



REFRIGERANT

BOYS



Ozone

OZ65M

***GENERATOR OF
OZONE WITH UV LAMPS***

500 mg/h

INSTRUCTIONS FOR USE

INTRODUCTION

CHARACTERISTICS AND EFFECTS OF OZONE

1. Ozone has a bactericidal power 600 to 3,000 times higher than that of chlorine
2. The concentration of O₃ in the air is between 0.01 0.03 ppm.
3. Ozone is 1.7 times heavier than air.
4. In water, at temperatures from 25 °C, ozone decays into oxygen in 20 minutes, at 39 °C the decay process is 5 minutes, at 69 °C the decay is immediate.
5. In the air, at temperatures from 25 °C, ozone is transformed into oxygen in 50 minutes at 39 °C the transformation time is 5 minutes, at 69 °C la conversion to oxygen is immediate.
6. If placed in air or water, at a concentration of 0.5 ppm, ozone will take a maximum of 2 minutes to eliminate 95% of germs and bacteria.
7. The permissible ozone concentration in the air is 0.1 ppm, higher concentrations can cause irritation to the respiratory organs, symptoms such as headache, lightheadedness, fatigue. High concentrations are lethal

PHYSICAL CHARACTERISTICS OF OZONE

- 1 Peso molecolare (u) 48
- 2 Punto di ebollizione -112 °C (161 K)
- 3 Punto di fusione -193 °C (80 K)
- 4 Densità (kg·m⁻³, in c.s.) 1,7
- 5 Valore limite di soglia 0,1 ppm
- 6 TLV-TWA 0,2 ppm
- 7 Soglia di percettibilità 0,02 ppm 0,04 g/mc
- 8 Potenziale di riduzione di ossido +2,07 V
- 9 Colore Bluastro

CAUTION

THE CONCENTRATION OF OZONE IN AN ENVIRONMENT HIGHER THAN 0.2 ppm IS DANGEROUS FOR THE HEALTH OF PEOPLE AND ANIMALS. PAY MUCH ATTENTION TO CHILDREN AND PEOPLE WHO SUFFER FROM ASTHMA OR OTHER PULMONARY DISEASES.

- **THE PRESENCE OF PEOPLE AND ANIMALS DURING TREATMENT IS FORBIDDEN**
- **VENTILATE THE TREATED ENVIRONMENT BEFORE ENTERING**

The ozone generator requires regular external cleaning and periodic checking of the electric cable. Once you have finished using it, put it in your suitcase

- This instruction manual contains important information for the use and maintenance of the appliance in your possession.
- Read this manual carefully before installation, commissioning and maintenance from the generator. The manual is an integral part of the ozonator itself.
- Before installing and starting the appliance, make sure that you have followed all the conditions necessary for safe use. Installation, start-up and maintenance of the appliances or must be carried out by qualified personnel.
- The personnel responsible for the installation, start-up and maintenance of the generator must know the risks deriving from the use of ozone (see the indications in the "ATTENTION" section on page 6)
- The instruction manual must always be accessible by the person assigned to install, use and maintain the generator.

The device is particularly suitable for: sanitizing, deodorization in confined environments, the elimination of mold and bacteria, the inactivation of viruses that are difficult to attack with other methodologies, to prevent the formation of pathogens in the air and on surfaces. In the limited environment, it removes insects by avoiding the use of harmful chemicals. Ozone is produced directly in situations (this in the area to be treated) and after carrying out its sanitizing oxidizing action, it converts naturally and completely to its original state, that is, in oxygen.

The table below shows the necessary indicative ozonation times - in relation to m³

- for the elimination of some pathogens such as: MUSHROOMS (Candida Parapsilosis, Candida Tropicalis); BACTERIA (E. Coli, Legionella, Mycobacterium, Fecal Streptococcus); VIRUS (Poliovirus type-1, Human Rotavirus, Enteric virus); MOLDS (Aspergillus Niger, various strains of Penicillium, Cladosporium); INSECTS (Acarus Siro, Tyrophagus Casei, Tyrophagus Putrescentiae).

