



## Verification Proposal

DANETV Verification Body		Proposer	
Name	FORCE Technology	Name	JIMCO A/S
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Date quick scan			

### Previous Verification:

Previous Verification performed  No  Yes, date

### Description Technology – Technical documentation

The KPC are units installed in cooking hoods right after the grease filters, which treats the ventilations air with ultraviolet light in the C band (UV-C). The UV light starts to break down grease and oil molecules, and ozone generated by the UV radiations continues this process. The results are a prevention of grease and oil deposition in the hood and ducts, and a reduced emission of odour and particles (oil and grease mist).

For details about the technology and installation see descriptions and pictures in the attached appendix.

### Intended application of the technology

Matrix Ventilation air from commercial kitchen cooking hood  
Purpose Reduction of grease and oil deposits in ducts and emission of particles and odour

### Initial performance claims

The hood and ducts will be kept clean, without depositions of grease and oil, except from minor deposition of particles/grease in limited areas in bends etc. where the air changes direction and larger particles/droplets will tend to continue and hit the duct wall. The risk of fire in the exhaust system is greatly reduced and the needs end expenses for cleaning hoods and ducts are reduced to a frequency of several years.

The odour emission is claimed by the proposer to be reduced by more than 90 % , but some initial odour measurements on two MacDonald's restaurants indicates a possible lower direct odour reduction by the KPC. The kitchen hood ventilations systems will emit odour coming from the grease and oil depositions, and when cleaning the ducts and hoods, which is highly recommended before installing a KPC, this odour will be significantly reduced. The KPC will then reduce the remaining odour and keep the odour emission low, by keeping the hoods and ducts clean.



### **Key environmental factors (in a life-cycle perspective)**

Consumption of electricity during the operation and regularly replacement of the UV-C fluorescent tube is the main resource consumption.

Used UV-C fluorescent tube shall be disposed of as chemical waste due to the content of small amount of mercury.

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### **Supporting evidence**

The effect of the technology claimed by proposer is based on the proposers experience with the technology since 1995, and from several investigations where the reducing effect on different parameters has been measured and reported by an independent party.

The effect on preventing oil and grease deposits are only based on the proposers experience, which is documented by pictures of hoods and ducts before and some time after the installation of KPC, showing clean surfaces and/or decreasing depositions.

Reports on KPC performance from Analytical Laboratories PTE. LTD.:

1. Oil mist (as toluene) assessment for BBQ and tandori cooking hoods inlet and outlet of JIMCO UVC-Ozone air treatment system at Tanglin Club. May 2012 Report No. AC/ES/3696/12.
2. Oil mist (as odour) assessment for cooker hood exhaust inlet (before) and outlet (after) of genmech JIMCO UV filtration system. July 2008. Report No. AC/ES/4622/08.
3. Source emission monitoring for domestic cooker hood. May 2002. Report No. AC/ES/3710/02.

Some additional reports on the performance of the technology have been provided by the proposer, but they are from industrial installations, which are different and not directly comparable to the KPC units.

Report for the Periodic Monitoring of Emissions to Air. Permit No.: NP3333UU/V003, Birds Eye, Lowestoft, Jul-11. Industrial plant deep frying (chicken) with JIMCO UV-C emission control. Three simultaneously odour measurements before and after the UV-C unit documents a 96 – 97 % reduction.

A 65 – 86 % reduction odour reduction was measured on an industrial plant for deep frying fish equipped with JIMCO UV-C units for odour reduction.

The odour reduction from installing a JIMCO KPC in a MacDonald restaurant was measured and calculated to be 93 % by the proposer, but the measurement was not simultaneous, and the conditions for the measurements with and without the KPC was too different to justify a calculation of the reduction.

The ability to reduce odour by JIMCO UV-C technology is considered to be proved by the supporting documents, but the reduction efficiency is not sufficiently documented.

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### **Former evaluation**

The technology has not previously been verified.



