Pioneering the future of ecological hospitals

newster® GROUP

The new age sterilization

newster® **GROUP**

The new age sterilization

www.newstergroup.com

Index

"Each anniversary is a precious opportunity to see what has been done, what challenges we have won and what still awaits us. It is an honor for me to be able to look back at our Company's history, starting 25 years ago, with my team made up by Antonio Baccini, Marco Pericoli, Romeo Angelini and Vitantonio De Negris.

Thanks to them, their professionalism and a bit of creativity - which is always important in this field - we were able to install units all over the world.

We are lucky enough to get to know and interact with different cultures every day: we can enrich and even transform our experience. This is why our company profile also contains the stories of those who share our idea of a new sustainable hospital model.

Newster Group represents an integrated response to all our customers' needs, both in Italy and all around the world. Thanks to constant investments in Research and Development, we are able to develop performing technologies to reduce hospitals' environmental impact. We dream of developing a new model of sustainable hospital by selecting partners who care about both social and environmental responsibility.

We celebrate this milestone, besides over 560 machines in 5 different continents and 45 countries, we'll be able to share a part of us, our territory and the Made in Italy."

"We work to develop a sustainable hospital model that respects the environmental resources for the health and well-being of the community."

Thank you.
Andrea

01

Identity

An Italian Group created to transform hospitals into ecological and sustainable areas

Our Company

We have created a group to cover all the aspects related to the sterilization and management of potentially infectious healthcare waste.

For over 25 years we have been working to transform hospitals into ecological and sustainable areas.

newster® **GROUP**

The new age sterilization

newster. SYSTEM steriltech WASTE COMPANY coopera NETWORK

Newster Group is made up by **Newster System, Steriltech Waste Company** and **Coopera Network**.

- **Newster System** designs and manufactures systems for the treatment of healthcare waste.
- **Steriltech** is Newster's dealer for Italy and offers integrated services for the management of potentially infectious healthcare waste.
- **Coopera** focuses on the development of international cooperation and training projects.

Our **patented and certified technologies** are the result of constant investments in Research and Development. We work in sinergy with Italian and international organizations, NGO's, Universities and health facilities.

over
25 YEARS
of experience
in technologies
for the sterilization
of hospital waste

"By going abroad and investing in international relations and Research and Development have become the benchmark for the healthcare waste sterilization."

Our history

Our history begins in 1996, when the patent of an innovative technology for the ecological treatment of infectious healthcare waste was acquired.

In the 1990s, the world became aware of the negative impact of medical waste incineration, which produces large quantities of POPs (Persistent Organic Pollutants) such as dioxins and furans. We have acquired the "Frictional Heat Treatment" patented technology well before the 2004 Convention of Stockholm, which invited governments to reduce or eliminate POPs.

Between 1996 and 1998 we developed the first Newster machine prototype designed for the Italian market. We had never thought about selling abroad before the year 2000, then the big leap: **Poland, Greece, Russia and the Dominican Republic**.

The next step was the investment in international relations, so that our technology was introduced to the relevant international bodies. And then, the big **investment in Research and Development** and a team that has continued to grow since 2011.

Since then, we have never stopped designing new solutions for the disposal of infectious healthcare waste, up to the recent patent for indoor sanitization systems. Since the first SARS epidemic emergency, preassembled solutions have been designed to offer a prompt response to military corps and civil protection. We now export in **more than 45 countries, thanks to our distribution network.**

Our machines have covered more than 2.5 million kilometers in 25 years and treated more than 100.000 tons of infectious solid waste.

The team continues to grow and does not stop the development of new solutions that could be, even in the future, at the service of healthcare facilities to make them safe and 100% green.

1996 25 2021

The Company has evolved over the years, opening different departments, including:

1996
Production and Commercial Office

2002
Logistic

2008
Tender Office

2010
International Relations Office

2011
R&D Department

2017
Partecipation in international Cooperation projects

2019
Innovative SME

2021
Newster Group was founded

Our values, our commitment

We want to offer a new sustainable model for waste and water management to every hospital facility in the world.

Therefore, we provide the best technologies and ecological solutions to ensure a safe management of hospital waste all around the world, according to the laws in force and the highest environmental standards.

Our machines have covered more than **2,5 million km** in 25 years: **58 turns around the world!**

