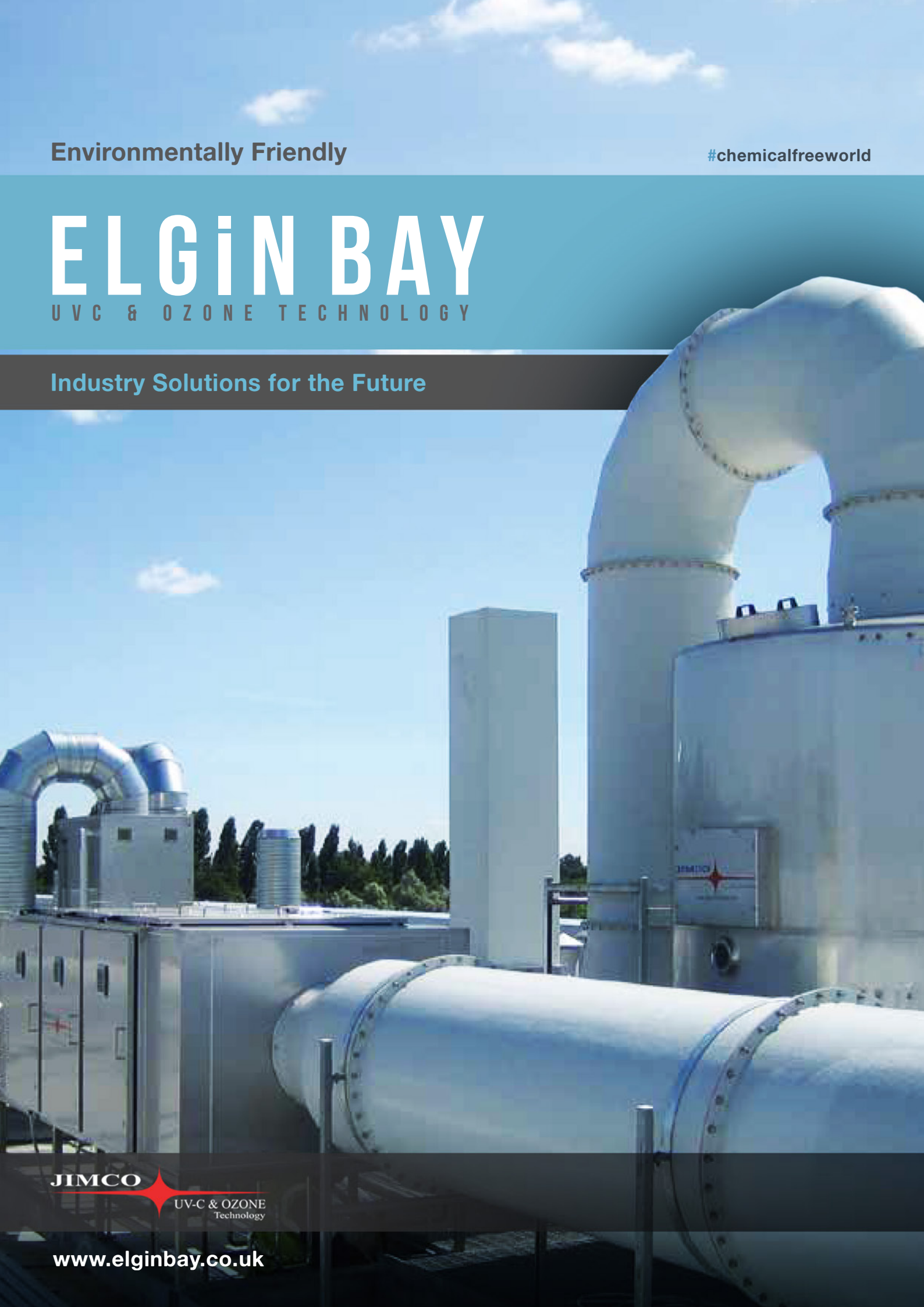
Environmentally Friendly

#chemicalfreeworld

ELGiN BAY

UVC & OZONE TECHNOLOGY

Industry Solutions for the Future



JIMCO UV-C & OZONE Technology

www.elginbay.co.uk

Air Treatment

ELGiN BAY
UVC & OZONE TECHNOLOGY

Innovation and Drive

Jimco A/S is the company behind some of the world's most unique air and waste-water purification and sterilisation solutions.

