June 5 – 7
Laulasmaa
Estonia

Jimmy Larsen
CEO
JIMCO

Sustainable Air Purification with documented effect

Join at slido.com #3705809

EUROPEAN FISHMEAL AND FISH OIL PRODUCERS

EMFAF PROGRAMME 2021-2027
Co-funded by the European Union

#Chemicalfreeworld
Environmentally Friendly
Air purification and Surface Disinfection Solutions

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Technology

EUROPEAN
FISHMEAL AND FISH OIL
PRODUCERS

JIMCO A/S

Environmentally friendly odour & grease reduction

Chemical free disinfection systems for the future

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THE COMPANY FACTS

- Founded in 1992 by Jimmy Larsen
- Headquarter and production in Denmark
- Our departments:
  - Industry Air-treatment Units & Disinfection FLO-D Technology
  - Fat and grease removal from commercial kitchens & small air purifiers
- Export to around 35 Countries
- 95% of revenue is from export
- Awarded the EU Environmental award

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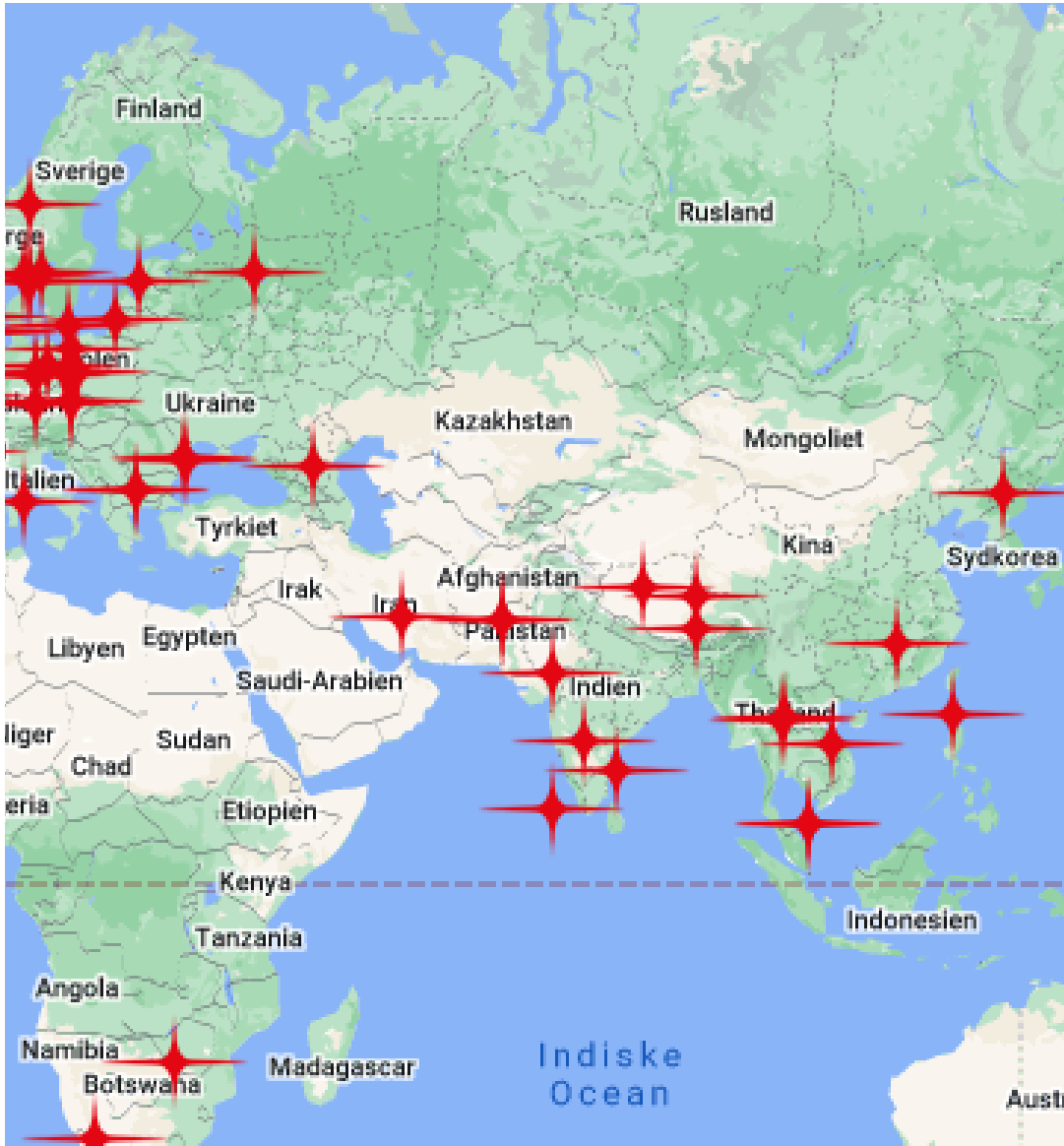
PARTNERS ALL AROUND THE WORLD