-56%
CO_2 emissions
compared to waste-to-energy plants*

over 560 machines
currently operating since the beginning of our activity

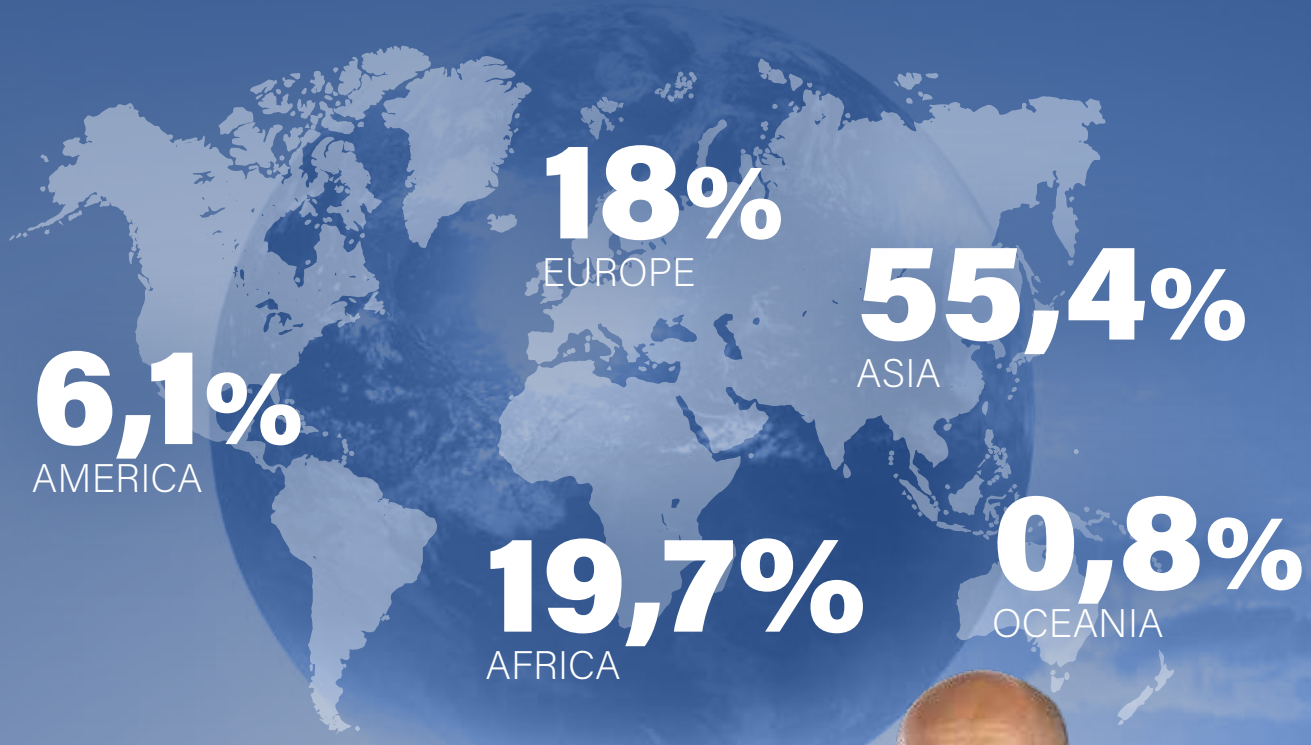
946k
mc of infected water
treated every year

101
tons of hazardous healthcare waste
treated every year

* LCA Newster study

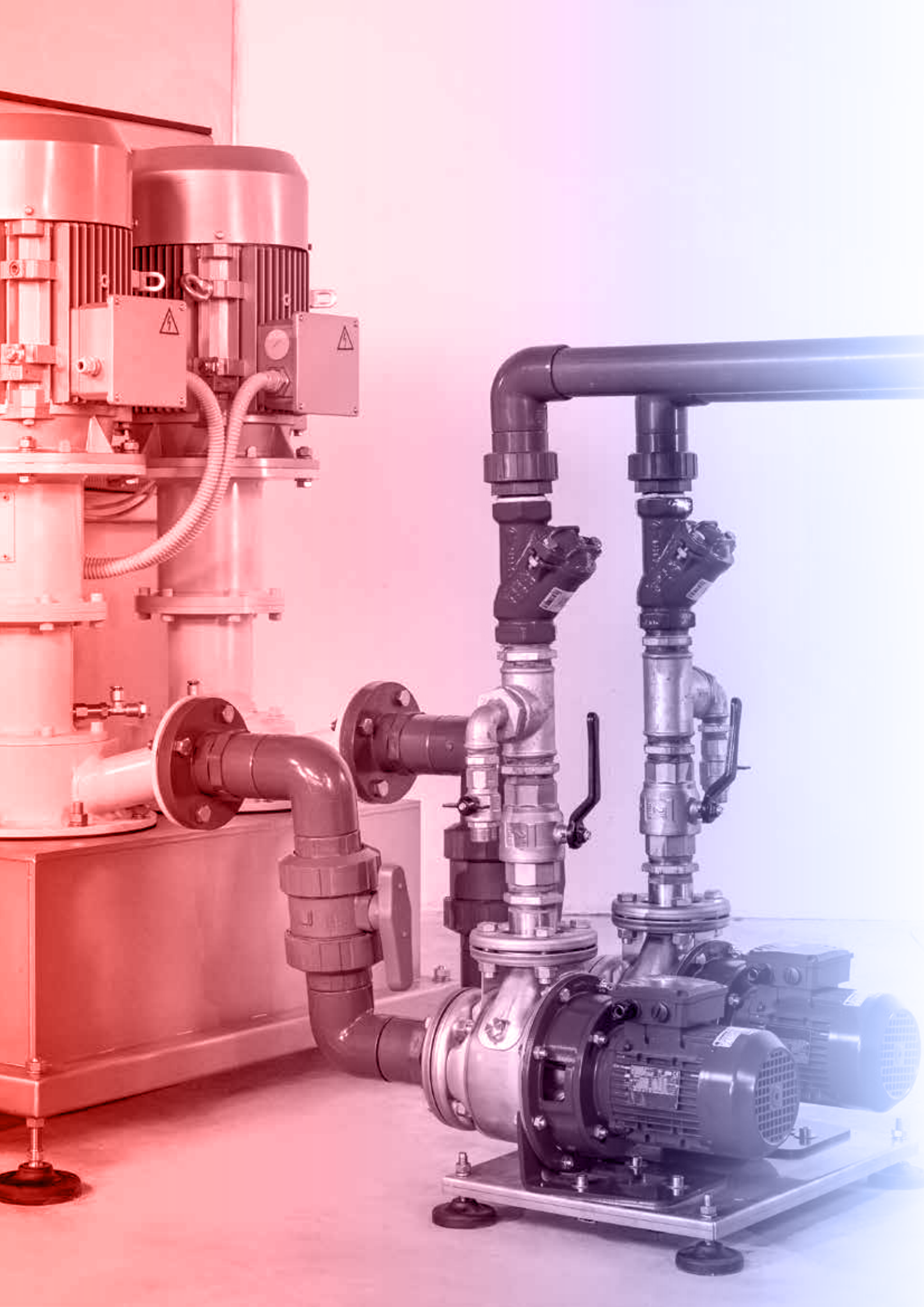
We have been able to reach almost every country, from South Africa to Australia, from Panama to Estonia. We are present in all **5 continents**, for a total of **more than 45 countries**.