Since designing its very first air-cleaning unit in 1993, Jimco A/S has not looked back. Today, the company supplies its products to a large number of industries and institutions worldwide. Its customer base comprises factories within the food industry, commercial kitchens, waste-water treatment plants, schools and nursing homes. In brief, Jimco A/S undertakes all types of projects – large and small.

Jimco A/S combines common sense with innovative thinking as the basis of the company's unique products. It is no coincidence that Jimco A/S supplies air-treatment units to some of the biggest chains in the world – including McDonald's, Scandic Hotels, McCain, Danish Crown etc.

Functional Products

The original air-treatment plants produced by Jimco A/S combine two important properties for any large-scale kitchen or manufacturing business. At the same time as eliminating any odor in the air, they also break down the grease and oil deposited in the ducts.

In practice this means that Jimco A/S offers an easy and effective way of treating air both inside and outside buildings. At the same time, the reduction in air pollution reduces the risk of fire by up to 95 percent.

Jimco A/S is continuously developing new products to meet the ever-changing requirements of the times. For example, increased focus on the importance of a good indoor climate has inspired Jimco A/S to develop a special air-sterilization system which can be used anywhere – in kindergardens and schools, in museums, hospitals and nursing homes. In brief, in any place where clean air and the breakdown of bacteria of material importance.

The Technology

ELGiN BAY
UVC & OZONE TECHNOLOGY

Process Air Without Microorganisms

Using UV-C Technology, JIMCO A/S has specialised in the elimination of microorganisms and odors.

For a number of years, JIMCO A/S has developed and manufactured air-cleaning systems especially for the reduction of grease and aromatic compounds in exhaust air with high temperatures (frying, boiling and deep frying processes).

JIMCO systems are based on UV-C & Ozone Technology that results in cold incineration of organic matter from a process called photolytic oxidation. The process leaves no harmful residues.

Due to increasly higher hygiene demands in the food processing industry, the use of UV-C light to eliminate microorganisms e.g. bacteria, fungi and vira is becoming more and more commonly used.

Using UV-C light to eliminate microorganisms in the air is a technique that has been known for decades. UV-C light reduces the total amount of microorganisms in the room by breaking the DNA bonds in the organisms.

In the food processing industry, intake of disinfected fresh air together with bacteria-killing lamps installed in the air ducts of coolers has a huge effect (coolers for bread is just an example).

UV-disinfection – based on an exact calculated radiation rate – keeps the process air free of microorganisms and thus complies with local regulations.

Sterilizing up to 99.9%

JIMCO UV-C sterilization enhances the hygiene standards.

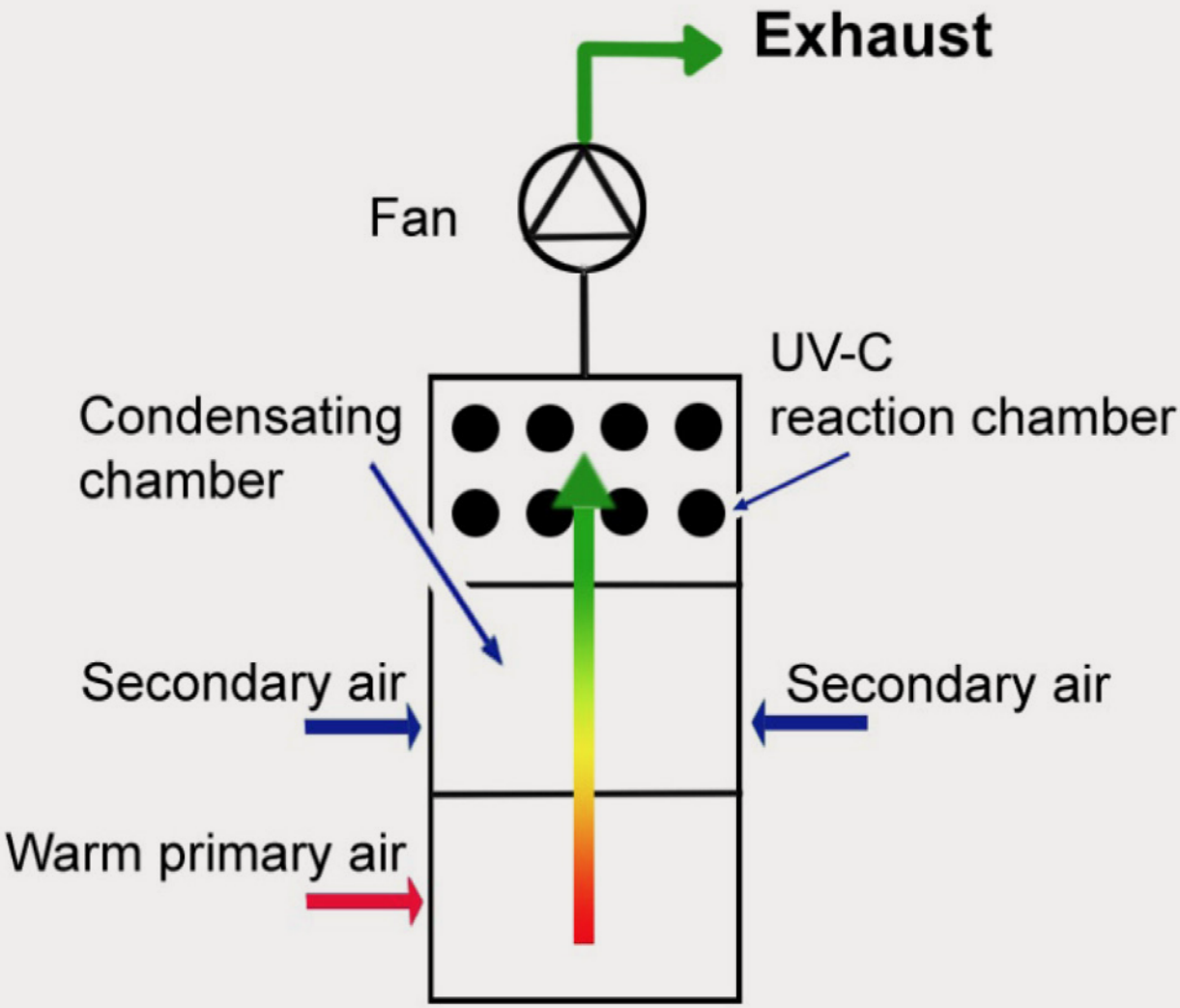
A minor contamination with microbiology spread by air handling systems commonly used in the production areas may result in a faulty commodity or a recall of the goods – expensive measure for the company.