Volume	Exposition time
5m ³	20 minutes
30m ³	30 minutes
55m ³	50 minutes
65m ³	60 minutes
The minutes of exposure shown in the table are indicative and can be influenced by various factors such as temperature and humidity. For an ideal treatment, the internal temperature of the environment to be treated should not be higher than 25 ° C and the humidity should not exceed 50%.	

Before installing and connecting the appliance, it is necessary to carefully read the instructions contained in this manual. Refrigerantboys s.r.l. cannot be held responsible in the event of personal injury and / or damage

or

materials caused by incorrect use of the product. To obtain the best performance from the generator and to ensure

maximum durability of its parts, it is necessary to strictly follow the instructions for use and the maintenance rules

contained in this manual. In the interest of the customer, it is recommended to carry out maintenance and cleaning of the appliance and, if necessary, to request its repair at our office, as it is equipped with

specially trained personnel and appropriate equipment. This instrument has been designed to produce ozone using the UV lamp system.

The generator consists, in its essential parts, of:



- *an external structure in stainless steel*
- *4 UV 12 W lamps*
- *4 electronic transformers*
- *1 80x80x25 fan mod. KA 8025*

CAUTION

The instruction manual must be carefully read and given as taken as well as must always remain accessible to the personnel assigned to install and use and maintain the ozone generator.

LIMITATIONS OF USE

The ozonizers allow a controlled emission of ozone (O₃) in the environments to be treated with the aim of totally reducing the contaminating bacterial and viral loads. Ozone allows the complete and total disinfection of any type of surface and environment, eliminating bacteria, viruses, molds and mites present even in the most hidden and difficult to reach places with a classic although absolutely accurate washing. The advantage of ozone is that unlike other disinfectant products, it leaves no residue of any kind; ozone, after carrying out its oxidizing action, naturally and completely transforms back into oxygen within a few minutes of use.

The OZ65M model ozonator is designed to generate ozone from the air, it was developed in particular for use in limited environments. If the appliance is used inside storage cells, the release of ozone must take place in a certain quantity, sufficient to keep the internal environment of the cell healthy and to safely extend the storage of food products.

If ozone is released into closed environments frequented by people and / or animals, for safety purposes it is recommended to install an alarm sensor that blocks the ozone generator if the permitted safety threshold is exceeded. If the appliance is installed in a closed environment, it is necessary to ventilate the area for at least 15-20 minutes after the end of the treatment. It is strictly forbidden to stay in environments where the residual ozone quantity is greater than 0.1 ppm. It is advisable to install ozone detectors and alarm systems that warn or prevent people from entering the environment when the ozonator is operating or if the quantity exceeds 0.1 ppm.



CAUTION

DO NOT BREATHE OZONE! BREATHING HIGH CONCENTRATION OZONE (> 10 ppm) CAN BE LETHAL AND CAUSE THE DEATH OF PEOPLE AND ANIMALS. IT IS STRICTLY FORBIDDEN TO BREATHE AND INHALATE THE OZON PRODUCED BY THE EQUIPMENT, EVEN FOR SHORT PERIODS.

THE USE OF THE GENERATOR IS PERMITTED ONLY IN CLOSED AND ISOLATED ENVIRONMENTS, THE PRESENCE OF PEOPLE AND / OR ANIMALS DURING THE ENTIRE TREATMENT IS FORBIDDEN. KEEP THE ROOM CLOSED, THE CABIN OR OTHER ENVIRONMENT WHILE THE OZONIZER IS IN FUNCTION FOR NOBODY TO ENTER. DO NOT POSITION THE OZONE GENERATOR IN LIMITED SPACES AND WITHOUT POSSIBILITY VENTILATION / FAN.

WARNING!

DO NOT return to the ozonated environment once the treatment has ended as ozone residues can persist in the air. After the time of at about 10 minutes, ventilate the room and wait another 15 minutes before accessing it.

SAFETY RULES

The generator is built in such a way that it does not present any danger to exposed people, provided it is used correctly.

The appliance must be used only by personnel who have carefully read and fully understood this user manual. The operator must observe the safety rules to guarantee his own safety and that of third parties and must be aware of the risks deriving from the use of ozone. IMPORTANT! All our responsibility is void in case of modifications / alterations made to the generator and / or in case of tampering.

