



***Innovative & Sustainable  
Medical Waste Management Solutions***





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## ABOUT CLEAVION CORPORATION

Cleavion Corp is a medical waste disposal company committed to delivering safe, efficient, and environmentally responsible medical waste management solutions for healthcare facilities across the Philippines.

We specialize in the treatment, handling, and disposal of regulated medical waste—supporting hospitals, clinics, laboratories, and medical institutions in meeting strict safety, compliance, and sustainability requirements. By combining advanced technology, expert knowledge, and responsible operations, Cleavion Corp enables healthcare professionals to focus on patient care while we manage medical waste responsibly.

Headquartered in Manila, Cleavion Corp serves as a dependable partner to healthcare providers seeking modern, compliant, and sustainable waste management solutions.

## MISSION

Our mission is to provide innovative, safe, and sustainable medical waste disposal solutions for healthcare facilities across the Philippines and the ASEAN region. We are committed to reducing environmental impact, supporting regulatory compliance, and helping institutions improve operational efficiency—ensuring healthier communities and a cleaner future.

## VISION

We envision a Philippines and ASEAN region where medical waste is managed through advanced, sustainable, and accessible solutions. By 2030, we aim to be a leading force in building safer, zero-waste healthcare environments and setting the standard for responsible medical waste management.

## CORE VALUES

**Innovation & Excellence** - We invest in advanced, eco-friendly technologies to deliver high-quality waste management solutions.

**Safety & Compliance** - We uphold the highest safety standards and strictly comply with healthcare and environmental regulations.

**Sustainability** - We are committed to reducing environmental impact and supporting global sustainability goals.

**Integrity & Accountability** - We operate with transparency, honesty, and ethical responsibility in all aspects of our business.

**Collaboration** - We work closely with healthcare providers, regulatory bodies, and communities to deliver effective solutions.

**Continuous Improvement** - We continuously enhance our technology, operations, and services to remain industry leaders.

**Community Impact** - Our work goes beyond disposal—creating safer, cleaner environments for communities we serve.

## OUR SERVICES

*Comprehensive Medical Waste Management Solutions*

### **Biological & Infectious Waste Treatment**

Safe and compliant treatment of biological and infectious medical waste generated by healthcare facilities. Our processes effectively neutralize pathogens, minimize health risks, and ensure regulatory compliance.

### **Pathological & Pharmaceutical Waste Disposal**

Secure and regulated disposal of pathological waste, including tissues and surgical specimens, as well as expired or contaminated pharmaceutical products—handled with full traceability and safety.

### **Medical Waste Hauling & Collection**

Reliable and compliant collection and transportation of regulated medical waste from healthcare facilities to treatment or disposal sites, following strict safety and handling protocols.

### **Microwave Disinfection Technology (Bio Purge®)**

Cleavion Corp is the exclusive provider of Bio Purge®, an advanced microwave disinfection system that treats medical waste without incineration or chemical agents—delivering high-efficiency sterilization with minimal environmental impact.

### **Equipment Purchase and Rental Programs**

Flexible acquisition options designed to meet operational and budgetary requirements of healthcare institutions.

### **Technical Services, Calibration & Maintenance**

Free technical services for one (1) year, including preventive maintenance, calibration, repairs, and system performance checks to ensure optimal system reliability.

## ABOUT MICROWAVE DISINFECTION TECHNOLOGY

Microwave disinfection technology uses **electromagnetic waves** with wavelengths ranging from **1 to 1000 millimeters** and frequencies between **several hundred megahertz and 3000 MHz**. For medical waste disinfection, Bio Purge® operates at internationally recognized frequencies of:

- **2450 ± 50 MHz**
- **915 ± 25 MHz**

These frequencies are proven to deliver consistent and effective disinfection performance.

When microwaves pass through a medium, they may either be absorbed or transmitted. **Microwave-absorbing media**, such as water, absorb microwave energy efficiently and convert it into heat. Since most medical waste contains moisture, water molecules rapidly absorb microwave energy and vibrate billions of times per second. This molecular friction generates **high temperatures**, enabling rapid and thorough disinfection.