To avoid this, a steadily increasing number of companies decide to sterilize the process air with UV-C light.

Depending on the calculated UV-C dosage, a kill rate of 99.9% of all microorganisms may be achieved. Together with the PLC-control, special UV-C probes developed by JIMCO A/S, ensure that the UV-C light is 100% effective.

Beside sterilizing the room air, UV-C sterilization may also improve the hygiene standard considerably in other processing areas (e.g. conveyer belts in cutters) or during packaging processes (conveyer belts, wrapping films etc.).

The Process



Step 1:

Warm contaminated air (primary air) enters the lower part of the unit.

Step 2:

The primary air passes through a maze filter resulting in the separation of large grease and water droplets.

Step 3:

Primary air is cooled by mixing it with secondary air from the room (e.g. via a spot exhaust from a production line). The mixed air then passes over a bank of condensation blocks causing further grease/water separation from the air stream. This reduces power consumption during the photolytic oxidation process.

Step 4:

The Photolytic oxidation process is achieved using special low-pressure UV-C lamps that also generate a small quantity of ozone. Exposure to UV-C light breaks down organic compounds in the air and subsequent treatment with ozone completes the oxidation process.

Areas of use

Examples

of application of Jimco Air Cleaner units in production facilities

Food Industry

- Fast food products
- Fishing products
- Abattoir products
- Bread products
- Chips products
- Sterilization / disinfection

Municipal facilities

- Central waste-water treatment plants
- Pump wells
- Composting plants
- Landfills
- Sludge driers
- Slurry pumps
- Sterilization of returns

Animal husbandry

- Sterilization of incoming air in chickensheds
- Cast from stables

Animal destruction

- Meat and bone flour production

Feedstuffs

- Production of animal feed
- Fishmeal – and fish oil production

FLO-K System

ELGiN BAY
UVC & OZONE TECHNOLOGY

JIMCO Air Cleaning System Type FLO-K

JIMCO Air Cleaning System type FLO-K is used for a large number of different applications with air temperatures lower than 45°C.

The FLO-K system does not require secondary air to cool the primary air to be treated. The process is called photolytic oxidation, which means the contaminated air is subjected to a combination of UV-C light and ozone. The contaminants in the air are oxidised, or cold incinerated.

Odors and organic particles contained in the air are reduced to an absolute minimum. The typical reduction in OU/m3 is in the region of 90–98%.

The reaction chamber of a JIMCO FLO-K system is made of acid-proof stainless steel (316) and contains a number of JIMCO Photozonelamps™. These are dimensioned for the volume of air you wish to clean.

