

Medical waste
disinfection & sorting



66

Welcome to the Ecosteryl family

Our mission

We imagine, develop,
manufacture and supply
innovative environmental
solutions in the field of medical
waste treatment.

As a machine manufacturer for more than 70 years, Ecosteryl has developed unique expertise in creating state-of-the-art environmental equipment.

Ecosteryl aims to eradicate the environmental and health problems associated with medical waste worldwide. Through the best possible technology on the market, our goal is to contribute to a safer and cleaner planet for future generations by becoming a leading player in the health sector and circular economy.

Beyond our expertise and collaborators, we put our customers at the heart of our project. Addressing the global problem of medical waste treatment, we assist them worldwide to successfully face health and environmental challenges.

With more than 220 installations in over 65 countries, Ecosteryl is a leader in the management of infectious medical waste.

A family company: our history

1947



Raoul Dufrasne creates A.M.B, a manufacturer of specialized industry machinery.

The historic workshops located in Jemappes (Mons) still manufacture all our parts.

2000



Philippe Dufrasne focuses the company's activities on environmental solutions.

A.M.B designs and patents technologies that use microwaves in the field of medical waste treatment.

A.M.B becomes AMB Ecosteryl and specializes in technologies benefiting health and the environment.

2015



Ecosteryl expands and so does the family. Romain and Olivier Dufrasne join the executive board.

Our company has been family-owned for three generations.

Ecosteryl doubles its size and staff.

The machines are exported worldwide.

The company's offerings include machines handling from 75 to over 300 kg of infectious medical waste per hour.



2021

2025



AMB Ecosteryl becomes Ecosteryl.
The assembly halls and offices double
in size.

The health crisis highlighted
Ecosteryl's quick and robust solutions
aimed at disinfecting infectious
medical waste.

Ecosteryl is selected as a key supplier
by renowned global organizations
such as the World Health
Organization, the World Bank, the
United Nations, UNICEF, the Pasteur
Institute, and the Solar Impulse
Foundation.



Ecosteryl is a certified B Corp company.

Thanks to our new machine, the
Ecosteryl 500, Ecosteryl's offerings
include machines handling from 75 to
500 kg of infectious medical waste per
hour.

The range of machines now includes
a sorting machine (R-Steryl), paving
the way for a circular economy in the
sector.

Our values



Innovation

We have always been recognized as innovative, and it is important to us to maintain this lead.

We are constantly seeking new solutions by mobilizing our entire team.

To offer a unique service, we continuously improve the experience of each customer.

Innovation. Proximity.



Proximity

We build and strengthen bonds of trust. Being an Ecosteryl partner or customer means joining a large family as a full member.

We offer our clients the best strategic vision.



Sustainability

We contribute to a sustainable environment for the planet, for our relationships with clients, and for the longevity of our company.

Waste recovery is an integral part of our strategy towards a circular economy.

The robustness and durability of our machines make them the most sustainable equipment on the market.

Sustainability. Responsibility.



Responsibility

We make every possible effort to satisfy our customers. Our involvement matches our ambitions.

In accordance with the company vision, every employee is encouraged to take initiatives in the search for solutions.

The strength of the team boosts the achievement of our objectives.



Disinfection of infectious medical waste

Infectious medical waste is considered a risk and cannot follow the traditional household waste stream. To avoid health risks, it is placed in specific containers and must be rapidly disinfected.

The waste is either:

- directly disinfected within hospitals/ health centres;
- collected and treated by service providers on centralized platforms.

There are several ways to treat it:

- **Incineration.**
- **Autoclaving.**
- **Dry heat** via Ecosteryl.

Green, fully electric and eco-friendly technologies are favored. They use no water or chemicals and produce no toxic fumes.

These solutions will take hold worldwide in the coming years.

Past



Future



What kind of waste can be treated by Ecosteryl?



All types of medical waste (liquid or solid) considered infectious, including human or animal pathological waste.



Prickly, sharp, and cutting materials.



Cytotoxic and radioactive waste, in accordance with international guidelines.

The medical waste recycling process

1

Medical waste, such as needles, is placed in specific containers.



2

The containers/bins are sent to a treatment center (on site or to a service provider).



4

The disinfected waste is sorted with the R-Steryl machine. The sorted materials can then be reused to manufacture new containers or other plastic items.



3

The Ecosteryl machines disinfect the infectious medical waste. It is then assimilated to household waste.



