JIMCO®

UV-C & OZONE
Technology

#chemicalfreeworld

EGG DISINFECTION

FOR FARMS AND HATCHING EGGS

Documented disinfection with JIMCO's UV-C & ozone technology



FLO-D® MINI MARK 2

EGG HANDLING AND PROCESSING ROOMS

MADE IN DENMARK

JIMCO.DK

EST. 1992

WHY EGGS NEED TO BE DISINFECTED

HIGH BIOSECURITY STARTS WITH THE EGG

Hatching eggs can be exposed to microorganisms at many points before hatch.
Early disinfection is essential to protect the entire production chain – from farm to hatchery.

CROSS-CONTAMINATION
Eggs can be exposed to contamination during collection, storage, transport and on the farm.

MICROORGANISMS
Bacteria and fungi on the eggshell can be transferred further into the production chain.

EARLY DISINFECTION
Disinfection should take place as early as possible after egg collection and before storage.

PROVEN IN COMMERCIAL HATCHERIES

Long-term installations and repeat orders.

GERMAN CUSTOMER
Long-term growth and trust

From first installation to standard technology across the hatchery:

2019	2019	2020	2026
1 unit →	3 unit →	**36** unit →	**45** unit

Continuous expansion over the years – now 45 units in operation.

JIMCO CUSTOMER
Commercial hatchery installation

34
FLO-D® Mini Mark 2 units in operation

+2
additional units ordered

Reliability that leads to repeat orders.

DISINFECTION IS THE FIRST AND MOST IMPORTANT STEP TO PROTECT YOUR ENTIRE PRODUCTION CHAIN.

DISINFECTION OF EGGS
AND HATCHERY ENVIRONMENTS

FLO-D® Mini Mark 2 provides effective disinfection of eggs, rooms, equipment and ventilation systems – without water or chemicals.



EGGS
Treatment of hatching eggs at different stages.

ROOMS & EQUIPMENT
Treatment of rooms, equipment and ventilation ducts.

AUTOMATED TREATMENT
UV-C and ozone are generated on-site. The treatment process is automated and can be operated wirelessly.

NO MANUAL DISINFECTION WITH WATER OR CHEMICALS

BENEFITS OF FLO-D® MINI MARK 2

PROVEN EGG DISINFECTION

- **Immediate egg disinfection**
- **No damage to the eggshell**
- **Increased hatch rate**
- **Lower 7-day mortality**
- **Higher efficiency than fogging/VHP**
- **No storage of hazardous substances**
- **No toxic residues**
  – ozone naturally reverts to oxygen
- **No resistance or mutations in microorganisms**
- **Regular use can achieve <1 CFU**
  throughout the facility
- **Low energy consumption**
  – no waiting time after treatment
- **Full room coverage**
  – from floor to ceiling, reaching every corner and crevice



DOCUMENTED BACTERIAL REDUCTION ON EGGSHELLS

94.00%

AVERAGE REDUCTION

ON FARM
CRUSHED SHELL METHOD

Used on eggs coming from farms to measure bacteria in eggs.



1 EGG SELECTION

Two different eggs are used
– one untreated egg and one treated egg.

2 CRUSH THE SHELLS

The eggshells are crushed.

3 SAMPLE PREPARATION

The crushed eggshell sample is prepared and used for microbiological analysis.

4 BACTERIAL COUNT

The number of bacteria (CFU) is measured and compared between untreated and treated eggs.

IN THE HATCHERY
SHELL RINSE METHOD

Used on eggs coming from hatcheries to measure bacteria on eggshells.



1 EGG SELECTION

Two eggs are used
– one untreated egg and one treated egg.

2 RINSE THE EGGS

The eggs are gently rinsed in a sterile zip bag.

3 SAMPLE COLLECTION

The rinse solution is collected and used for microbiological analysis.

4 BACTERIAL COUNT

The number of bacteria (CFU) is measured on the eggshell surface.

