



# GREENTHESIS GROUP

**THINK GREEN, ACT SMART**



# ► OVER 25 YEARS OF EXPERIENCE IN THE GREEN ECONOMY

For 25 years Greenthesi Group has been one of Italy's leading integrated urban and industrial waste management operators.

It operates in the following areas: treatment, recovery, multi-material exploitation and disposal of industrial, urban, special and other waste similar to urban waste; it also operates in waste brokering; treatment and recovery of civil and industrial sludge; environmental remediation and reclamation, environmental engineering activities, waste-to-energy; production of electricity from renewable sources and advanced biofuels.

The Group is one of a kind in covering the entire value chain of the integrated waste cycle management, with the exception of collection service.



# ➤ A WORLD OF INTEGRATED SERVICES



Treatment, Recovery, Storage, Disposal of **special wastes, solid and liquid, hazardous and non-hazardous**



**Recovery, multi-material valorization and final disposal** of industrial, urban and special waste and also assimilable to urban



**Waste-to-Energy** plants



**Design and construction** of plants for the reduction and valorization of organic waste and for the treatment of wastewater



**Biological sludge** treatment for later agricultural use



**Photovoltaic systems**, power generation from renewable sources and advanced biofuels



**Biogas-to-Energy** and **BIO-LNG** plants



**Environmental remediation and restoration**



Treatment of **agri-food** waste for end-of-waste recovery to be enhanced by anaerobic digestion for **biomethane production**

# ► THE NUMBERS OF A BIG GROUP

19

companies  
active in the  
environmental sector

Over 1 million  
tonnes of waste  
managed  
in 2022

Over 350  
employees

Over 120  
gigawatt hours  
of self-generated  
energy



# ➤ 19 COMPANIES AND 15 PLANTS





## GREENTHESIS ORBASSANO

Greenthesis owns and operates the plant located in Orbassano (TO). This is the largest multi-functional facility in Italy for the treatment, recovery and disposal of liquid and solid special waste, with an authorised capacity of more than 500,000 tonnes per year.

### HIGHLIGHTS

- **54** Employees
- **7 days a week - 24 hours a day** Plant in operation
- **800** Authorized CERs
- **4** Treatment Lines (Oils, Chemical-Physical-Biological, Storage, Solids)
- **20.000 t/year** Oil Line Treatment Capacity
- **250.000 t/year** Treatment capacity Chemical-Physical-Biological line
- **9240 m3** Storage Capacity Storage Line
- **360.000kWh** Average monthly electricity produced by cogeneration
- **170.000 t/year** Solid Line Treatment Capacity INERTISATION
- **80.000 t/year** Solid Line Treatment Capacity WASTE-TO-ENERGY
- **14.000** Transfers/year
- **6.000** Output of waste for final destinations

### Waste treated

The Plant has several process lines and can treat almost all waste from industrial activities, including waste contaminated with highly polluting substances.





## GREENTHESIS LISCATE

The Liscate plant is a platform located in the hinterland of Milan dedicated to the management and disposal of various types of liquid industrial waste.

Approximately 750 cubic meters of special wastes are processed every day: hazardous and nonhazardous liquids delivered exclusively by tanker trucks from civil, artisan and industrial settlements, addressing a diversified market ranging from industry - such as food, textile, chemical, pharmaceutical and engineering - to activities of the environmental hygiene sector.

### HIGHLIGHTS

The plant consists of several operating units:

- waste **reception and pre-treatment** units (physical treatment by screening, desanding and equalisation);
- a **chemical-physical** pre-treatment plant (flocculation and precipitation of pollutants with iron and aluminium salts, lime, polyelectrolyte);
- two **biological treatment** lines (pre-denitrification phase to remove nitrates using biodegradable organic substances, an effluent phase and oxidation-nitrification phases to oxidise ammonia to nitrate);
- final filtration on **sand and activated carbon**;
- final **disinfection** tank.





## GREENTHESIS SAN GIULIANO MILANESE

The San Giuliano Milanese plant covers an area of nearly 3,000 square meters in the industrial zone of the municipality of the same name, within the metropolitan city of Milan. It is a strategic facility dedicated to the storage of 950 cubic meters of hazardous and non-hazardous special waste and RAEE.

The type of liquid and solid waste that can be stored is very wide and includes almost all CER codes with a special specialization in the treatment of waste from separate and micro-collection with advanced technological solutions for the recovery of reusable materials.

