



IBATECH

# CoBRA M-4500



Chemical & Biological Eradicator

PATENT PENDING



CoBRA M-4500 is a chemical and biological agent decontamination system for sensitive material using cold plasma technology developed by IBATECH. It has a versatile, modular design that can be adapted to any working environment.

COBRA cold plasma is generated from air at atmospheric pressure, which does not produce hazardous waste or require consumables such as carrier gases, and does not use decontaminating products, reducing the logistical burden by not using water in the process. Cold plasma decontamination is ideal for treating devices that are susceptible to damage from decontamination procedures involving water, humidity, temperature, vacuum or pressure, such as telephones, computers, radios, etc.

Cobra M - 4500 consists of two interconnected units:



- **Power and Control Unit:** Responsible for energising the cold plasma reactors and controlling the decontamination process, including the subsequent treatment of the air inside the decontamination chamber using a ruggedised PC.
- **Decontamination Chamber:** This is a 400-litre chamber that integrates four (4) reactors arranged on the interior sides and responsible for generating the cold plasma to decontaminate the sensitive material inside.

## TECHNICAL SPECIFICATIONS COBRA M-4500

Effective volume of the decontamination chamber	Approximately 400 litres
Decontamination technology	Cold plasma
Voltage range (kV)	0-20
Frequency range (kHz)	0-15
Modulation	Amplitude and frequency
External dimensions / Weight:	
Control Unit	680 x 915 x 864 mm / 106 kg
Decontamination Chamber	680 x 915 x 953 mm / 95 kg
Power consumption	Approx. 1300 W
Power supply	230Vac / 50Hz
Gas treatment system	Catalytic destruction and neutralisation of reactive species



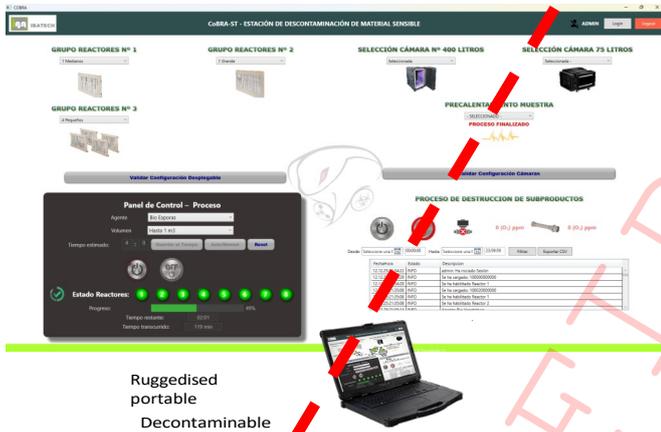
Both the Control Unit and the COBRA M-4500 decontamination chamber have rugged enclosures with the following characteristics:

- Rotomoulded **medium-density polyethylene (LMDP) exterior material.**
- **Military certified to MIL-STD-810H against corrosive environments, humidity, thermal shock, vibration,** among others.
- **IP 67 protection rating** against the ingress of solids and liquids and stainless steel butterfly closures.
- **Internal RACK structure cushioned** in aluminium composed of four (4) elastomer shock absorbers.

### DECONTAMINATION PROCESS:

- 1) The sensitive material to be decontaminated is placed inside the chamber.
- 2) The cold plasma decontamination process begins by exciting the reactors inside. During the process, the air contained in the chamber is ionised, producing cold plasma, which inactivates biological agents and degrades chemical agents on the surface of the sensitive material.
- 3) Once the cold plasma decontamination process is complete, the air treatment system is activated through catalytic destruction and activated carbon filtration.
- 4) Recovery of the decontaminated sensitive material.

### SUPERVISION AND CONTROL



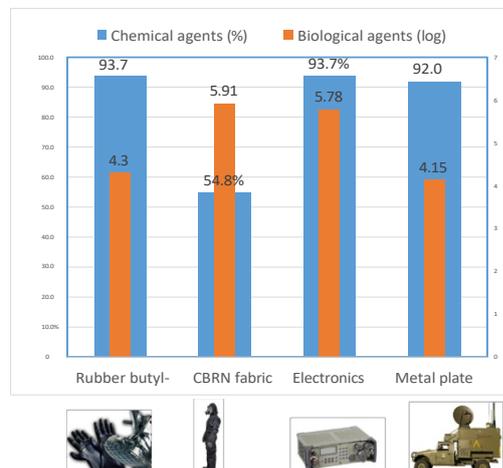
- Control of the decontamination and air treatment process.
- Monitoring of reactor voltage and amperage.
- Manual or pre-configured default time selection.
- Monitoring of decontamination progress with time control, including final air treatment process.
- Environmental monitoring of the air treatment process (temperature, humidity, ozone, etc.).
- Emergency stop.
- User control: Basic and Administrator.
- Database including parameterisation and selection of process times.
- Process history

### DECONTAMINATION CERTIFIED BY MILITARY LABORATORIES

IBATECH's cold plasma technology has been tested in external reference laboratories to verify the effectiveness of cold plasma as a method for decontaminating biological and chemical agents. The test results have confirmed the decontamination capacity to neutralise chemical and biological warfare agents, as well as the safe development of the process for a variety of materials, including butyl rubber, NBC fabric, metal surfaces and electronic devices such as USB memory sticks. Certificates from military laboratories are available upon request.

### Advantages of cold plasma:

- Avoids the use of liquid-based solvents that generate waste.
- Guaranteed functionality of decontaminated objects.
- Decontaminates both biological and chemical agents on various surfaces.
- Low power consumption.
- Does not require carrier gases such as nitrogen or argon.
- Does not require low-pressure or vacuum chambers.
- Only requires air at atmospheric pressure, avoiding the use of vacuum chambers, reducing costs and weight.
- Minimal logistical footprint.



### DECONTAMINATED AGENTS:

- Sulfur Mustard
- Soman (GD)
- VX
- Cyclosarin (GF)
- Tabun
- Bacillus anthracis spores
- Francisella tularensis
- Vibrio cholerae
- Clostridium botulinum
- Cowpox virus