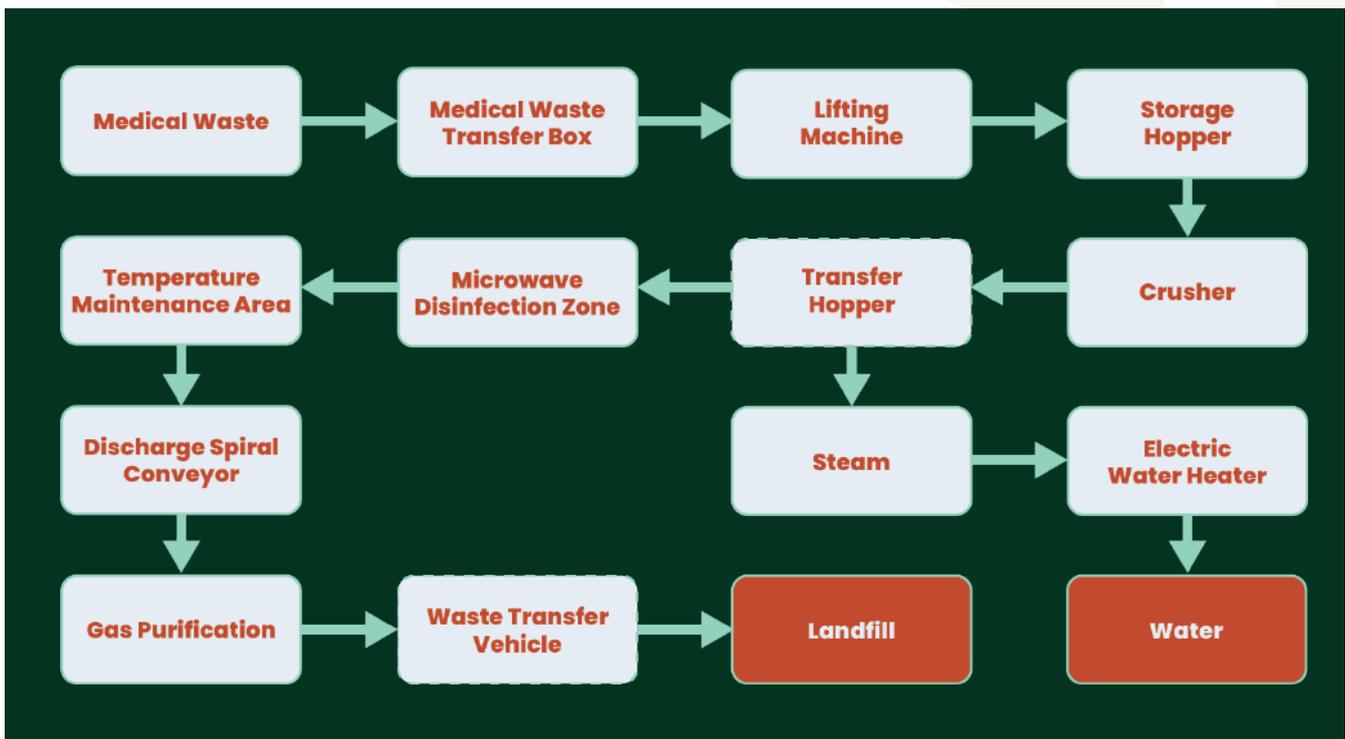
In contrast, materials that do not absorb microwaves act as conductors, allowing energy to pass through with minimal thermal effect—ensuring targeted and efficient heating only where needed.

Beyond thermal effects, microwave energy also impacts microorganisms through:

- ✓ **Electromagnetic field interactions**
- ✓ **Disruption of microbial metabolism**
- ✓ **Structural damage to microbial cells**

Together, these mechanisms ensure **high-level pathogen destruction and reliable sterilization**.

## MEDICAL WASTE MICROWAVE DISINFECTION PROCESS FLOW



1. **Medical Transfer Box** – Waste is securely contained at the source
2. **Lifting Machine** – Hydraulic lifting system raises waste containers
3. **Transfer Hopper** – Automatic opening and feeding of waste
4. **Crusher** – Waste is shredded for uniform treatment
5. **Microwave Disinfection Zone** – Microwave radiation with steam-assisted heating
6. **Temperature Maintenance Area** – Ensures consistent disinfection conditions
7. **Gas Purification System** – Exhaust gases treated and purified
8. **Discharge Conveyor** – Ozone deodorization spiral conveyor
9. **Waste Storage Bin** – Treated waste transferred for final disposal

**ABOUT**

## **Bio-Purge Microwave Medical Waste Solutions**

The Bio-Purge system integrates feeding, shredding, sterilization, discharging, exhaust gas treatment, and other essential functions into one continuous, fully automatic process. Standard models offer a capacity of 30 liters (20–30 kg/h), with larger or smaller options available depending on specific needs.

This advanced solution combines microwave energy and steam heating with a built-in shredder, treatment devices, and intelligent software, delivering reliable sterilization and disposal of infectious biomedical waste across a variety of application scenarios.