The FLO-K system can be specially designed for tasks where there is ammonia in the exhaust air.

The system is a combination of scrubber and photolytic oxidation unit. The scrubber is made with automatic pH-adjustment as ammonia is easily precipitated in water with a low pH-value.

This type of system is very suitable for the cleaning of exhaust air from compost plants, central sewage stations, biogas plants etc.

A newly developed product has made it possible to clean the air exhausting from smoking ovens very successfully. Experience and analyses have shown that a cleaning effect of approx. 95% can be achieved.

The UV-C & Ozone technology is used in conjunction with a catalyst containing activated carbon. Tests have shown that excess ozone produced by the FLO-K System regenerates the activated carbon elements.

ELGiN BAY
UVC & OZONE TECHNOLOGY

FLO-K

FLO-K systems are manufactured and supplied for various tasks. The system can be installed in a common exhaust duct from various processes used in the production of for example precooked dinners.

It can be designed to treat an airflow from: 0-55,000 M3/h.

JIMCO industrial systems are normally equipped with PLC-controllers incorporating modem links and alarm signals.

JIMCO FLO-K systems can be used in conjunction with automatic CIP cleaning systems. The CIP system is controlled from the PLC-controller to programme the cleaning sequence to your requirements.

JIMCO and CIP suppliers have jointly selected the best environmentally friendly detergents for the cleaning process.

There are numerous applications for the JIMCO FLO-K system, e.g. in:

- Public sewage / waste-water plants
- Pumping stations
- Food processing plants
- Grain and feedstuff factories
- Stables and zoological gardens
- Pharmaceutical / chemical production units
- Biogas plants
- Destruction plants etc.

The Jimco FLO-K system can be combined with a water scrubber for applications with large ammonia content.

Ammonia is easily washed out of the contaminated air.
The air is washed before entering the UV-C reaction chamber.

FLO-P System

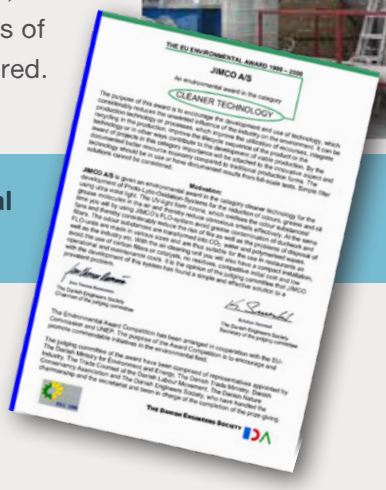
JIMCO Air Cleaning System Type FLO-P

The FLO-P air cleaning system is normally made according to client's specific requirements. There are two main considerations when designing the air treatment system.

The first step is to calculate the unit size to successfully treat the air. This is based on the process air organic content, air temperatures, air flowrates, grease and odor destruction requirements, etc.

The second step is to configure the installation to meet space requirements because frequently space is at a premium in process plants.

Over the years, JIMCO A/S has designed units that can be floor, ceiling, wall or roof mounted to suit the installation requirements of all our clients. Access for maintenance is also carefully considered.


THE EU ENVIRONMENTAL AWARD 1999 – 2000

JIMCO A/S

CLEANER TECHNOLOGY

In February 2000, JIMCO A/S received the EU Environmental Award for Cleaner Technology for the development of the:

Photolytic Oxidation System

ELGiN BAY
UVC & OZONE TECHNOLOGY

References FLO-K System

DANPO Aars (DK)

Air treatment of 20,000 m3/hr.

Odor reduction from chicken products incinerator.

ELGiN BAY
UVC & OZONE TECHNOLOGY

References FLO-K System cont.

Bioiberica (DE)

Air treatment of 18,000 m3/hr.
Odor reduction from pharmaceuticals.

KlaasPuul (NL)

Air treatment of 12,000 m3/hr.
Odor reduction from shrimp cooking.

ELGiN BAY
UVC & OZONE TECHNOLOGY

References FLO-K System cont.

Junkers und Mullers (DE)

Air treatment of 18,500 m3/hr.

Odor reduction from textile manufacturing.

ELGiN BAY
UVC & OZONE TECHNOLOGY

References FLO-K System cont.

Aarhus karlshamn (DK)

Air treatment from cooking oil production.
Odor reduction.

ELGiN BAY
UVC & OZONE TECHNOLOGY

References FLO-K System cont.