One of the best things about our job is being able to interact with many different cultures. We are like chameleons: we adapt to each country's situation and needs, without losing the deep connection with our homeland.



"We started with the Italian market. Today, after 25 years we have the opportunity to sell in 45 different countries."

Marco Pericoli
Head of technical Department and Production



"Made in Italy" and sustainable technologies for the planet

Our technologies are entirely designed and developed in Italy.

We have selected the best local companies for all the mechanicals components of our technologies. Newster is an ISO 9001-2015 certified company and all machines are assembled according to the highest quality standards.

We are from Rimini, a city in central Italy, where the main Italian excellences of the automotive and pharmaceutical industries are born.

The territory is part of our project: besides design and planning, we represent the Italian culture, art, way of life and hospitality in the world. Business is not only about machines, Newster is more than that.

We believe that being part of a business means sharing values and growing together with the customers by offering solutions for a more sustainable world.

ISO 9001:2015
50100482

Newster Group is a member of national and international organization, such as:

ISWA - International Solid Waste Association

General Directorate for International Cooperation and Development of the European Commission (DEVCO)

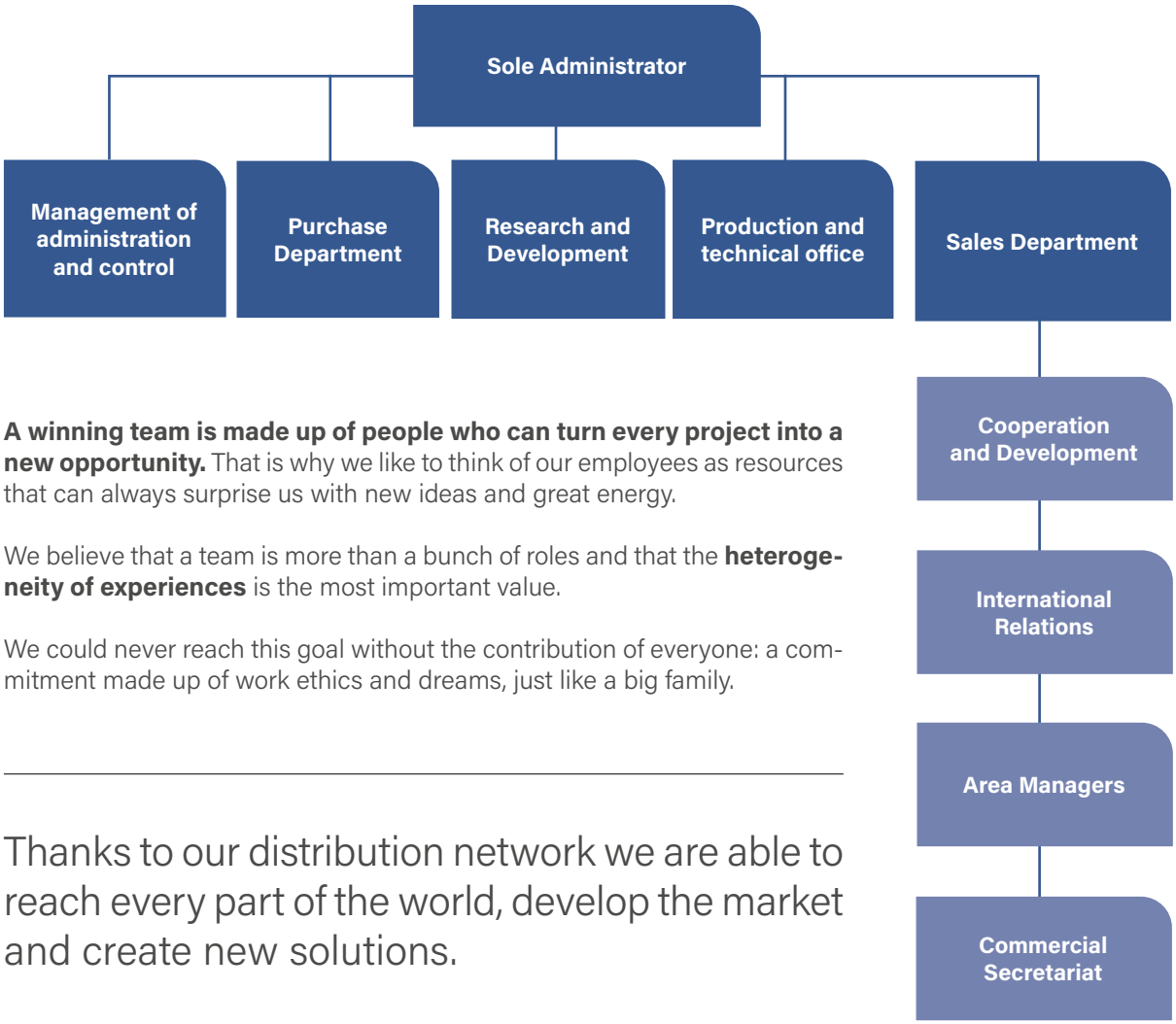
Global Compact Network Italia (GCNI) Clust-ER Health
Clust-ER Greentech

United nations Global Market Place (UNGM)

"We are a small company, but we have the ability to reach every part of the world".

Andrea Bascucci
Sole Director

Business organization



A winning team is made up of people who can turn every project into a new opportunity. That is why we like to think of our employees as resources that can always surprise us with new ideas and great energy.

We believe that a team is more than a bunch of roles and that the **heterogeneity of experiences** is the most important value.

We could never reach this goal without the contribution of everyone: a commitment made up of work ethics and dreams, just like a big family.

Thanks to our distribution network we are able to reach every part of the world, develop the market and create new solutions.