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WORLDWIDE REFERENCES

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Environmental odor problems in

- Fishmeal
- Fish oil
- Aqua feed
- Rendering plants
- Etc.

Odor Perceptions and Intensity

1. How does the human nose react to odor
2. How much do we react on

Extremely Strong
Very Strong
Strong
Perceptible
Weak
Very weak
No odor

Smelling components

FLO-K THE PROCESS

Ammonia	Trimethyl amines	Hydrogen sulphide	Mercaptans	Non condensable gasses
High concentration in rancid fish meal batches	Typical fish meal odor	Rotten eggs	Human nose can detect small concentrations	Rendering plants

Be aware that dust will contribute to odor problems

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Environmental Solutions

Solution:	Cleaning efficiency
Chimney	**0% (only Dilution)**
Bio or Chemical scrubber	**30- 50%**
Bio Filter	**60-85%**
Photo oxidation (FLO Technology)	**80-98%**
RTO/RCO Thermal oxidizer	**90-98%**
Activated Carbon	**90-98%**

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JIMCO FLO TECHNOLOGY IN GENERAL

- Photolytic oxidation is a combination of photolysis & ozonolysis
- **Photolysis** is a process of photo-decomposition where the organic molecules (e.g., fat, grease and oil) are broken down by photons, when exposed to **UV-C light**.
- **Ozonolysis** is the process of oxidation of the photo-decomposed molecule which when exposed to the **ozone** (produced by the lamps) is incinerated by means of **cold incineration**
- The photolytic oxidation process leaves **no volatile compounds**.
- After combustion, the waste product is water, oxygen and polymerized grease & a small amount of CO^2.

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Benefits with the Jimco Air-cleaning Units

Lots of benefits are achieved when using the Jimco technology for industrial air-cleaning:

- Tested and reliable equipment
- Effective reduction of odors and VOC's
- No use of chemicals or fragrant oil
- No use of filters or absorbents
- No use of microbiology
- No liquid effluent or harmful residues
- Compact installation that efficiently utilizes space
- Simple to retrofit into existing buildings
- Instant start-up and shut down
- Competitive investment cost
- Low maintenance and operational costs

The units are designed as needed for the individual company

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FLO-K system
How it works

The FLO-K systems is designed for add on,

- Temperature limit at 45 ℃
- Add on for cooling down is available
- Add on for Ammonia removal Available

Can be designed to treat an limit less airflow from 1.000- a lot M3/h.

The systems are designed as needed for the customer regarding space and climate requirements.

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Important parameters when sizing a FLO air purification Solution

Type of air to be treated?	Product manufactured? (Boiled/fried/cooked)?	High humidity of the air to be treated?	Presence of vegetable or animal oils in the process?	Temperature?	Presence of dust in the air?
Treatment to be divided in more than one unit?	Treatment to be assembled in one exhaust?	Compounds to be eliminated after treatment due to authority demands ?	OU/m3 authority demands at neighbors next to the company?	Odor analyses made?	Any OML spreading calculations available for this particular company?
Airflow to be treated?	Physical conditions? (Space available for a treatment unit?)	Reaction time? (Is it necessary to make an extension in order to achieve a reaction time of approx. 3 sec.?)	Ammonia or hydrogen sulphides present in the air to be treated?	Height of existing exhaust?	Any prescribed maximum exhaust height in local district plan?