### HIGHLIGHTS

- Authorisation for storage of 950 m<sup>3</sup> hazardous and non-hazardous special waste
- Plant surface area 2,930 m<sup>2</sup>
- Covered area of approx. 2,100 m<sup>2</sup>

### MAIN WASTE TREATED

- spent batteries and accumulators
- neon lamps containing mercury
- containers bearing skull and crossbones labels
- polluting packaging
- expired drugs
- varnishes, inks, toner
- lab reagents
- various kinds of aqueous solutions





# REA DALMINE

Located in Dalmine in the province of Bergamo, Rea Dalmine is the company that operates one of the most advanced waste-to-energy plants internationally and considered, thanks to its qualifying points, a benchmark even in the European panorama.

The plant consists of two independent lines capable of disposing of up to 450 tons of waste per day, meeting the annual domestic energy needs of more than 110 thousand people. The waste treated is of a variety of types: from municipal waste to dry fractions, biological sludge of urban origin and treated hospital waste, mainly from municipalities in the province of Bergamo.

One of the most innovative aspects of the plant are the emissions into the environment among the lowest in Europe with values of pollutants reduced more than 90 percent compared to the limits of European regulations.

## HIGHLIGHTS

- **45** Employees
- **2** Lines
- **150.000 t** Annual capacity
- **450 t** Daily capacity
- **5.800 m<sup>3</sup>** Waste pit capacity
- **6.700 ÷ 22.000 kJ/kg** Calorific value of waste
- **100.000 MW/h** Average annual electrical energy produced
- **90.000 MW/h** Average thermal energy produced
- **333** Operating days per year
- **8,200 h** Operating hours per year



Gea has been operating for about 30 years in the Veneto region in the construction, management and maintenance of waste disposal and biogas recovery plants, with its highly experienced workforce of technicians and designers.

The Sant'Urbano landfill is emblematic of this commitment: it is a genuine technological and environmental laboratory, with a strategic vision aimed at constant innovation.

The plant, which has been in operation since 1990, is intended for the disposal of municipal waste and non-hazardous special waste from the South Padua catchment. Due to its standards and management capacity, it has been qualified as a Regional Tactical Landfill to receive - in emergency situations - urban waste from all provinces of the Veneto region. The high efficiency of the landfill allows Gea to receive more than 120 thousand tonnes of waste each year, applying one of the lowest disposal rates in the region and in Italy. Also an innovative on-site reverse osmosis and evaporation treatment plant for leachate is in operation for PFAS abatement.

### HIGHLIGHTS

- **550.000 mq:** Gross surface area
- **3.878 thousand m<sup>3</sup>:** Authorised project volume
- **500/600 tons:** Daily delivery capacity
- **156.000 tons:** Total annual authorised capacity





EnVal is a private entity-promoted by Rea Dalmine (Head of Group), Fratelli Ronc and Cesaro Mac.Import - created ad hoc in response to the Aosta Valley Region's call for tenders to manage the Brissogne plant.

The tender provides for a 17-year entrustment of the plant and is part of the waste management strategy of the Aosta Valley: this strategy is the result of political choices and of all the citizens of the Valley, following the result of the referendum on the pyrogasification plant that led the Aosta Valley environmental policy to a waste management model that would combine stability, autonomy and innovation starting with the development and maintenance of the Brissogne plant.

### **A STRATEGIC PLANT FOR THE AOSTA VALLEY**

The project will enable Valle D'Aosta to be totally autonomous in urban waste management. A virtuous system that will allow a constant delivery rate over time and, thanks to the optimization of the separate collection system decrease the volumes that will be disposed of in landfills.

Finally, the leachate pre-treatment plant along with other technological upgrades will permit minimizing the environmental impact.

Thus, the 3 macro objectives of the project are:

- 1) Reorganize the operational-management structure of the Center;
- 2) Enhance environmental standards through plant investments;
- 3) Reorganize the available space for optimal flow management.





# IND.ECO.

Ind.Eco. is the company based in the Municipality of Latina (Loc. Borgo Montello) that carries out the activity of exploitation of the reservoirs of the landfill in post-closure located there, at which a plant system is installed for the production of electricity from the exploitation of biogas and the commissioning of a plant aimed at the production of liquefied biomethane from biogas with an adjoining photovoltaic park to serve the same is imminent.