Training

Newster Group is the story of a shared project, where every single person is part of the training process. Scientific and technical skills are only a part of the added value that each of them express: **it is in the exchange and comparison that the best ideas and new synergies are born.**

We believe in training as an activity that allows us to grow, share information and receive feedback on our technologies.

Staff training

It is true that you never stop learning: allow to gain valuable knowledge and new skills. Collaborations and international partnerships enable us to expand our horizons.

Customer training

We have developed Newster Academy: **a face-to-face and online training system** that allows us to provide certified content and assistance in every country of the world. Thanks to an **online platform**, we can guarantee **remote access.**

Strengthening key and cross-cutting skills:

Project management
Data Visualization
Urban and Hazardous Waste Manager
Business development
European Project Management
Risk managment

We are a team of professionals with certified experiences that allow us to design integrated solutions for healthcare facilities.

1 **Online learning platform**

2 **Skills certification system**

3 **Remote technical assistance**

4 **Practical on-the-job training**

newster® ACADEMY

A project of Newster Group

"A perfect business model does not exist, companies are made out of people connected to each other with reliable relations. This is just who we are."

Andrea Bascucci
Sole Director

Interconnected and innovative solutions for ecological hospitals

We design and develop highly advanced machines for the treatment of hospital solid waste, hospital sewage water, laboratory fluid waste and the air sanitization even for emergency situations.

We are Europe's leader in technologies for infectious healthcare waste. The only company in the world that offers a complete and ecological solution for most types of hazardous and non-hazardous waste produced in health care facilities.

HOSPITAL SOLID WASTE

The sustainable alternative for the treatment of medical

HOSPITAL SEWAGE WATER

Ecological solutions for hospital wastewater treatment

LABORATORY FLUID WASTE TREATMENT

Sustainable on-site treatment of lab fluid waste

AIR SANITIZING TREATMENT

An innovative solution for air and surface sanitization

EMERGENCY

Infectious prevention and control systems in modular solutions

newster. IN·SIGHT 4.0

Newster machines can be equipped with remote monitoring and self-diagnosis functions. Via Insight WebAPP the systems can be connected and guarantee a better traceability of HCW stream.

IN-SIGHT 4.0 is based on a cloud system which guarantees a secure and mutual connection between the hospital information system and the treatment machine.

The real time operation guarantees:

- **operator and Newster machines record;**
- **environmental, administrative and security data filling;**
- **downloadable digital system register;**
- **preventive/predictive maintenance plan with activity log.**

Research and Development

All our technologies are the result of a deep commitment that goes far beyond the standards and market requirements. Between 2017 and 2020 we invested more than 1.6 million euros in Research and Development.

9,5% average annual investments from 2017 to 2020 in Research and Development

Our technological innovation is supported by the European Regional Development fund through Emilia-Romagna region POR-FESR projects:

- **TRUeLAB** (Treatment Plant for Neutralization of Medical Laboratory Fluid Waste);
- **TRANSFoRM** (Plant for the neutralization and disposal of expired pharmaceuticals);
- **SviPRO** (Business development and promotion through international trade fairs and conferences for information purposes).

Business Development

Our solutions are designed and patented to comply with health and safety requirements set out by European directives. We also provide specialized assistance for the registration and accreditation of our technologies in the countries of distribution and installation.

Certificate of Excellence

We have been awarded with a certificate of excellence by the European Union for our Fast project, "From laboratory fluid waste to sewage water". Thanks to this, we have introduced our technology for the on-site treatment of laboratory liquid waste.

It is an innovative and customized machine for the treatment of liquid waste produced by clinical laboratories.

Achievements

Newster technology (FHT, Frictional Heat Treatment) is included in the list of Best Available Technologies (BATs) for the sterilization of infectious waste addressed in the 2004 Stockholm Convention.

International bodies reporting on Newster technology:

1. **UNEP,** Compendium of technologies for the treatment/destruction of health waste (2012);
2. **Health Care Without Harm**, Alternative technologies for the treatment of hospital waste - A global inventory (2014);
3. **Safe management of wastes from health-care activities** (2017);
4. **WHO** - Overview of technologies for treatment of infectious and sharp waste from healthcare facilities (2019).

Green Digital Transformation

Considering the recent green digital transformation promoted by Next Generation EU, we have achieved three important Performance Digital Traceability "PDT" certifications in blockchain mode:

Certification "Machine 4.0 Ready"
related to the Newster sterilizers and their compliance with Industry 4.0 requirements.

Certification PDT Green-line
related to the environmental benefits deriving from Newster on-site sterilization systems.

Certification PDT Product custom
related to the technological and economic benefits deriving from Newster on-site sterilization.

"The best thing about our job is being creative. To invent something new every time, in different environments, with different cultures."


BUFFERING TAN
TA1 - TA2- TA
R
TANK "TA1"
LABORATORY LIQUID WASTE
1) HEMATOLOGY
2) SEROLOGY
3) BIOCHEMISTRY
4)
TANK "TA2"
LABORATORY LIQUID WASTE
1) COAGULATION
2) CYTOLOGY
3) COLORANTS
4)

Universities and studies

We would never be able to innovate without the firm belief in Research and Development: is a constant exchange and collaboration between students and researchers.

Several Universities thesis have been published throughtout the years. All of them have in depth analysed our technologies or investigated new applications.