Electric shock prevention

- *Disconnect the appliance before performing any maintenance or cleaning operations.*
- *Make sure the appliance is connected to a suitable earthed system.*
- *The installation must be performed only by qualified personnel. All the connections must comply with current accident prevention regulations.*
- *Do not use the appliance if it has worn or loose cables. Frequently inspect all cables and make sure there are no insulation defects, bare wires or loose connections.*
- *Stop use if the cables overheat and immediately unplug the power cord.*
- *Never touch live parts directly*

Fire and explosion prevention

- *Do not use the appliance near flammable materials and / or liquids, in environments saturated with explosive gases.*
- *Do not use materials which, if heated, can generate toxic vapors or flammable.*
- *Keep a fire extinguisher near the workplace.*

Noise emission

- *This appliance has been tested. The sound pressure level is 75 LpdB*

(A) (3m)

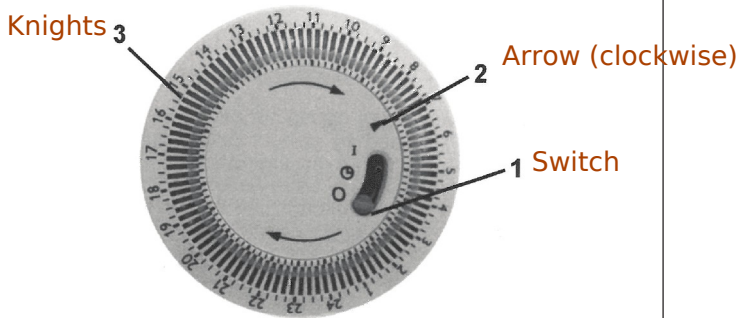
Electromagnetic fields risks

The electromagnetic field generated by the generator can be dangerous for people with pacemakers, ear implants and similar equipment. These people should consult their doctor before approaching an operating ozonator.

- *Do not approach the generator in operation with quartz watches, magnetic supports, electrical equipment, etc. These objects could suffer irreparable damage due to the magnetic field.*
- *If the appliance is used in industrial buildings, it is the user's responsibility to resolve any electromagnetic disturbances that may arise. In some cases it may be necessary to shield the generator and insert suitable filters on the power line.*

COMPONENTS DETAILS

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Analog timer operation

Continuous operation: set the TIMER switch (1) to "T" Programmed operation: position the TIMER switch (1)

up" ⌚ "(clock)

To set the "programmed operation" mode, turn the dial clockwise and position the correct current time on the arrow (2). To set the time when you want the appliance to start operating, raise the riders (3) placed around the dial. Each rider corresponds to about 15 minutes.

The TIMER works only if the appliance is connected to the power outlet and the red on / off switch is positioned in "I"

INSTALLATION AND CONNECTIONS

The user is responsible for the installation and use of the appliance in accordance with the instructions contained in this manual. Before installing the generator, it is advisable to evaluate potential electromagnetic field problems in the surrounding area. In particular, installation in the vicinity is not recommended

- other feed-through cables adjacent to the appliance;
- radio and television transmitters and receivers;
- special security systems;
- measuring and calibration systems;

Before connecting the generator, make sure that the red switch is in the "0" position and check that the frequency and voltage of the available power supply correspond to those indicated on the generator itself.

Connect the appliance to an electrical system equipped with a tee r The ozonator must be placed on a flat and stable surface, possibly in a higher position than the area to be treated, since ozone is heavier than air, it tends to go down.

MAINTENANCE AND DISPOSAL

1. The 9066M ozonator is a product with integrated components and electronic circuits. Any tampering automatically terminates the guarantee
2. Attention! There are high voltage transformers inside the steel structure, do not touch the outside of the structure with wet or damp hands Before cleaning the external parts, make sure that the power cable is disconnected, and use a soft cloth slightly moistened with water . Do not use soap or other detergents.
3. Always turn off the appliance and unplug the power cord when not in use. If you decide not to use the appliance anymore, it is advisable to make it inoperative by cutting the power cable.