**Evaluation form Verification Body**

Description/principles clear	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Declared performances described	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Innovative technology	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Ready- to – market	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Prototype in advanced stage of development	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

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**Remarks out of Quick Scan to be considered:**

**N.R.**

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**Verification Body**

Name Ole Schleicher

Date 30 October 2012

Signature

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Appendix Flier of JIMCO KPC - Air cleaning system for Commercial Kitchen



# JIMCO KPC

## Air cleaning system for Commercial Kitchens



Using patented UV-C & Ozone technology JIMCO KPC A/S specialises in odour and grease control

**Cleaner ducting, minimised risk of fire when cooking – the exhaust fan will operate more efficiently**

*The KPC-system for odour and grease control uses special lamps that produce UV- light and ozone.*



The JIMCO lamps are placed in a steel frame, which is installed behind the grease filters in the hood or, in case where this is not possible due to lack of space, in an enclosure immediately above the hood.

Exposure to intensive UV-C light and ozone oxidation causes contaminants in the air to be destroyed, resulting in the reduction of odour emissions to the surroundings and no grease deposits in the ductwork. This process reduces the odour emitted to the surroundings. At the same time a small quantity of excess of ozone is generated to maintain the ducts in a clean condition and to destroy previously existing grease deposits within the ductwork. We recommend that ducts be manually cleaned before installing a KPC system.

**MINIMISE  
RISK OF FIRE !!**

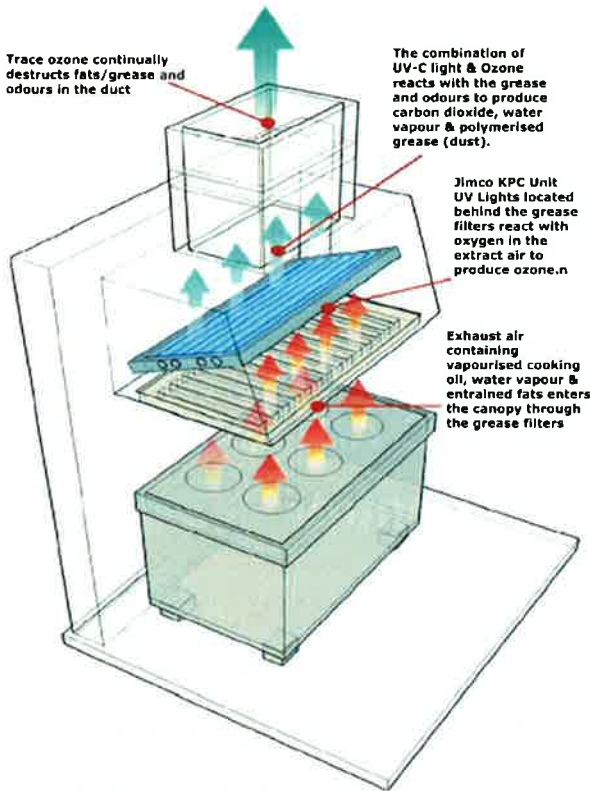
**- if our luck runs out...**



The advantages of using a JIMCO KPC system means the traditional problems with air filtration are eliminated. Examples are: high chimneys, electrostatic filters, activated carbon filters, scrubbers, deodorizing oils etc.



**Typical Jimco KPC Canopy Unit**



*The KPC insert consists of a steel frame in two different lengths, containing 4 or 6 JIMCO lamps*

*The UV-C lamps have a lifetime of approx. 8000 operating hours, after which they must be replaced to ensure continued efficiency.*

**Additional advantages:**

- ✓ Decreases risk of fire
- ✓ Tested and dependable equipment
- ✓ Reduces odour to the surroundings
- ✓ No use of chemicals or deodorizing oils
- ✓ No use of filters, e.g. active carbon or catalysts
- ✓ No use of microbiology
- ✓ No residues or liquid substances
- ✓ Eliminates the need to regularly clean the hood and the kitchen exhaust ductwork
- ✓ Maximum exhaust due to clean ductwork
- ✓ Compact installation, needs only limited space
- ✓ Immediate on/off function
- ✓ Pressure differential guards for fan failure
- ✓ Competitive installation costs
- ✓ Low operating and maintenance costs
- ✓ Option: heat reuse
- ✓ Simple to install in existing hoods

**Additional references available at:**

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