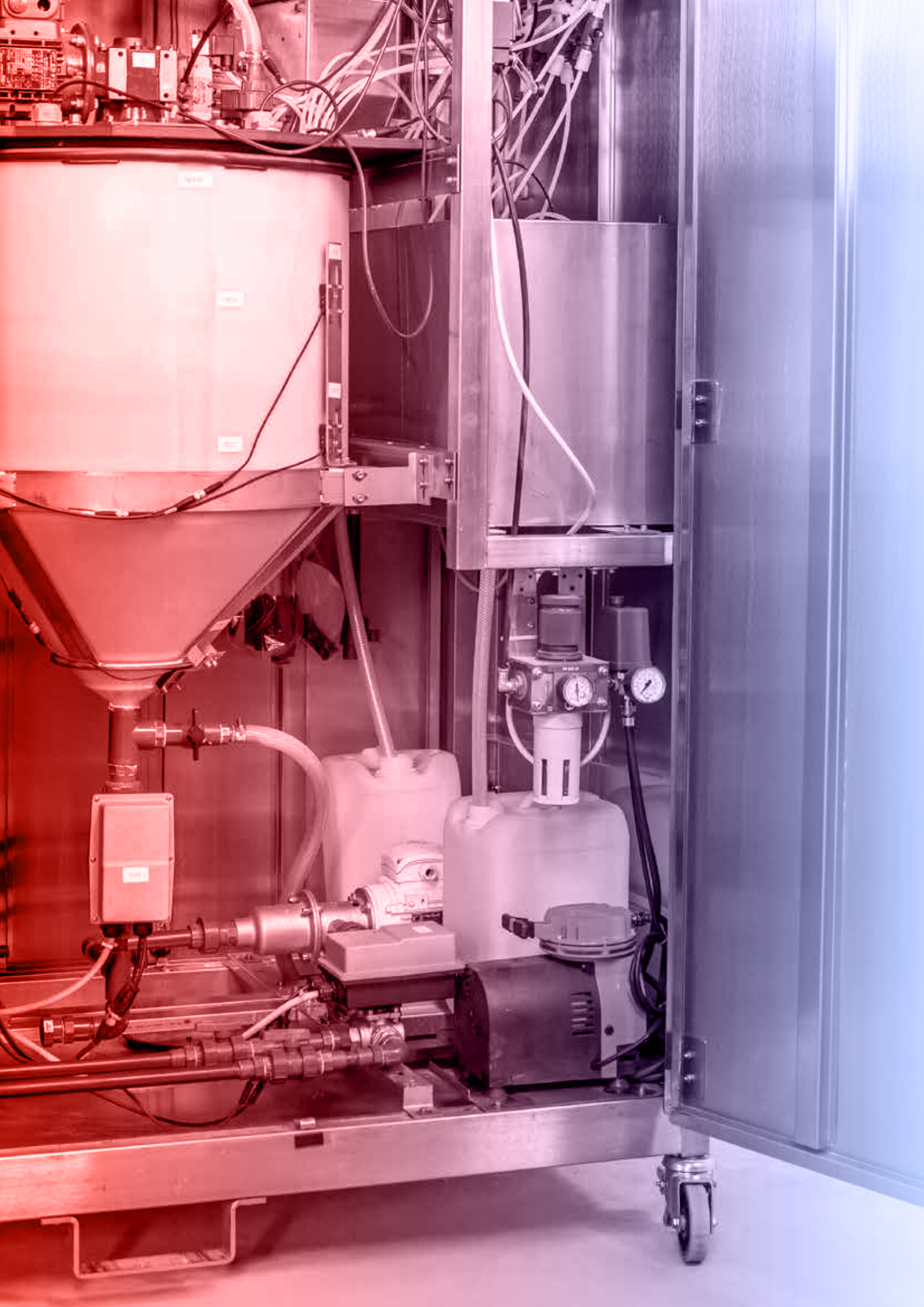
We collaborate with prestigious Italian and international Universities and with Research Institutes:

- **Australian National University;**
- **Università degli Studi di Modena e Reggio Emilia;**
- **Università Politecnica delle Marche;**
- **Università di Bologna;**
- **La Sapienza, Università di Roma;**
- **Istituto Romagnolo per lo Studio dei Tumori "Dino Amadori" - IRST;**
- **Istituto Nazionale Tumori IRCCS Fondazione G. Pascale.**

Our technologies grow together with the challenges of the market. Universities are essential partners for the research of new solutions.

02

Environmental Sustainability



Sustainable technologies for healthcare waste treatment

Our technologies can **reduce both chemical and biological risks**, contributing to a more sustainable management of water and natural resources.

We enable a **fully circular approach** to recover the treated solid waste as second raw material and the liquid waste like process water.

We design solutions to **reduce the environmental impact and management costs of solid and liquid hospital waste.**

Process sustainability

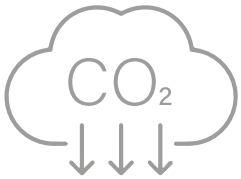
LCA studies (Life Cycle Assessment) show how the on-site treatment of solid and liquid waste is more environmentally sustainable than the current management practice, which is based on transport to waste-to-energy plants or industrial sewage treatment plants.

"Sustainability? In our case it means creating technological solutions to achieve environmental and social sustainability."

Andrea Bascucci
Sole Administrator

On-site sterilization of hazardous healthcare waste: high technology, low environmental impact

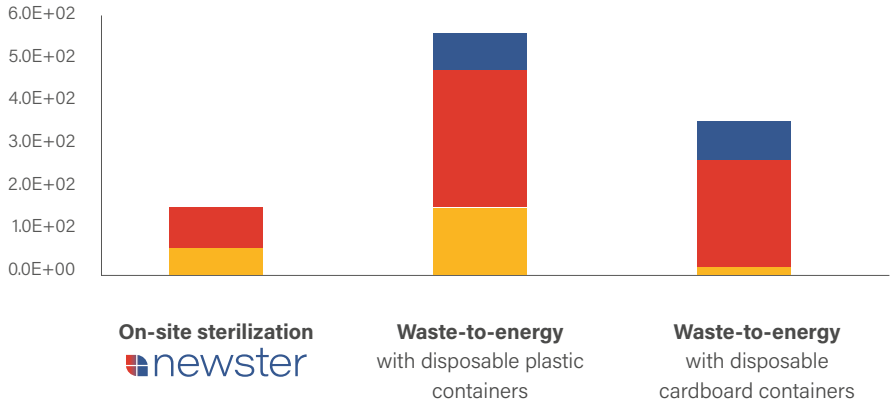
The Carbon Footprint of the on-site sterilization is significantly lower than the amount of carbon dioxide released by traditional systems, which are based on the hazardous healthcare waste transport to waste-to-energy plants.