DISPOSAL

- This appliance is built with materials free of toxic or harmful substances
- For its disposal, it is advisable to disassemble the appliance and separate components based on the type of material.

Within the European Union there is an obligation not to dispose of waste equipment electrical and electronic (WEEE) as mixed municipal waste Please refer to Directive 2009/96 / EC of the EUROPEAN PARLAMEN of 27 January 2003 on waste electrical and electronic equipment for their correct disposal.

TECHNICAL SHEET MODEL

Ozone generator with UV lamps for sterilization and sanitization. Type: Ozone generator with UV lamps

Machine body: AISI 304 L stainless steel

Power supply: AC 220/240 V - 50 Hz

Maximum absorbed power: 60 W

Max Ozone production: 500 mg / h

Air flow: 65 mc / h

Dimensions: 253 x 165 x 112mm

Weight: ~ 2 Kg

The maximum ozone production was determined using 95% pure oxygen; with dry air the production of ozone is halved, with ambient air the yield is further reduced. Please take the necessary safety precautions and the provisions or measures necessary for the use of oxygen.

POSSIBLE ANOMALIES

The most frequent causes are usually attributable to the power line. In case of failure, proceed as follows:

- 1. Check the frequency and voltage of the power supply*
- 2. Check the correct connection of the electric cable*
- 3. Check that the on / off switch is in the "I" (ON) position and is illuminated.*

TECHNICAL DATA - SERIAL NUMBER

*This document constitutes the user manual of the generator specified above and defined by i data shown on its identification plate which was compiled in accordance with the DIRECTIVE CEE 89/392, ANNEX I par. 1.7.4 TECHNICAL DATA AND NR. OF SERIAL NUMBER LISTED ON
GENERATOR
OF OZONE*

EC DECLARATION OF CONFORMITY

The model 9066M ozone generator is designed and built to meet the essential health and safety requirements of the European Machinery Safety Directive. We mend that the following declaration loses its validity in the event of modifications, alterations or tampering with the machinery carried out without our prior consent.

The Refrigerantboys Srl company declares under its own responsibility that the OZONE GENERATOR device

MODEL: 9066M

YEAR OF CONSTRUCTION and SERIAL NUMBER are shown on the ozone generator complies with European Directives

CEI EN 60335-1: 2013 / A11: 2015 / EC: 2014

CEI EN 60335-2-65: 2005 / A1: 2010 / A11: 2013

CEI EN 55014-1: 2017

CEI EN 55014-2: 2016

CEI EN 61000-3-2: 2015

CEI EN 61000-3-3: 2014 / EC: 2014 / EC: 2016

SAFETY DATA SHEET OZONE

1. Identification of the substance

Chemical name: Ozone

Chemical formula: O₃

Type of product and use: oxidizing agent

CAS number: 10028-15-6

EINECS number: 233-069-2

5. Firefighting measures

Ozone gas is oxidizing and greatly increases the danger of any type of fire. Stop the flow immediately and turn off the generator before carrying out any intervention.

5.1 Extinguishing media

Suitable extinguishing media: water spray, CO₂, chemical powder extinguishing foam. Unsuitable extinguishing media: None in particular.

5.3 Recommendations for firefighters

If exposed to fumes, wear protective clothing and protective equipment (self-contained breathing apparatus). Protection is particularly necessary if the odor and ozone is clearly noticeable in the environment and / or if the products involved in the fire emit toxic fumes or gases.

6. Other information

6.2 Hazards identification

L'ozono è un forte agente ossidante. Esso reagisce violentemente con composti organici ossidabili come ad esempio benzene, etilene, dieni e alcani. Sia allo stato solido che liquido forma miscele altamente esplosive. Reazioni altrettanto violente ed esplosive si hanno quando viene a contatto con bromo, acido bromidrico, ossidi di azoto e nitroglicerina.

8. Exposure controls / personal protection

The product causes redness in the skin and eyes, eye damage and respiratory irritation. Currently there are exposure limits for the ozone concentrations in the air to which workers are exposed:

TLV-TWA (ACGIH): 0.1 ppm (0.2 mg / m³)

TLV-STEL (ACGIH): 0.3 ppm (0.6 mg / m³)

The olfactory threshold for ozone is 0.04 ppm, that is, approximately four times lower than the current TLV-STEL and only slightly higher than the ambient concentration present in the air of some cities. The smell does not however constitute a reliable index of the concentration present in the air since, after a short period of exposure, there is an addiction to the smell itself.