The area covers about 750 thousand square meters, almost half of which is employed by the landfill basin that receives 4 million 800 thousand cubic meters of waste already conferred. The project is part of a virtuous path undertaken by the Group for the enhancement of the site: from a simple area designed to receive waste to a multipurpose center of renewable energy at the service of a circular economy.

## PLANT PLUSES:

- 2,600 KW of green energy production capacity from biogas;
- Project for more than 1 MW of photovoltaic energy without taking away virgin soil;
- Under construction: a research hub for testing new forms of zero-emission renewable energy utilization, a liquid Biomethane production plant and a photovoltaic park;
- Exemplary and environmentally sustainable management of landfill post-operation.

## HIGHLIGHTS

- **750,000 square meters** total area
- **300,000 square meters** landfill area
- **4,800,000 cubic meters** waste already delivered





C.R. Centro del Recupero is a strategic hub for the treatment and storage of hazardous and non hazardous special waste to be sent, post-processing, to recovery facilities, landfills, physical chemical treatment plants and waste-to-energy plants. Waste delivered to the facility comes mainly from private companies, storage facilities and some municipal utilities. C.R. is also a major player in environmental services to support remediation activities. The society also handles the collection of waste oil and lead-acid batteries, which are picked up either through door-to-door searches by machine shops, auto repair shops, dealerships and vehicle dismantling companies, or by companies that dispose of the oil and/or emulsion in the machinery of their work equipment.

#### HIGHLIGHT:

- Collection, temporary storage **in R13**
- Storage **in D15**
- Treatment of hazardous and non-hazardous special waste (**in R13 / R12 / R4 / D15 / D14 / D13**)
- Waste brokerage activities - registration **Categoria 8D**

#### MAIN ACTIVITIES:

- treatment, recovery and disposal of industrial waste;
- treatment and storage of hazardous and non-hazardous special waste;
- support of remediation activities;
- collection of used mineral oils;
- storage and treatment of end-of-life tires;
- storage and treatment of lead-acid batteries;
- engineering research.





# GTH AGROMET

GTH Agromet is the company that manages the Gazzuolo plant in the province of Mantua for the treatment of agrifood and industrial waste, which it transforms into resources thanks to circular economy solutions. Through innovative technology, the company converts all agrifood products into organic matrix to be sent to biogas production.

The plant thus represents a reliable reference point for all companies in the agrifood sector that have an excess of non-saleable products and want to provide for their proper disposal within a virtuous and sustainable process. It also handles animal by-products and waste (ABP) for the production of energy from renewable sources.

GTH Agromet covers a variety of services such as: verification of the type of packaging to define the treatment; analysis and sampling of bulk materials; consulting for better packaging management; and certification of destruction attesting to disposal in accordance with the law.

## HIGHLIGHTS:

- **More than 40 waste categories managed** > solids, semi-solids, liquids, packaged or unpackaged, including on mixed pallets;
- **More than 95% of the processed packaging is recovered** > glass, tinplate, aluminium, pet, plastics, paper, poly-bonded, etc...
- **5.000 square metres** > covered area for waste treatment
- **20.000 tonnes** > annual authorised treatment capacity





# EUREKO

Eureko is the company that operates in Peschiera Borromeo (province of Milan) facilities dedicated to the **RECOVERY OF NON-HAZARDOUS SPECIAL WASTES** resulting from environmental remediation and building demolition in order to obtain End of Waste products that can be used, again in the construction sector, as an alternative to the use of natural mining raw materials.

Located within one of the largest mining poles in Lombardy, Eureko has been configuring itself, since the late 1980s, as a forerunner of the **CIRCULAR ECONOMY** by sustainably recovering waste from construction demolition and reclamation and producing certified End of Waste that can be reused in the relevant markets in place of natural raw materials from mining.

The authorized volume of the Eureko plant is 250 thousand tonnes per year.  
The site can rely on an analytical laboratory for effluent control.

## HIGH EFFICIENCY SOIL WASHING

Since 2005, on the same site, Eureko has installed and managed a Soil Washing plant for the treatment of hazardous and non hazardous special waste with an earthy matrix. The plant is capable of recovering waste with an efficiency of up to 80 percent for the production of recycled aggregates such as sand and gravel (certified for the production concrete) as a substitute for virgin raw materials.