The process

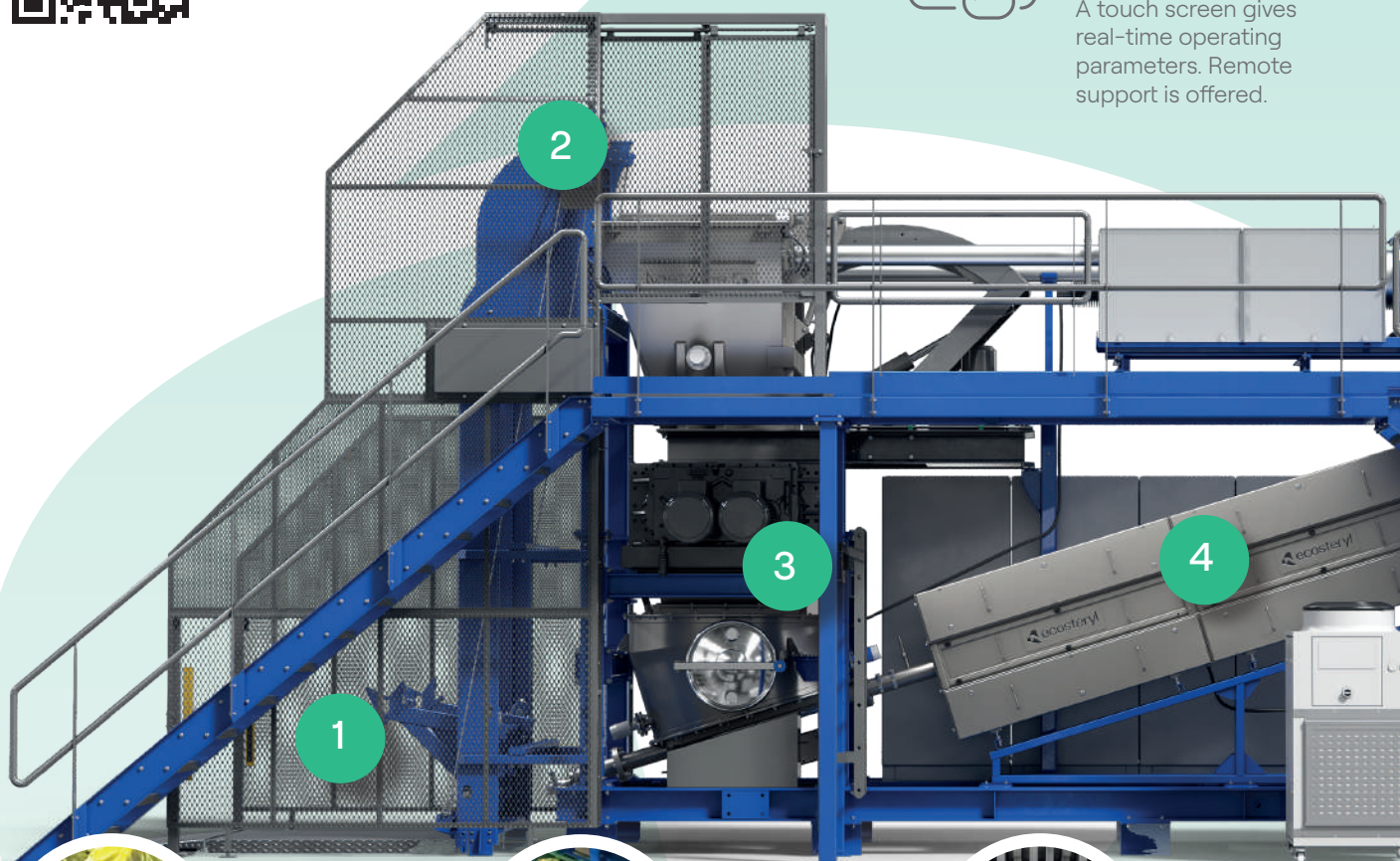


www.ecosteryl.com



Control

A touch screen gives real-time operating parameters. Remote support is offered.



1



2



3

Weighing

A waste container (wheelie bin) is placed on the automated loading system of the machine.

(Applies to models 125, 250, and 500).

Loading

Loading is automated: as soon as the loading hopper is empty, a new container is loaded.

(Applies to models 125, 250, 500, and to the 75+ in semi-automatic mode).