Unlike traditional autoclaves, Bio-Purge requires no large volumes of steam, water, electricity, or wastewater treatment, and eliminates the need for high-pressure containers maintained by specialized operators. The result is:

- Easier management of automated processes
- Lower operational risks
- Reduced environmental impact
- Significant cost savings compared to incineration, autoclaves, or friction-based systems

After treatment, medical waste becomes decontaminated, non-infectious, and unrecognizable inert general waste. Depending on local laws and regulations, this residue can be safely disposed of as municipal solid waste (MSW) in landfills or repurposed in incineration power generation projects.

## Technical Specification

<b>Total power of the equipment</b>	22KW 380V/50HZ
<b>Waste treatment Capacity</b>	>30KG/H
<b>Appearance weight</b>	Weight ≤ 1.5t, ensure low-cost transfer for micro trucks.
<b>Overall Dimensions</b>	7,000*3,500*3,000mm
<b>Installed Power</b>	45KW (24KW steam generator included)
<b>Volume reduction</b>	Up to 80%
<b>Microbial Sterilization</b>	The sterilization rate reaches 99.999%
<b>Final waste</b>	Unidentifiable dry combustible material
<b>Load method</b>	Manual dumping
<b>Program Management</b>	Program Management , the processing process is traceable.
<b>Disinfection System</b>	Microwave disinfection, power: 1.25KW*3, Reducer power: 5KW
<b>Broken System</b>	Using dual-axis crushing, power: 11KW
<b>Exhaust gas purification and deodorization system</b>	Initial high-efficiency activated carbon adsorption, power: 0.75Kw
<b>Air Compressor</b>	Power: 1.5KW

## Bio Purge Equipment Configuration

The microwave disinfection system consists of the following integrated units:

- **Feeding Unit** - Hydraulic lifting mechanism for sealed waste containers
- **Crushing Unit** - High-efficiency crusher for size reduction and uniform exposure
- **Microwave Disinfection Processing Unit** - Microwave generator delivering controlled disinfection energy
- **Discharge Unit** - Spiral discharger for treated waste removal
- **Automatic Control Unit** - Centralized control system for safe and efficient operation
- **Exhaust Gas Treatment Unit** - Gas scrubber combined with high-efficiency filtration and UV light
- **Wastewater Treatment Unit** - No wastewater generation during operation

## Technical Features & Advantages

### 1. Clean and Environmentally Responsible

Microwave disinfection offers:

- Rapid processing
- Strong penetration
- Uniform internal and external heating

The process produces no toxic or harmful substances, resulting in zero secondary environmental pollution. The primary operational media—high-temperature steam and electromagnetic waves—make Bio Purge a truly clean technology.

### 2. Cellular-Level Microbial Destruction

Within the microwave field, microbial cell structures are disrupted, upsetting the internal and external balance of cellular materials and leading to irreversible cell death.

### 3. High Sterilization Effectiveness (Log6 Standard)

By adjusting time and temperature parameters:

- Sterilization of reproductive bacteria and fungi achieves **Log6 standard**
- Kill rate for *Bacillus subtilis* spores (**ATCC 9372**) reaches **Log4 standard**

The combination of microwave energy and steam ensures deep penetration into microorganisms, securing consistent disinfection results.

## Testing & Evaluation Standards

### Verified and Regulated Performance

Disinfection effectiveness is evaluated according to the “**Technical Specifications for Centralized Treatment of Medical Waste by Microwave Disinfection (Trial)**”.

- Equipment must be tested by an **authorized testing agency** (e.g., CDC or environmental authorities) after installation and maintenance
- Biological testing methods are used to verify sterilization effectiveness
- During operation, effectiveness testing must be conducted at least twice per year

## Emission Control & Environmental Compliance

The waste gas treatment system includes:

- Split-type square cyclone tower
- Primary and high-efficiency filter boxes
- Microwave UV photo-oxidation
- Induced draft fan

Purified exhaust emissions meet **GB16297-1996: Integrated Emission Standard of Air Pollutants (Second Level)** or equivalent regulatory standards.