DOCUMENTED AND VERIFIED – WITH MEASURABLE RESULTS

OUTSTANDING DISINFECTION RATES

Staphylococcus aureus:	Candida albicans (Yeasticidal):	Enterococcus hirae:	Escherichia coli:	Pseudomonas aeruginosa:	Salmonella typhimurium:
99,973 %	**98,741 %**	**99,149 %**	**99,880 %**	**99,898 %**	**99,250 %**

DOCUMENTED PERFORMANCE – HATCHERY APPLICATION

- Increased hatchability **(+1.4 percentage points)**
- Reduced percentage of contaminated eggs **(–33%)**

Parameter	Formaldehyde	JIMCO FLO-D®
Eggs set	Same batch	Same batch
Hatchability (based on set eggs)	74.5 %	75.9 %
Contaminated eggs ("bangers") (%)	0.18 %	0.12 %

Data from documented operation under comparable conditions.

HATCHERY PERFORMANCE DATA

COMPARISON OF DOCUMENTED OPERATIONAL RESULTS

Parameter	Ozone	Spray (H_2O_2 + Quaternary Ammonium)	Difference
Eggs tested	**21,345**	21,268	**-**
Hatchability	**72.8 %**	71.9 %	**+0.9 pp**
HOF	**88.4 %**	87.2 %	**+1.2 pp**
Mid mortality	**0.6 %**	0.8 %	**–0.2 pp**
Late mortality	**1.5 %**	2.0 %	**–0.5 pp**
Pipped	**0.4 %**	0.6 %	**–0.2 pp**
Bangers	**1.5 %**	2.1 %	**–0.6 pp**
Pasgar Score	**9.5**	9.4	**+0.1**

Data from documented operation under comparable conditions.

DOCUMENTED BACTERIAL REDUCTION ON EGGSHELLS

LOWEST MEASURED REDUCTION	AVERAGE REDUCTION	HIGHEST MEASURED REDUCTION
75.00%	**93.94%**	**99.67%**

19 MEASURABLE RESULTS

Values below the detection limit (<10 CFU) could not be measured.

RECOMMENDED

EGG DISINFECTION PROTOCOL

1

PREPARE THE ROOM

Place freshly collected eggs in the designated disinfection room. Ensure good air circulation and keep doors and ventilation closed during treatment.

2

CHECK HUMIDITY – CRITICAL

Maintain minimum 60% RH, preferably above 70% RH during treatment.

Humidity is essential for effective ozone disinfection.



MIN.
60% RH
PREFERABLY
70% RH

3



START FLO-D® MINI MARK 2

Run the predefined FLO-D® MINI MARK 2 disinfection cycle and allow the ozone to circulate evenly around the eggs.

4

CONTROLLED TREATMENT

Keep the room closed and unoccupied throughout the complete treatment cycle.
Do not enter while ozone treatment is active.

5

AFTER TREATMENT

Allow the complete cycle and safety sequence to finish before entering. Transfer disinfected eggs directly to the clean egg storage area.

6

PREVENT RECONTAMINATION

Keep untreated and disinfected eggs separated throughout handling and storage.

KEY TO EFFECTIVE DISINFECTION

Correct humidity • Controlled ozone exposure • Good air circulation • Consistent procedure

Important: This is a general recommended protocol. A detailed, case-specific protocol is provided for each installation, adapted to the room conditions, egg load, environmental parameters and the customer's operational setup.

RELIABLE TECHNOLOGY – SAFE OPERATION

DESIGNED FOR SAFE OPERATION
JIMCO systems are designed with safety as a top priority – protecting people, animals and production environments.



NO PEOPLE IN THE ROOM
Ensure the room is unoccupied during operation.

POST WARNING SIGNS & LOCK DOORS
Prevent access and inform about ongoing disinfection.

ALWAYS VENTILATE BEFORE RE-ENTRY
Ventilate thoroughly to remove residual ozone.

NEVER OPEN THE UNIT DURING OPERATION
Opening the unit can expose you to UV-C and ozone.



PROTECTING WHAT MATTERS MOST

JIMCO UV-C & ozone technology contributes to a safer environment by reducing microorganisms, odours and contamination – without the use of chemicals or water.

SAFE TECHNOLOGY
Closed systems with UV-C and ozone – no chemicals or residues.

AUTOMATIC CONTROL
Systems operate automatically with continuous monitoring and alarm.