McCain (UK)

Air treatment of 32,000 m3/hr.
Air treatment from chips fryer.

ELGiN BAY
UVC & OZONE TECHNOLOGY

References FLO-K System cont.

Von Pein GmbH (DE)

Odor reduction of 20,000 m3/hr.
Air treatment from Biodiesel production.



Nagel GmbH (DE)

Odor reduction of 20,000 m3/hr.
Air treatment from bonemeal production.


ELGiN BAY
UVC & OZONE TECHNOLOGY

References FLO-K System cont.

SARIA Stuttgart (DE)

Air treatment of 6,000 m3/hr.

Air treatment rendering plant emissions.

JIMCO

UV-C & OZONE
Technology

The environmentally friendly solution

ELGiN BAY
UVC & OZONE TECHNOLOGY

References FLO-P System

KIM'S A/S (DK)

Air treatment of 10,000 m3/hr.

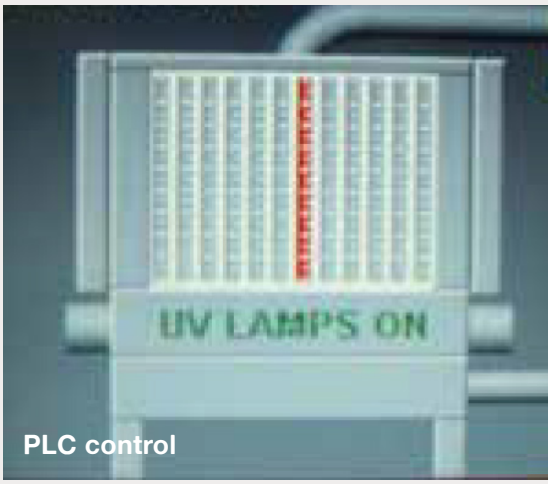
Odor reduction from crisps production line.

ELGiN BAY
UVC & OZONE TECHNOLOGY

References FLO-P System cont.

Gortons in Boston (US)

Air treatment from frying line.
Odor and grease reduction from 4 fryers.



PLC control


Automatic cleaning system


Fan placed on the roof

ELGiN BAY
UVC & OZONE TECHNOLOGY

References FLO-P System cont.

DANPO Farre (DK)

Air treatment from 4 frying units.
Odor reduction from chicken product incineration.

Control Board
Automatic CIP cleaning unit

ELGiN BAY
UVC & OZONE TECHNOLOGY

References FLO-P System cont.

KADI Inter Snack (CH)

Air treatment of 7,000 m3/hr.
Odor reduction from crisps production line.

Fenland Foods (UK)

Air treatment of 7,000 m3/hr.
Air treatment from ready meals processing.

ELGiN BAY
UVC & OZONE TECHNOLOGY

References FLO-P System cont.

AgrarFrost (DE)

Air treatment of 5,600 m3/hr.
Odor reduction from frying line.

ELGiN BAY
UVC & OZONE TECHNOLOGY

References FLO-P System cont.

Ocean Cuisine in Boston (US)

Air treatment from frying line.
Odor and grease reduction from a total of 2 fryers.