**BIO-PURGE MACHINES**
**Bio-Purge JRX-0.4T**


Input Total Power	22 kW
Voltage/Frequency	380V/50Hz
Microwave Frequency	2450 MHz
Microwave Output Power	1000W
Microwave Leakage Value	$\leq 5\text{mW/cm}^2$
Exterior Materials	Stainless Steel
Internal Cavity Material	Stainless Steel
Overall Dimensions	221.5 cm x 165 cm x 225 cm
Total Equipment Mass	1250 kg
Equipment Capacity	30L (20-30 kg/h)
Disinfection Temperature	95°C~100°C
Heating Time	>15min
Disinfection Time	>45 minutes
Sterilization Rate	99.999%
Microbial Filtration Efficiency	99.995%

**Bio-Purge JRX-0.5T**


Input Total Power	22 kW
Voltage/Frequency	380V/50Hz
Microwave Frequency	2450 MHz
Microwave Output Power	1000W
Microwave Leakage Value	$\leq 5\text{mW/cm}^2$
Exterior Materials	Stainless Steel
Internal Cavity Material	Stainless Steel
Overall Dimensions	271.5 cm x 165 cm x 225 cm
Total Equipment Mass	1500 kg
Equipment Capacity	50L(30-50kg/h)
Disinfection Temperature	95°C~100°C
Heating Time	>15min
Disinfection Time	>45 minutes
Sterilization Rate	99.999%
Microbial Filtration Efficiency	99.995%

## BIO-PURGE MACHINES

### Bio-Purge JRX-0.1T



Input Total Power	12 kW
Voltage/Frequency	380V/50Hz
Microwave Frequency	2450 MHz
Microwave Output Power	1000W
Microwave Leakage Value	$\leq 5\text{mW}/\text{cm}^2$
Exterior Materials	Stainless Steel
Internal Cavity Material	Stainless Steel
Overall Dimensions	100 cm x 50 cm x 100 cm
Total Equipment Mass	85 kg
Equipment Capacity	15L (5-8 kg/h)
Disinfection Temperature	95°C~100°C
Heating Time	>15min
Disinfection Time	>35 minutes
Sterilization Rate	99.999%
Microbial Filtration Efficiency	99.995%

### Bio-Purge JRX-1T



Input Total Power	74 kW
Voltage/Frequency	380V/50Hz
Microwave Frequency	2450 MHz
Microwave Output Power	1000W
Microwave Leakage Value	$\leq 5\text{mW}/\text{cm}^2$
Exterior Materials	Stainless Steel
Internal Cavity Material	Stainless Steel
Overall Dimensions	540 cm x 230 cm x 245 cm
Total Equipment Mass	3800 kg
Equipment Capacity	100L(125 kg/h)
Disinfection Temperature	95°C~100°C
Heating Time	>15min
Disinfection Time	>45 minutes
Sterilization Rate	99.999%
Microbial Filtration Efficiency	99.995%


**BIO-PURGE MACHINES**
**Bio-Purge JRX-300**


Input Total Power	13 kW
Voltage/Frequency	380V/50Hz
Microwave Frequency	2450 MHz
Microwave Output Power	1000W
Microwave Leakage Value	<math>\leq 5\text{mW/cm}^2</math>
Exterior Materials	Stainless Steel
Internal Cavity Material	Stainless Steel
Overall Dimensions	63.4 cm x 50.3 cm x 74.9 cm
Total Equipment Mass	49 kg
Equipment Capacity	7L (2-3 kg/h)
Disinfection Temperature	95°C~100°C
Heating Time	>15min
Disinfection Time	>35 minutes
Sterilization Rate	99.999%
Microbial Filtration Efficiency	99.995%

**Bio-Purge JRX-3T**


Input Total Power	120 kW
Voltage/Frequency	380V/50Hz
Microwave Frequency	2450 MHz
Microwave Output Power	1000W
Microwave Leakage Value	<math>\leq 5\text{mW/cm}^2</math>
Exterior Materials	Stainless Steel
Internal Cavity Material	Stainless Steel
Overall Dimensions	650 cm x 300 cm x 325 cm
Total Equipment Mass	14.5 tons
Equipment Capacity	3T/16 hours
Disinfection Temperature	95°C~100°C
Heating Time	>15min
Disinfection Time	>45 minutes
Sterilization Rate	99.999%
Microbial Filtration Efficiency	99.995%


**BIO-PURGE MACHINES**
**Bio-Purge JRX-5T**


Input Total Power	117 kW
Voltage/Frequency	380V/50Hz
Microwave Frequency	2450 MHz
Microwave Output Power	1000W
Microwave Leakage Value	$\leq 5\text{mW}/\text{cm}^2$
Exterior Materials	Stainless Steel
Internal Cavity Material	Stainless Steel
Overall Dimensions	735 cm x 300 cm x 325 cm
Total Equipment Mass	13.8 T
Equipment Capacity	5T/16 hours
Disinfection Temperature	95°C~100°C
Heating Time	>15min
Disinfection Time	>45 minutes
Sterilization Rate	99.999%
Microbial Filtration Efficiency	99.995%