9. Chemical-physical properties

Appearance: Bluish color, unstable gas in gaseous form, dark blue in liquid form. Odor: Pungent and pungent

Odor threshold: 0.04 mg / m³ (~ 0.02 ppm)

Melting point: -193 °C (80 K)

Boiling point: -112 °C (161 K)

Critical temperature: -12.1 °C

Density: 1.7 kgm⁻³, in c.s.

Solubility (in water): 0.57 g / L at 293 K

Solubility (other): Soluble in methanol and chlorofluorocarbons in equal volumes

Molecular mass (u): 48

Vapor pressure (Pa): 5.5 × 10⁶ at 261 K

10. Stability and reactivity

The product is unstable, very aggressive and is a powerful oxidant (second only to fluorine).

11. Toxicological information

Inhalation of ozone vapors is the main risk for humans (see table below). The most noticeable alterations induced by this gas are mainly in the respiratory system: close concentrations 1 ppm cause a burning sensation in the airways, tearing, dryness of the oral mucosa, rhinitis, cough, headache, asthenia, sometimes with nausea and vomiting.

At higher concentrations, the clinical picture worsens with the manifestation of dyspnea, bronchospasm, pulmonary edema and respiratory paralysis within a short time. Ozone concentrations of 4-5 ppm inhaled for an hour, cause acute pulmonary edema, 10 ppm are lethal within 4 hours 50 ppm within a few minutes. The toxicological picture, other equal conditions being more serious if ozone is produced and inhaled in urban air because, in this case, nitrous gases are also present in almost equal quantities. This mixture (ozone combined with nitrous gas) already at the concentration of 1 ppm, causes damage to the central nervous system after only 2 hours.

0.05 ppm Olfactory perception

0.4 ppm Burning of the upper airways

0.8 - 1 ppm Tearing, cough

2 ppm Nausea, headache, vomiting

5 ppm Bronchoconstriction

10 ppm Deadly from pulmonary edema after 4 hours of exposure

50 ppm Lethal after a few minutes of exposure

15. Regulatory information

Risk Phrases (R)

- R8 May cause ignition of combustible materials
- R9 Explosive when mixed with combustible materials
- R20 Harmful by inhalation
- R48 Danger of serious damage to health by prolonged exposure
- R34 Causes burns
- R36 Irritating to eyes
- R37 Irritating to respiratory system
- R38 Irritating to skin

WARRANTY

1) Refrigerantboys S.r.l. it guarantees the good quality of the materials and the perfect execution of the workings. The company also guarantees that the product is free from manufacturing defects at the time of delivery. The guarantee is valid for years

(two) from the date of delivery of the goods.

2) The company Refrigerantboys S.r.l. undertakes to provide free of charge the parts that are defective due to an ascertained defect in materials or workmanship. For equipment and parts not of its own production, Refrigerantboys S.r.l. will keep the warranty within the limits granted by the manufacturers.

Refrigerantboys S.r.l. will not be liable for damages caused by the intervention of

third parties that have not previously been authorized by you to intervene. Defects and / or faults due to: Refrigerantboys are also excluded from the warranty be liable for damages caused by the intervention of

- a) Natural attrition;
- b) Neglected maintenance;
- c) Inability and negligence in use
- d) Tampering or damage caused by improper use, careless handling or repairs carried out by unauthorized personnel.

3) Repair or replacement of defective parts will be carried out by Mariel Srl at its factories or at the customer's home. In any case, the appliance must be shipped at the expense and risk of the acquirer. In no case can the contract be terminated and damages be paid as a result of the failure of the equipment to function or any delays in replacing defective parts.

This warranty does not affect the customer's rights prescribed by law according to the applicable national legislation, let alone the customer's rights towards the dealer.

The guarantee is subject to compliance with the payment terms and starts from the delivery date of the goods.

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