Shredding

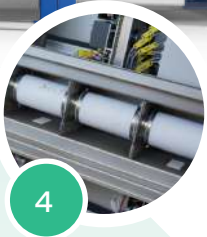
A powerful, reliable, and slow industrial shredder reduces the medical waste volume up to 80%. The four axes shredder and a screen specially developed by Ecosteryl ensure calibrated shredding.

Several systems ensure the optimal operation of the shredder, preventing any damage to its cutting mechanism (via an anti-blocking system).

Disinfection of medical waste



Sorting and circular economy with R-Steryl



Preheating through microwaves

In less than three minutes, the waste reaches a temperature of around 100°C at the microwave cabinet's transfer screw.

An automated control system guarantees the quality of the preheating.



Temperature maintenance and exit

The heated waste is kept for one hour in the tank at a temperature of around 100°C. The combination of these two parameters (time and temperature) ensures full disinfection.

The waste that exits the machine is disinfected, dry, and unrecognizable. It can directly join the traditional household waste collection circuit or be sent to the R-Steryl sorting center.



Sorting of disinfected waste

The disinfected waste is supplied to the R-Steryl sorting center. It is sorted by type of material, size, and color, according to the customer's defined parameters.

Products

75



75+



125



250



500



R-Steryl



Ecosteryl 75

Ecosteryl 75 is designed for hospitals that want to treat their own infectious medical waste with an **on-site compact solution.**

www.ecosteryl.com



Powerful four-shaft shredder.



Dry, disinfected, unrecognizable and recyclable waste.



Capacities

75—100 kg/h
0.25—1.5 t/day

The minimum processing capacity of Ecosteryl 75 is 75 kg per hour. This equates to 1,000 L/h to 1,333 L/h with a density of 0.075 kg/L.

Ecosteryl 75 is the ideal solution if you have to treat from 250 kg to 1,500 kg of medical waste per day.



100%

Electric and
ecological



Technical data

Dimensions (L x W x H)	4.5 m x 4.1 m x 3.2 m
Maximum working height	4 m
Weight	4.5 tons
Type of process	Automatic and continuous process
Electrical powers	Four-shaft shredder, power of 22 kW Microwave generator, power of 8 kW and frequency of 2,450 MHz
Typical power consumption	20 kWh
Staff required	1 person can operate 2 machines
Installation, commissioning and training	On-site, by our team



Option

Remote monitoring

Ecosteryl 75+

Ecosteryl 75+ is similar to the Ecosteryl 75 machine, but prevents manual waste loading by using **an automated container loading device**.

www.ecosteryl.com



Powerful four-shaft shredder.



Dry, disinfected, unrecognizable and recyclable waste.



Capacities

75–100 kg/h
0.25–1.5 t/day

The minimum processing capacity of Ecosteryl 75+ is 75 kg per hour. This equates to 1,000 L/h to 1,333 L/h with a density of 0.075 kg/L.

Ecosteryl 75+ is the ideal solution if you have to treat from 250 kg to 1,500 kg of medical waste per day.

75 +



100%

Electric and
ecological



Technical data

Dimensions (L x W x H)	5.6 m x 4.3 m x 3.4 m
Maximum working height	6 m
Weight	5 tons
Type of process	Automatic and continuous process
Electrical powers	Four-shaft shredder, power of 22 kW Microwave generator, power of 8 kW and frequency of 2,450 MHz
Typical power consumption	22 kWh
Staff required	1 person can operate 2 machines
Installation, commissioning and training	On-site, by our team



Option

Remote monitoring

Ecosteryl 125

Ecosteryl 125 is designed **for medium to large hospitals and service providers** that want a sustainable solution for the treatment of infectious medical waste.

www.ecosteryl.com



Powerful four-shaft shredder.



Dry, disinfected, unrecognizable and recyclable waste.



Capacities

125—175 kg/h
1—3.5 t/day

The minimum processing capacity of Ecosteryl 125 is 125 kg per hour. This equates to 1,667 L/h to 2,333 L/h with a density of 0.075 kg/L.

Ecosteryl 125 is the ideal solution if you have to treat from 1 ton to 3.5 tons of medical waste per day.