**Bio-Purge JRX-8T**


Input Total Power	156 kW
Voltage/Frequency	380V/50Hz
Microwave Frequency	2450 MHz
Microwave Output Power	1000W
Microwave Leakage Value	$\leq 5\text{mW}/\text{cm}^2$
Exterior Materials	Stainless Steel
Internal Cavity Material	Stainless Steel
Overall Dimensions	850 cm x 300 cm x 325 cm
Total Equipment Mass	15 tons
Equipment Capacity	8T/16 hours
Disinfection Temperature	95°C~100°C
Heating Time	>15min
Disinfection Time	>45 minutes
Sterilization Rate	99.999%
Microbial Filtration Efficiency	99.995%


**BIO-PURGE MACHINES**
**Bio-Purge JRX-10T**


Input Total Power	172 kW
Voltage/Frequency	380V/50Hz
Microwave Frequency	2450 MHz
Microwave Output Power	1000W
Microwave Leakage Value	<5mW/cm <sup>2</sup>
Exterior Materials	Stainless Steel
Internal Cavity Material	Stainless Steel
Overall Dimensions	850 cm x 306 cm x 336 cm
Total Equipment Mass	16 T
Equipment Capacity	10T/16 hours
Disinfection Temperature	95°C~100°C
Heating Time	>15min
Disinfection Time	>45 minutes
Sterilization Rate	99.999%
Microbial Filtration Efficiency	99.995%

**Bio-Purge JRX-500KG**


Power Supply	Three-phase 380V±10%, 50Hz
Rated Apparent Power	<8KVA
Microwave Output Power	≥115 KW (adjustable)
Inlet/Outlet Height	2250 mm
Equipment Width	3000 mm
Conveyor Speed	1-5 m/min
Control Method	Automated Control
Overall Dimensions	7000*3000*2850mm



## BIO-PURGE MACHINES

### Bio-Purge TRHB-400

Waste gas purification equipment for medical waste

Power Supply	Three-phase 380V±10%, 50Hz
Rated Apparent Power	4KW
Microwave Output Power	≥4KW (adjustable)
Equipment Dimensions	1500*1500*2600mm
Material	Stainless Steel
Control Method	PLC Automatic Control



### Bio-Purge TRHB-406

UV photo-oxygen waste gas purification equipment

Power Supply	Three-phase 380V±10%, 50Hz
Rated Apparent Power	16 KW
Microwave Output Power	≥16KW (adjustable)
Equipment Dimensions	2200*1200*1500mm
Material	Stainless Steel
Control Method	PLC Automatic Control

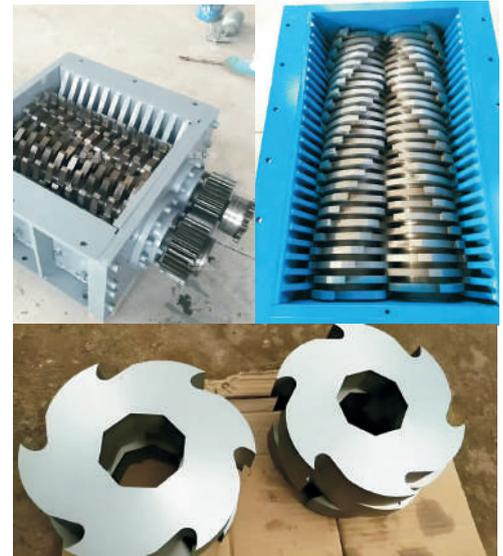




## BIO-PURGE MACHINES

### Bio-Purge TRHB-20

Medical Waste crusher equipment



Power Supply	Three-phase 380V±10%, 50Hz
Rated Apparent Power	20 KW
UV Output Power	≥4KW (adjustable)
Equipment Dimensions	800*600*350mm
Material	KD11
Control Method	PLC Automatic Control

### Bio-Purge JRX-30

Medical waste high-temperature steam sterilization equipment



Power Supply	Three-phase 380V±10%, 50Hz
Rated Apparent Power	54KW
UV Output Power	22KW (adjustable)
Equipment Dimensions	2600*1500*1300mm
Material	Stainless Steel
Control Method	PLC Automatic Control



## TECHNICAL SERVICES AND WARRANTY

Our expert technical team provides free technical services for one (1) year, including preventive maintenance, calibration, repairs, and system performance checks—ensuring optimal operation, safety, and long-term reliability.



## WHY CHOOSE BIO PURGE<sup>®</sup> BY CLEAVION CORP

- ✓ **Exclusive microwave disinfection provider**
- ✓ **Non-incineration, chemical-free process**
- ✓ **High-capacity, automated operation**
- ✓ **Proven sterilization performance**
- ✓ **Low environmental impact**
- ✓ **Compliant with healthcare and environmental regulations**



**CLEAVION**  
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