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Test at Customer

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Water mist

Reduction of Hydrogen Sulfide

Ammonia Removal

AVERAGE OF ALL 3 SAMPLES					
	Bag	Corrected odor concentration LE/m³(20°C)	Reduction LE/m³	Odor Concentration Analysis OUE/m³ (20°C)	Reduction OUE/m³
Raw Gas		1.466.666		2.366.666	
Before FLO – After Spray		850.000	42,05%	1.600.000	32,39%.
After FLO - Before CAT		376.666	74,32%	596.666	74,79%.
After CAT		15.700	98,93%.	25.666	98,92%.

Measured in ppm	Measurement Point			
	Raw Gas ppm	After Frequency Nozzle and before FLO	Before CAT	Clean Gas
Ammonia - NH4	150	20	0	0
Hydrogen Sulfide - H2S	110	30	15	0

4.3 Odor Reduction

	Corrected odor concentration LE/m³(20°C)	Reduction LE/m³	Odor Concentration Analysis OUE/m³ (20°C)	Reduction OUE/m³
Raw Gas	1.466.666		2.366.666	
After Frequency Nozzle	850.000	42,05%	1.600.000	32,39%.
After FLO - Before CAT	376.666	74,32%	596.666	74,79%.
After CAT	15.700	98,93%.	25.666	98,92%.

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Cloud-System

Automatisk lagring — combined-data (2) – Skrivebeskyt

Filer Hjem Indsæt Sidelayout Formler Data Gennemse Vis Automate

O38

	A	B	C	D	E	F	G
1	date (UTC)	O3Level	O3Setpoint	date (UTC)	Fanspeed	Temperature	Humidity
2	06-02-2024 22:10	7.1	10	06-02-2024 22:10	70	16.505.714,00	98
3	06-02-2024 22:11	7.2	10	06-02-2024 22:11	70	16.525.608,00	98
4	06-02-2024 22:12	7.2	10	06-02-2024 22:12	70	16,5	98
5	06-02-2024 22:13	7.4	10	06-02-2024 22:13	70	16.597.946,00	98
6	06-02-2024 22:14	7.6	10	06-02-2024 22:14	70	16.597.946,00	98
7	06-02-2024 22:15	7.6	10	06-02-2024 22:15	70	16.632.307,00	98
8	06-02-2024 22:16	7.7	10	06-02-2024 22:16	70	16,6	98
9	06-02-2024 22:17	7.9	10	06-02-2024 22:17	70	16.668.474,00	98
10	06-02-2024 22:18	7.9	10	06-02-2024 22:18	70	16.706.453,00	98
11	06-02-2024 22:19	8	10	06-02-2024 22:19	70	16.675.709,00	98
12	06-02-2024 22:20	8	10	06-02-2024 22:20	70	16,7	97
13	06-02-2024 22:21	8.2	10	06-02-2024 22:21	70	1.676.613,00	98
14	06-02-2024 22:22	8.2	10	06-02-2024 22:22	70	16.818.577,00	98
15	06-02-2024 22:23	8.4	10	06-02-2024 22:23	70	16.809.534,00	98
16	06-02-2024 22:24	8.4	10	06-02-2024 22:24	70	16,8	98
17	06-02-2024 22:25	8.5	10	06-02-2024 22:25	70	16.858.362,00	98
18	06-02-2024 22:26	8.7	10	06-02-2024 22:26	70	[illegible]	98
19	06-02-2024 22:27	8.7	10	06-02-2024 22:27	70	[illegible]	98
20	06-02-2024 22:28	8.7	10	06-02-2024 22:28	70	[illegible]	98
21	06-02-2024 22:29	8.9	10	06-02-2024 22:29	70	[illegible]	[illegible]

- Monitoring System and Data Collection
- Authorities' Access

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FLO-K SYSTEM

Landes in Chile

Odor removal from 2 x 20.000 m3/h

First system installed in 2015

Second system installed in 2018

Austral Fiord in Chile

Odor removal from 1 x 25.000 m3/h

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THANK YOU

FOR YOUR ATTENTION