125



100%

Electric and ecological



Technical data

Dimensions (L x W x H)	9.5 m (+ conveyor of 3 or 6 m) x 4.6 m x 5 m
Maximum working height	7 m
Weight	13.5 tons
Type of process	Automatic and continuous process
Electrical powers	Four-shaft shredder, power of 37 kW Microwave generator, power of 12 kW and frequency of 2,450 MHz
Average power consumption	45 kWh
Staff required	1 person can operate 2 machines
Installation, commissioning and training	On-site, by our team



Options

- Remote monitoring
- Online reports
- Link to the R-Steryl sorting center

Ecosteryl 250

Ecosteryl 250 is designed **for service providers** who want a sustainable solution for the treatment of infectious medical waste.

www.ecosteryl.com



Powerful four-shaft shredder.



Dry, disinfected, unrecognizable and recyclable waste.



Capacities

250—300 kg/h
2—7 t/day

The minimum processing capacity of Ecosteryl 250 is 250 kg per hour. This equates to 3,334 L/h to 4,000 L/h with a density of 0.075 kg/L.

Ecosteryl 250 is the ideal solution if you have to treat from 2 to 7 tons of medical waste per day.

250



100%

Electric and
ecological



Technical data

Dimensions (L x W x H)	11.9 m (+ conveyor of 3 or 6 m) x 3.6 m x 5 m
Maximum working height	7 m
Weight	15.5 tons
Type of process	Automatic and continuous process
Electrical powers	Four-shaft shredder, power of 37 kW Microwave generator, power of 24 kW and frequency of 2,450 MHz
Average power consumption	60 kWh
Staff required	1 person can operate 2 machines
Installation, commissioning and training	On-site, by our team



Options

- Remote monitoring
- Online reports
- Link to the R-Steryl sorting center

Ecosteryl 500

Ecosteryl 500 is designed **for large service providers** who are looking for a sustainable solution for the treatment of infectious medical waste.

www.ecosteryl.com



Powerful four-shaft shredder.



Dry, disinfected, unrecognizable and recyclable waste.



Capacities

500 kg/h

4–12 t/day

The minimum processing capacity of Ecosteryl 500 is 500 kg per hour. This equates to 6,675 L/h with a density of 0.075 kg/L.

Ecosteryl 500 is the ideal solution if you need to treat from 4 to 12 tons of medical waste per day.



500



100%

Electric and ecological



Technical data

Dimensions (L x W x H)	14.5 m (+ conveyor of 3 or 6 m) x 5 m x 6 m
Maximum working height	7.5 m
Weight	24.4 tons
Type of process	Automatic and continuous process
Electrical powers	Four-shaft shredder, power of 37 kW Microwave generator, power of 36 kW and frequency of 2,450 MHz
Average power consumption	80 kWh
Staff required	1 person can operate 2 machines
Installation, commissioning and training	On-site, by our team



Options

- Remote monitoring
- Online reports
- Link to the R-Steryl sorting center

R-Steryl



R-Steryl is the **sorting center** used downstream from the Ecosteryl machines. This unique process in the world sorts disinfected medical waste for recycling. The R-Steryl sorting center can recover up to 80% of the waste.

www.ecosteryl.com



Disinfected medical waste.



Recovered medical waste (ready to be transformed into granules for the plastics industry).



Recoverable materials

When leaving an Ecosteryl machine, the disinfected waste is unrecognizable and dry. This material has the ideal characteristics for sorting.

R-Steryl can be configured according to the waste of each customer, the fractions to be recovered and market conditions.

Typically, the following fractions can be sorted: PET, PP, PVC, PS, LDPE, HDPE, PC, cardboard...

Capacity: up to 2 tons/hour.

Sorting technologies: near infrared optical sorter and aeraulic system.




Environmental and financial benefits

The R-Steryl sorting center is recommended to anyone operating an Ecosteryl machine willing to implement a circular economy.

This unique technology reduces your waste disposal costs.

Rather than paying for the disposal of your disinfected waste, you can sell it as raw material, turning costs into revenue.

The process sorts the waste into 3 fractions:

-  plastic materials to be used as raw material for the plastics industry;
-  light waste, used as refuse-derived fuel;
-  Non-recovered material fractions.