The **Carbon Footprint,** is a parameter estimating greenhouse gas emissions caused by a product or process. It is generally expressed as tonnes of CO_2 equivalent.

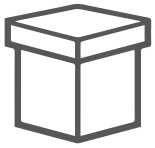
Carbon Footprint *(kg CO_2 eq.)*

generated by disposal processes of infectious solid waste



72%

Reduction of CO_2eq. emissions compared to waste-to-energy with plastic containers, thanks to the adoption of on-site sterilization with Newster technology.



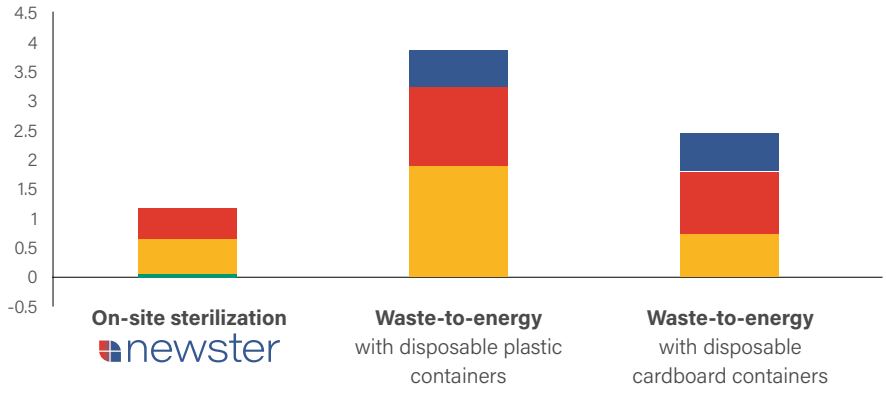
56%

Riduzione delle emissioni di CO_2eq. compared to waste-to-energy with cardboard containers, thanks to the adoption of on-site sterilization with Newster technology.

The LCA study allows to group together the environmental impacts related to the hazardous healthcare waste management, thanks to the Person Equivalent (PE) indicator.

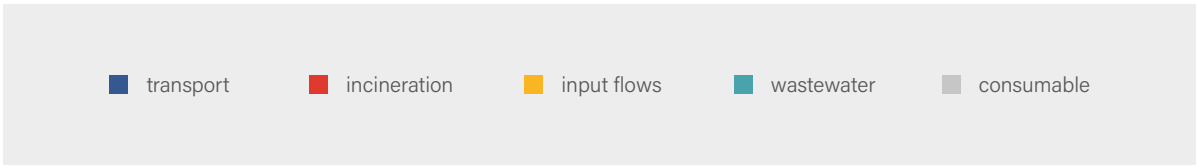
Environmental Impact *[P.E.*]*

generated by disposal systems of infectious solid waste



TheLifeCycleAnalysis is a methodology for assessing environmental impacts associated with all the stages of the life cycle of a commercial product, process, or service, starting from the consumption of resources and the emissions generated.

* **Person Equivalent:** number of people having the same impact on one year in Europe.



70%

Reduction of environmental impacts compared to waste-to-energy with plastic containers, thanks to on-site sterilization with Newster technology.

50%

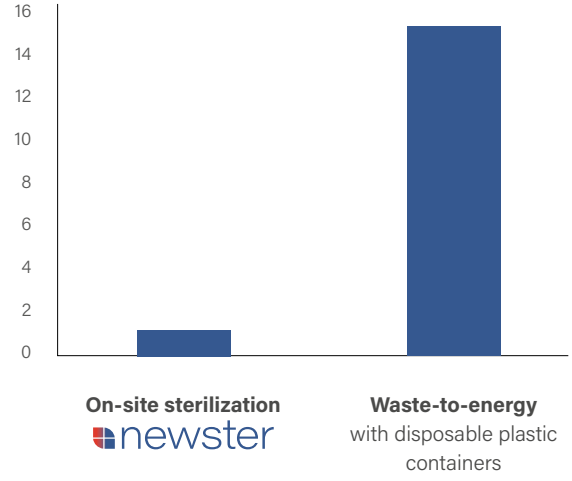
Reduction of environmental impacts compared to waste-to-energy with cardboard containers, thanks to on-site sterilization with Newster technology.

On-site treatment of liquid waste from clinical laboratories: from liquid waste to process water

The Carbon Footprint of on-site treatment is significantly lower than the amount of carbon dioxide released by traditional systems, which are based on liquid waste transport to waste-to-energy or sewage treatment plants.

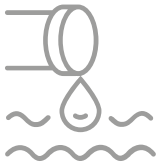
Carbon Foorprint *(kg CO_2 eq.)*

generated by disposal systems of laboratory liquid waste



91%

Reduction of CO_2eq. emissions, compared to waste-to-energy with plastic containers, thanks to on-site treatment with Newster technology.