ELGiN BAY
UVC & OZONE TECHNOLOGY

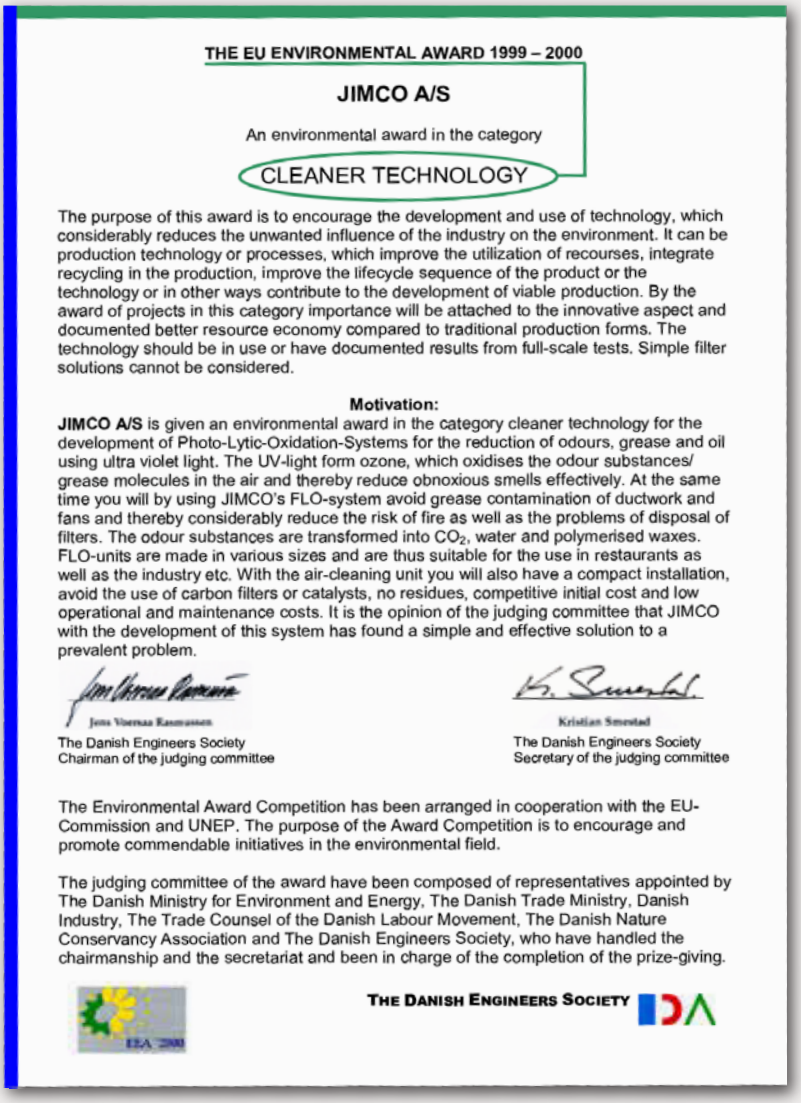
References FLO-P System cont.

SaladWorks (UK)

Air treatment of 7,000 m3/hr.

Air treatment from ready meals processing.

Awards & Patents



THE EU ENVIRONMENTAL AWARD 1999 – 2000

JIMCO A/S

An environmental award in the category

CLEANER TECHNOLOGY

The purpose of this award is to encourage the development and use of technology, which considerably reduces the unwanted influence of the industry on the environment. It can be production technology or processes, which improve the utilization of recourses, integrate recycling in the production, improve the lifecycle sequence of the product or the technology or in other ways contribute to the development of viable production. By the award of projects in this category importance will be attached to the innovative aspect and documented better resource economy compared to traditional production forms. The technology should be in use or have documented results from full-scale tests. Simple filter solutions cannot be considered.

Motivation:

JIMCO A/S is given an environmental award in the category cleaner technology for the development of Photo-Lytic-Oxidation-Systems for the reduction of odours, grease and oil using ultra violet light. The UV-light form ozone, which oxidises the odour substances/ grease molecules in the air and thereby reduce obnoxious smells effectively. At the same time you will by using JIMCO's FLO-system avoid grease contamination of ductwork and fans and thereby considerably reduce the risk of fire as well as the problems of disposal of filters. The odour substances are transformed into CO_2, water and polymerised waxes. FLO-units are made in various sizes and are thus suitable for the use in restaurants as well as the industry etc. With the air-cleaning unit you will also have a compact installation, avoid the use of carbon filters or catalysts, no residues, competitive initial cost and low operational and maintenance costs. It is the opinion of the judging committee that JIMCO with the development of this system has found a simple and effective solution to a prevalent problem.

Jens Vaernaa Rasmussen
The Danish Engineers Society
Chairman of the judging committee

Kristian Smestad
The Danish Engineers Society
Secretary of the judging committee

The Environmental Award Competition has been arranged in cooperation with the EU-Commission and UNEP. The purpose of the Award Competition is to encourage and promote commendable initiatives in the environmental field.

The judging committee of the award have been composed of representatives appointed by The Danish Ministry for Environment and Energy, The Danish Trade Ministry, Danish Industry, The Trade Counsel of the Danish Labour Movement, The Danish Nature Conservancy Association and The Danish Engineers Society, who have handled the chairmanship and the secretariat and been in charge of the completion of the prize-giving.

THE DANISH ENGINEERS SOCIETY

The EU Environmental Award
for Cleaner Technology

Worldwide patents of Jimco Technology

JIMCO
UV-C & OZONE
Technology

UV-C and ozone solutions for the future

Europe | South America | USA | Asia | Middle East

Contact: Matthew Cove (Director), ELGIN BAY UV-C & Ozone Technology
+44 (0) 7920 254379 | Matthewcove@elginbay.co.uk | **www.elginbay.co.uk**

ELGIN BAY
UVC & OZONE TECHNOLOGY