66
Your waste
becomes a
recoverable
material



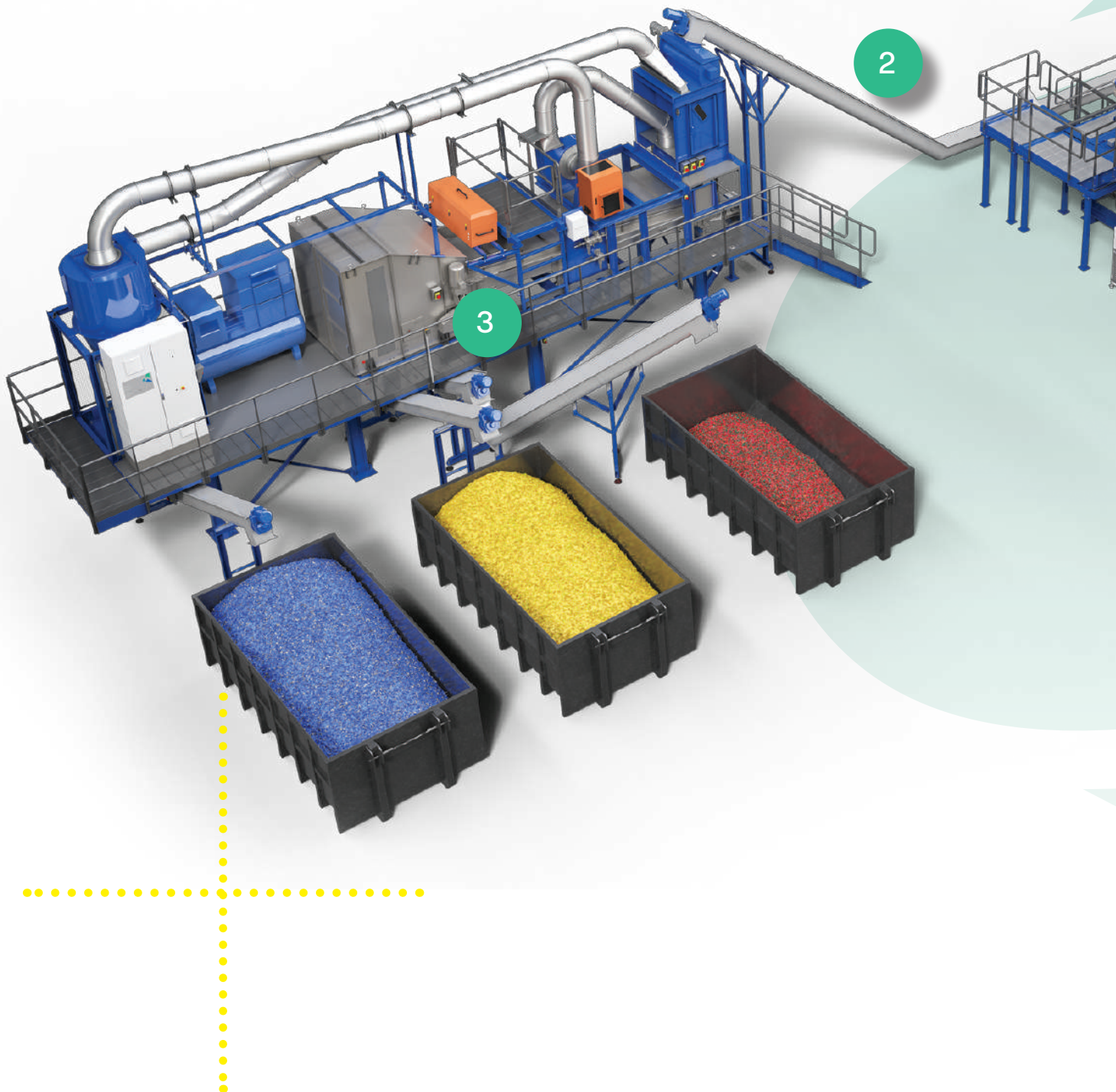
Technical data

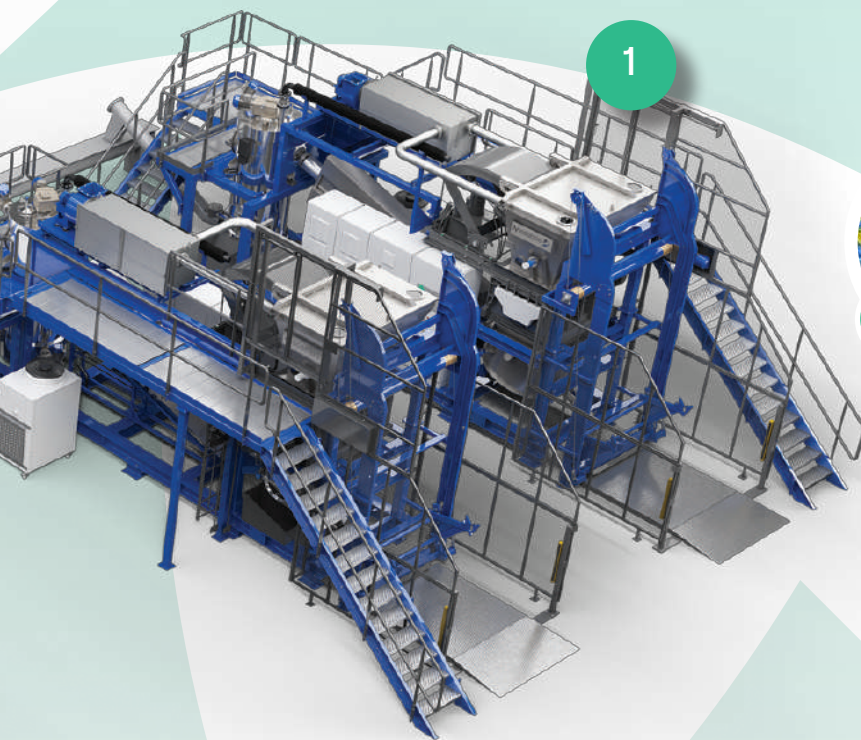
Dimensions (L x W x H)	11.5 m x 3 m x 5.3 m
Maximum working height	6.5 m
Specific requirement	Connection to an existing Ecosteryl treatment machine
Type of process	Automatic and continuous process
Sorting type	Optical sorter and aeraulic system
Average power consumption	25 kWh
Staff required	1 person can operate 1 Ecosteryl and 1 R-Steryl
Installation, commissioning and training	On-site, by our team

Ecosteryl + R-Steryl :

The only global solution worldwide to obtain
disinfected and sorted medical waste

www.ecosteryl.com





Efficient medical waste disinfection

The Ecosteryl disinfection machine efficiently shreds and disinfects medical waste, ensuring compliance with health and safety regulations.



Completely safe and dry output

Disinfected medical waste can be disposed of in a landfill, incinerated, or, preferably, recovered.



Disinfected waste sorting

R-Steryl technology separates recyclable materials from disinfected waste, contributing to a circular economy by recovering valuable resources.



Fully electric Renewable energy