BUILT-IN ALARMS
Audible and visual alarms ensure immediate attention in case of deviation.

PATENTED TECHNOLOGY
JIMCO technology
US Patent 14/436,318
PCT/EP 2012/070820

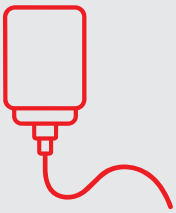
REGULAR MAINTENANCE

To ensure safe and reliable operation, we recommend the following maintenance checks.



QUARTERLY

- Clean UV-C lamps
- Check seals and connections
- Check calibration of ozone sensor



EVERY 48 MONTHS

- Replace sensor head



EVERY 8,000 RUNNING HOURS

- Replace UV-C lamps and lamp gaskets



KEEP YOUR SYSTEM IN TOP CONDITION

Regular maintenance ensures reliable operation, long service life and maximum disinfection performance.

DOCUMENTATION & RECORDS

Keep records of operation and maintenance to ensure documentation and optimal performance.



OPERATION LOG

Records date, time, temperature, humidity and ozone level.



MAINTENANCE RECORDS

Record maintenance checks, part replacements and service.

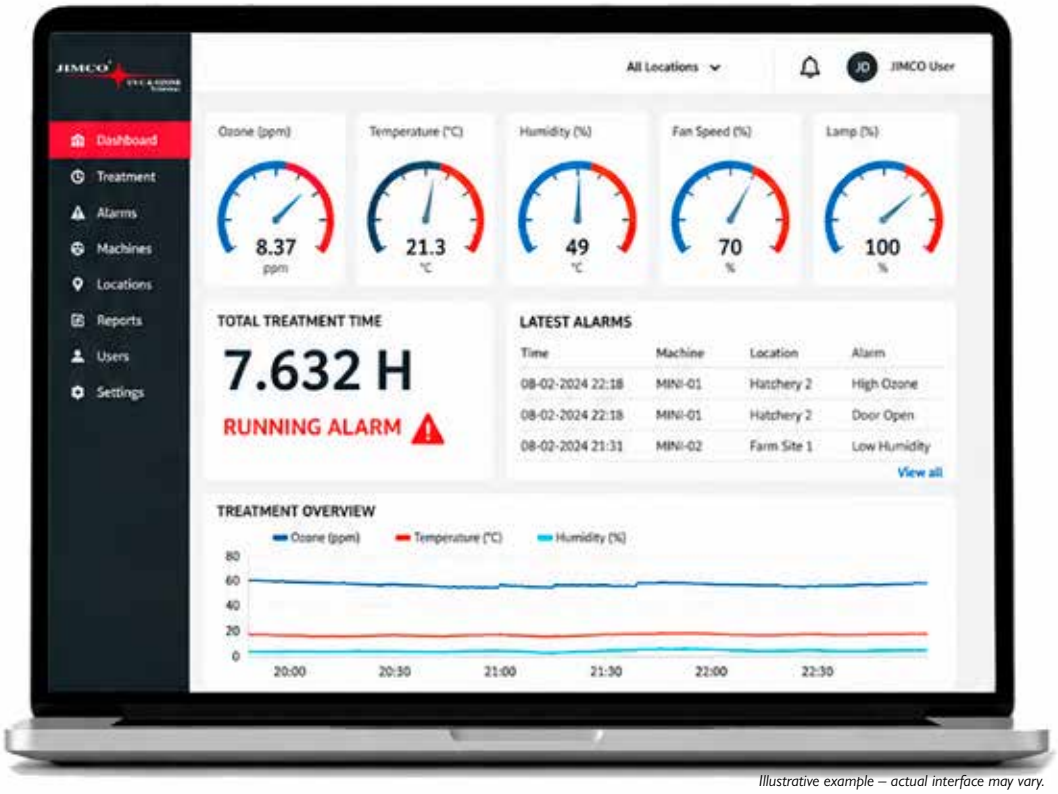


OPTIONAL DATALOGGING

Continuous monitoring and cloud-based data logging via **jimcocloud.dk**.

FULL DOCUMENTATION & EASY OPERATION

All data automatically logged, stored and accessible – anytime, anywhere.



Illustrative example – actual interface may vary.