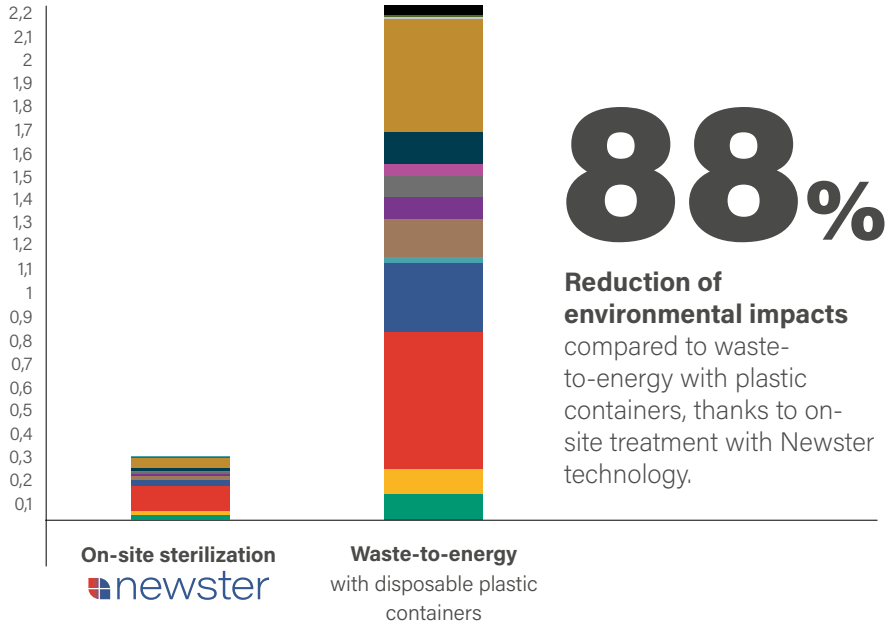


The transfer to public sewerage
The liquid waste treated onsite can be discharged into the public sewer system, reducing the impact generated by the constant transport to industrial disposal sites.

The LCA study allows to group together the environmental impact related to laboratory liquid waste management, thanks to the Person Equivalent (PE) indicator.

Environmental Footprint *[P.E.*]*

generated by disposal process of laboratory liquid waste



88%

Reduction of environmental impacts compared to waste-to-energy with plastic containers, thanks to on-site treatment with Newster technology.

* **Person Equivalent:** number of people having the same impact on one year in Europe.

- climate change
- toxicity to humans, no carcinogenic effect
- toxicity to humans, carcinogenic
- particle
- ionizing radiation HH
- photochemical ozone formation
- acidification
- terrestral eutrophication
- eutrophication of freshwater
- marine eutrophication
- ecotoxicity of fresh water
- use of land
- ionizing radiation E (interim)
- ozone-depleting

A life cycle with lower environmental impact

Our technologies are designed to reduce the environmental impact generated both at the production and at the end of life phase.

The main environmental benefit is related to the ecological design which allows to chose and use materials that guarantee a high performance over time. They can also find an easy and capillary recovery chain when sent for disposal.

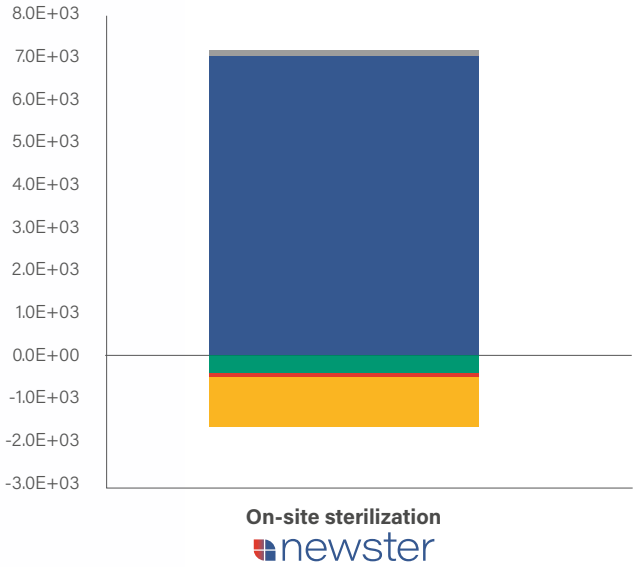
Ecological design

The Life Cycle Analysis shows that the main sterilizer's materials are characterized by a high recycling potential. This feature can compensate for the environmental impacts deriving from the production phase, once the sterilizer's end of life has been reached.

The LCA study has shown that the environmental benefit, deriving from the possibility of recycling the main materials of the machine, is able to balance around 60% of the impact associated with the production of the sterilizer.

Carbon Footprint *(kg CO_2 eq.)*

concerning the production and end-of-life stage of the sterilizer



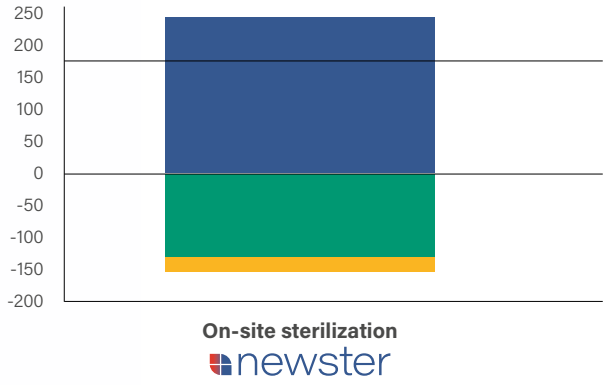
30%

Environmental benefit

In terms of Carbon Footprint, the high recycling potential of the componing materials can balance the CO2 eq. emissions related to the production phase of the sterilizer.

Environmental Footprint *[P.E.*]*

concerning the production and end-of-life stage of the sterilizer

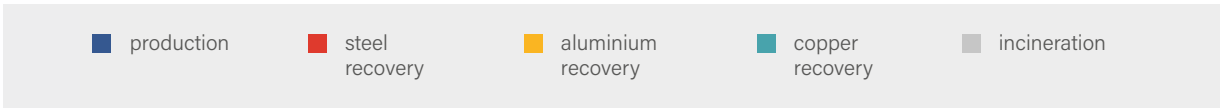


60%

Environmental benefit

The possibility of recycling most of the materials is able to compensate for the environmental impacts associated with the production phase.