All our machines are fully electric, reducing operational costs and emissions.

The use of renewable energy sources further reduce your carbon footprint.

The steps

01

Design & Innovation



www.ecosteryl.com

03

Shipping & Commissioning





02

Manufacture & Assembly

04

Training & Follow-up



Track your data

Our range of machines includes **digital components** enabling users to remotely monitor, analyse, and optimise the performance of their equipment.



Real-time monitoring

Monitor your machine's performance at any time and from any device. Our integrated Ewon technology ensures a smooth interface for real-time monitoring, accessible from a phone, a tablet, or a computer.

Using a secure VPN, you can remotely access the data from the last 3 shifts.

The following data will be available for the last 3 shifts:

- Total weight in kilograms of disinfected waste
- Average kilograms processed per hour
- Microwave usage percentage



Reporting

The system gathers daily metrics, including input and holding tank weights, temperatures, and processing times.

Data is securely stored for a period of up to 6 months. It is easily accessible through a USB drive.

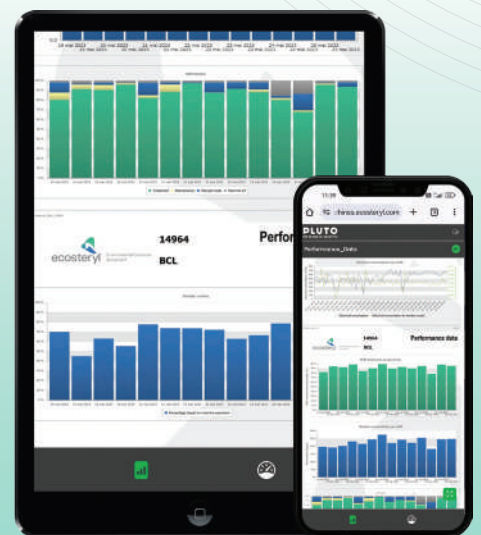
Yet, we do more than merely gathering data.