ACCESS AND VIEW YOUR DATA IN THE CLOUD

ON JIMCOCLOUD.DK

- ✓Live overview
- ✓Alarms and status
- ✓History and reports
- ✓Multi-site access
- ✓Secure and encrypted

DETAILED TREATMENT LOG

Date (UTC)	Ozone (ppm)	Setpoint (ppm)	Fan Speed (%)	Temperature (°C)	Humidity (%)
08-02-2024 22:18	7.1	10	70	16.5	98
08-02-2024 22:18	7.2	10	70	16.5	98
08-02-2024 22:20	7.4	10	70	16.5	98
08-02-2024 22:21	7.6	10	70		98
08-02-2024 22:22	7.9	10	70		



FLEXIBLE DATA ACCESS

- Cloud access via jimcocloud.dk
- Secure and encrypted
- Export via USB – standard for offline access

AUTOMATIC LOGGING

All treatments are logged automatically.

FLEXIBLE RETRIEVAL

Data can be retrieved via USB or sent directly to the customer's system (VPN).

MULTI-SITE OVERVIEW

Option to monitor and document multiple machines and locations simultaneously.

FULL TRACEABILITY

Data logging provides full traceability and documentation – ready for audits.

REAL-TIME ALERTS

Clear colour display with step-by-step status updates and audible alarms.

REMOTE ACCESS

Remote control and access via smartphone or tablet.

With JIMCO's solution, you get complete transparency and full traceability – whether you operate one or many locations.

FLO-D® MINI MARK 2
TECHNICAL SPECIFICATIONS

FLO-D® Mini Mark 2 is a mobile disinfection unit designed for the treatment of eggs, rooms, equipment and ventilation systems.



PERFORMANCE
Room volume: Up to 315 m^3 per unit
Capacity: Up to 60,000 eggs
in a 100 m^3 room

UV-C SYSTEM
8 × 70 W UV-C lamps
8 quartz tubes
(used in cold rooms below 15°C)

POWER SUPPLY
EU: 1 × 230 V + PE, 50/60 Hz, 10 A – 650 W
US: 1 × 115 V + PE, 50/60 Hz, 10 A – 747 W

CONTROL & MONITORING
Pro-face PLC colour touchscreen
Temperature & humidity sensor
Ozone monitor and access point
Patented data logging system
for documentation

DIMENSIONS & WEIGHT
H 1150 × W 560 × D 890 mm
Weight: 59 kg

US Patent No. 14/436,318
PCT/EP 2012/070820

ALL FUNCTIONS FOR
SAFE AND RELIABLE OPERATION

All key functions, connections and monitoring features are integrated into the FLO-D® Mini Mark 2 for easy operation, control and documentation.



OPERATION & CONTROL

1. **Touchscreen**
Configure the treatment settings and enter a digital signature, registration number, etc.

2. **Dedicated tablet included**
A dedicated tablet is included with every FLO-D® Mini Mark 2 for easy operation and monitoring.

3. **USB port**
Download stored treatment data via USB.

4. **Ethernet port**
For cloud connection and connection to portable devices.

5. **Cable**
5 or 10 metres

6. **Loudspeaker**
For audible alerts and notifications.

7. **Ozone Measurement Station** (OMS)
Measures the ozone concentration.

CONNECTIONS & MONITORING

8. **Power supply**
Supplied with a 5-metre cable

9. **Temperature and Humidity Sensor**
Located at the bottom

10. **Antenna**
Local access via tablet/mobile device
Range up to 40 metres

11. **Alarm**
Audible siren alarm

12. **LED light**
Machine status indicated by coloured signal lights

13. **Nameplate**

14. **Connector for Ozone Measurement Station** OMS

15. **Safety Switch**
For external door contacts for start/stop and evacuation

TEMPERATURE ALARM & REMOTE NOTIFICATION

When connected to 230 V and the internet, FLO-D® Mini Mark 2 can send an alarm if the temperature rises above or falls below the defined limits



SOLUTIONS FOR THE FUTURE

Danish environmental technology since 1992

JIMCO®

UV-C & OZONE Technology

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WATCH THE VIDEO
Scan the QR code