* **Person Equivalent:** number of people having the same impact on one year in Europe.



End of Waste: from problem to resource

We collaborate with Italian and international Universities to develop experimental studies on the possibility of reusing the sterilized residue in new products.

Waste from Personal Hygiene Products
Development of a new acoustic insulation material made from recycled diapers used in residential care facilities for elderly.

Waste from peritoneal dialysis products
Develop cementitious matrices lightened by the addiction of small percentages of sterilized polymeric residue.

Studies carried out in collaboration with the Australian National University and 180 Waste Group.

Generic infectious waste
Development of a new thermal insulation material for lightweight building envelope.

Studies carried out in collaboration with Università degli Studi di San Marino and Steriltech Waste Company.

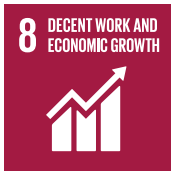
Our contribution to the SDGs

The Sustainable Development Goals (SDGs) are a key element for the definition of our business development strategy.

We care about many of the criticalities that affect our planet:
- world population growth;
- climate change and related epidemics;
- difficulties in accessing technologies for the correct management of medical waste;
- lack of financial resources in developing countries.

We identify four SDGs that guarantee us a greater impact starting from these priorities and with respect to our characteristics.

Clean water and sanitation
We are the European Leader in the design of technologies aimed at improving water quality by reducing pollution and eliminating the practices of uncontrolled discharge of untreated waste into the water circuits.



Decent work and economic growth
We play an important role in designing and planning professional training programs and job opportunities for all (men, women, youth and people with disability) in the communities where we operate.

Sustainable cities and communities
We work every day to reduce the per capita impact in communities, related to the management of healthcare waste. We support developing countries through technical and financial support, which is necessary for system construction that allows a proper management of this type of waste.

Fight against climate change
We reduce greenhouse gas emissions, at both the production phase and in the use of the machine. Moreover, the use of our onsite treatment technologies results in substantial reduction of carbon dioxide production.

03

Cooperation and Development

Photo credits: Paolo Ghisu

Italian technologies for the world: development cooperation projects

There are special projects that arise from the strength of ideas and the possibility of making them reach the whole world.

Our commitment to international cooperation projects describe something that goes beyond the installation of technologies. We are able to quickly connect with different cultures and solve problems that concern the phases prior to installation.

In recent years we have participated in several international cooperation projects in **Africa and South America, in partnership with non governmental organizations and the Italian agency for Cooperation and Development.** In line with the achievements of the United Nations Sustainable Development Goals for 2030 to develop quality hospital waste management and prevent the spread of infectious diseases.

We have established collaborations with hospitals in Tunisy, Mozambique, Zimbabwe, Niger e Ethiopia. We have been able to overcome challenges of distance and lack of water, energetic and computing resources.

over 30
beneficiaries involved in projects

We promote the creation of an Italian and international network of companies that have already made international cooperation projects for development. With some of them we have already accomplished some activities in the health and hospital sector. Putting together our know-how, experiences and relations we can overcome challenges connected with needs of developing countries, like long distances, lack of technological infrastructure and particularly the lack of natural resources. Our goal is to optimize installation time of technologies and to increase distance learning.

We are not only manufacturers, we actively participate in every step of our project, guided by values like social responsibility, environmental sustainability and the development of solutions for the well-being of the environment and the people.

A consolidated friendship that creates community development

Massimo Migani lives in Zimbabwe since 2010, in Mutoko, a small rural village in the north of the country. He is a missionary of the Diocese of Rimini that continues the path of Marinela Pesaresi until 2018: directing the **Luisa Guidotti Hospital** that, with 120 beds, serves a population of 62 thousand inhabitants and responds to the health emergency of a country with more of 3 million people living below the poverty threshold.

> "The collaboration with Newster started with the aim to solve the problems related to the healthcare waste management in Mutoko. We had to create a team and to make everything possible in a short time.
>
> Newster donated to us a sterilizer is still working. Our technicians have received the training required to manage and solve daily problems. Now that the project has been completed I can say: it was a dream that came true."

"We are very happy with the support received from Newster. The right disposal of healthcare waste is essential for the safety of our hospital."

Massimo Migani
Medical Director of the Hospital
Luisa Guidotti, Mutoko Zimbabwe

Massimo is someone that you would never stop listening to: he is in love with his job, Zimbabwe and its people. He was the first to experience the reuse of the residue produced by the machine.

There were different ideas and some of them became reality. The new flooring out of the Mutoko's hospital contains 30% of the recycled material from sterilized waste, allowing a reduction of the same value of sand normally used.

> "We are also testing a brick that contains the sterilized residue inside. Thanks to the high plastic percentage it shows good thermal insulation properties."

And then, different ideas such as acoustic insulation panels, bricks, etc. reducing the dioxins emissions and creating new job opportunities in urban areas, where unemployment is a major problem.

> "Newster is socially oriented and believes in cooperation. There is a total understanding between me and Andrea, as if we were brothers: **we dream about creating an ecological hospital**."

We believe that this experience can create communities based on the circular economy approach. We can work for the common welfare, creating sustainable opportunities for the Mutoko territory and community. Together with Massimo Migani, we face the challenges of international cooperation.

> "I am the Medical Director of a rural hospital more than 10 thousand km from home, which I hope will become a 100% green reality. I am sure that our experience will be a source of inspiration for other realities."

Together with the team of Massimo Migani **we work for the first green hospital in Zimbabwe** one step at a time.

Newster Group

Via Pascoli, 26/28
47853 Cerasolo di Coriano (RN)

Tel. +39 0541 759160
Fax +39 0541 759163

Inquadra il QR Code e visita il sito:
www.newstergroup.com