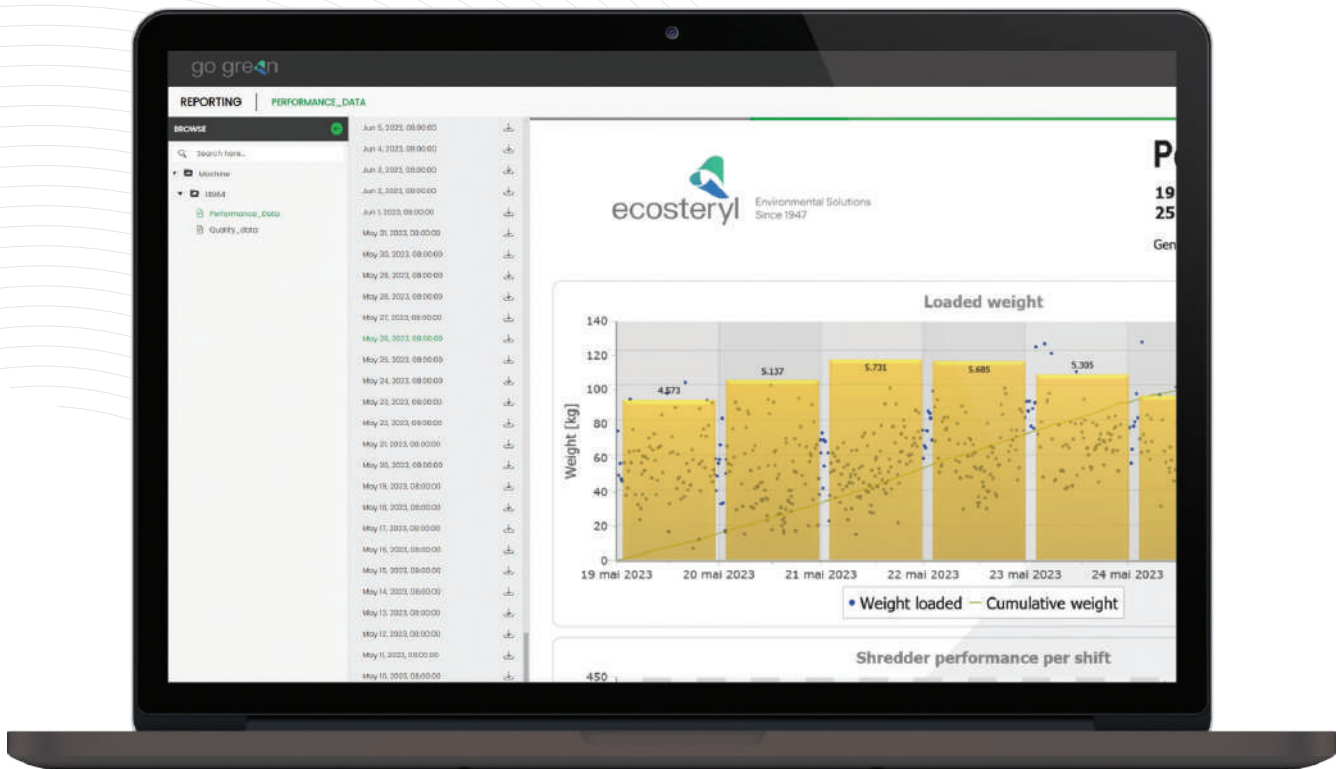
We provide detailed reports with key performance indicators (KPIs) for quality, performance, and productivity. These reports can be provided through email on a daily, weekly, or monthly basis.

Our team is ready to work with you to analyse these reports and optimise the efficiency of your machine.

Looking for a smooth integration? We offer tailored development solutions to connect our system to your existing MES (Manufacturing Execution System).

We can gather and transmit data to support your third-party systems, ensuring a smooth workflow.





Touch screens

The new Siemens touch screens interface on Ecosteryl machines have been designed to be user-friendly and **maximise operational efficiency**.

Due to an easy-to-use interface, these screens assist operators and contribute to a better operational reliability.

The screen interface uses simple, recognizable pictograms as well as machine elements, allowing any operator to operate the system.

The key functions can be reached using a maximum of three keys. Daily operations are simplified owing to the ability to control parts of the machine directly from the screen.

Remote visual monitoring using colour-coded outlines allows users to easily check the status of the machine even from a distance, promoting a quick response if needed.

Are you facing an issue?
Ecosteryl technicians can take control of the machine remotely to diagnose and help resolve issues while guiding your on-site technicians.

This allows us to resolve up to 98% of level 1 to 3 issues.



Benefits of a fully electric solution

- It is an economical, safe and efficient process.
- Our fully electric technology is the most eco-friendly solution for the treatment of infectious medical waste.
- The machine does not emit emissions into the atmosphere, and does not need water (no treatment of wastewater is thus required).
- The machine emits little no smells. The working conditions are more pleasant.
- The final waste is dry, i.e. sortable and recoverable with the R-Steryl machine.
- The technology is proven and patented.



An unrivalled lifespan

66



Strengths

- Proven disinfection at min 6log₁₀ (reduction of 99.9999%).
- Cutting-edge technology.
- Powerful shredder with an anti-blocking system.
- Unrivalled lifespan (the first machine is still in operation after almost 20 years).
- Machine manufacture, assembly and tests in our workshops before shipment.
- Continuous availability of the after-sales service.
- Only electricity required (no water, no gaz).
- Rapid installation and on-site training.
- Low running costs; a profitable solution.
- Comprehensive project support (e.g. a pre-installation visit to guide the building construction...).
- Remote maintenance service is available 24/7.

Certifications & Recognitions

We follow French norm NF X30-503 which is known to be one of the most stringent in the world.
The technology behind Ecosteryl machines is certified by the LNE (National Metrology and Testing Laboratory).

The equipment complies with all the regulatory standards required for disinfection efficiency.
Ecosteryl complies with CE, CSA and UL markings.

The machines are ISO 9001 certified.

Our planet

220

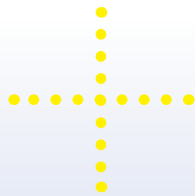
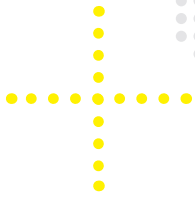
installations and sites

5

continents

65

countries



Environmental Solutions
Since 1947



go green n

What about tomorrow?

Sustainable goals

Beyond the environmental aspect, our company's development is in line and compliance with the United Nations' Sustainable Development Goals.

The United Nations targeted 17 goals to change our world, which include:

The Sustainable Development Goals, known as the SDGs, were adopted in 2015 by the 193 Member States of the UN. Their ambition is to eradicate poverty and inequalities by ensuring an ecological and inclusive transition by 2030.

By joining the Ecosteryl adventure, you will help to commit to these objectives, in particular when it comes to the following goals:

- Objective 3** Good health and well-being
- Objective 6** Clean water and sanitation
- Objective 7** Affordable and clean energy
- Objective 8** Decent work and economic growth
- Objective 9** Industry, innovation and infrastructure
- Objective 11** Sustainable cities and communities
- Objective 12** Responsible consumption and production
- Objective 13** Climate action
- Objective 17** Partnerships for the goals



66

The Ecosteryl machines are recognized worldwide for their performance in terms of safety, productivity, reliability and robustness.

References

As a leader in many countries, we work with the Ministries of Health and Environment.

We are proud to count international companies such as Veolia, Suez, Séché Healthcare and Cenviro among our customers.

The World Health Organization, the World Bank, Unicef and the United Nations are among the international organizations that have honored us with their prestigious references.

Our teams have installed machines in the most remote or hard-to-reach areas, such as Palestine or Nauru.

A proof of quality: existing Ecosteryl customers continue to purchase ... Ecosteryl machines.

66

In the midst of COVID-19 outbreak, the MoH of Gambia needed to urge its decision for a solution that both solves the short term sanitary crisis and the long term protection of our environment.

With the support of the World Bank, we selected Ecosteryl for its unique clean microwave technology and are satisfied with their proactive mentality and constant support, which is helping in our quest to modernize healthcare waste management in the country."

M. Fatajo - Program Manager Environmental Health, MOH of the Gambia

66

We studied the different solutions on the market and chose Ecosteryl. Their machines are the most environment-friendly and they have low maintenance costs.

M. Karam - Medical Waste Manager
arcenciel - Lebanon



ecosteryl

A brand of AMB s.a.

1, avenue Nicolas Copernic
7000 Mons - Belgium

+32 65 82 26 81
sales@ecosteryl.com



www.ecosteryl.com