# LA TORRAZZA

La Torrazza is the landfill for non-hazardous special waste, for hazardous special waste containing asbestos, and for stable and non-reactive hazardous special waste, located in the municipality of Torrazza Piemonte (TO).

The facility covers a total area of 200 thousand cubic meters with 8 cells, 7 of which are exhausted and now in post-management, while the last one is still under cultivation, authorized for the disposal of more than 346 thousand cubic meters of waste.

Significant amounts of special waste, from major industrial activities in Piedmont and nationwide, have been disposed of within it, always putting the preservation of public health and the surrounding environment first.

In addition, La Torrazza, has been a benchmark for major remediation activities carried out on sites of national interest, returning heavily compromised areas to society.

## HIGHLIGHTS:

- High compaction rate of **1.50 cubic meters per tonne of waste**;
- planting of **native plants** to promote biodiversity in the area;
- use of solar panels to supply electricity to the control units of environmental monitoring present throughout the landfill area;
- **27** groundwater monitoring **piezometric wells**;
- **15 multi-parameter probes** for continuous environmental monitoring;
- **6** interstitial gas monitoring wells and **18** biogas monitoring wells in the waste body;
- **2 weather stations** e **1** chemical laboratory.





# Barricalla

Located in Collegno, on the outskirts of Turin, the Barricalla plant is one of the main landfills in Italy for the disposal of special hazardous waste in addition to being a platform of excellence within the European scene.

The area, which before the landfill was a gravel pit with now degraded soil, covers an area of 150 thousand square meters immediately recognizable by the presence of a large photovoltaic park.

The facility is a benchmark for the management of potentially hazardous substances from industries and reclaimed land, accommodating waste that can no longer be reused in the production cycle. A true model of environmental protection that in more than 30 years of operation has never generated any hazardous situations.

## HIGHLIGHTS:

- **12** is currently the total number of landfills for special hazardous waste in Italy
- **150.000 m<sup>2</sup>**: surface area of Barricalla
- **1.832.650 m<sup>3</sup>**: total authorised volume
- **130.000 t**: quantity of waste secured in one year
- **285**: permitted EWC (European Waste Catalogue) codes, of which 16 for waste containing asbestos
- **1,12 GWh**: annual energy production from the photovoltaic park
- **2.000**: number of inhabitants whose annual electricity consumption is covered by the photovoltaic park
- **700 t**: CO<sub>2</sub> saved in one year thanks to the photovoltaic park





# BIOAGRITALIA

Bioagritalia carries out the operations for the storage, treatment and spreading of biological sludge on the soil for the benefit of agriculture.

The company operates through a plant that has been in operation for more than 25 years at the municipality of Corte de' Frati, in the province of Cremona, for a treatment capacity of 25 thousand tonnes per year.

The plant performs sludge stabilization aimed at reducing odors, pathogenic elements and the degree of putrescibility through processes of conditioning that modify some of its chemical-physical-biological characteristics so as to facilitate its use in agriculture in compliance with all limits set by law.

Specifically, the process involves mixing the sludge with calcium oxide or hydrated lime. The dosage is determined after carrying out checks on the characteristics of the sludge itself although it can be said that the optimal amounts, in order to reduce bacterial load and pathogenic elements, are around 15 to 20 percent (of calcium oxide) relative to the dry matter weight of the incoming sludge, which is about 3 to 5 percent on the sludge as is.

## PLANT EQUIPMENT:

- **lime storage silos** with a nominal capacity of 36 m<sup>3</sup> and height of about 11.5 m.
- **loading auger** for dosing lime and sending it to the mixer
- mechanically **driven continuous mixer** with rotor with ploughshare tools with a processing capacity of about 18 t/h
- **homogenization screw** and discharge onto storage slab





Daisy is the name of the company that manages the controlled landfill located in the municipality of Barletta in Puglia. A new generation facility dedicated to multiple types of special non-hazardous waste.

Daisy's property covers an area of about 8 hectares within which is the landfill basin with an authorized volume of 350 thousand cubic meters, recovered from a former limestone quarry.

The first batch of the plant was opened in 2013, and from the design phase, the best available technologies and the most advanced solutions were used to ensure the best environmental protection.

## HIGHLIGHTS

- **Service area complete** with all ancillary facilities (vehicle parking yards, weighbridge, laboratory for incoming waste verification, covered area for waste storage, wheel washing, offices)
- **Inerting and stabilizing line** that achieves compliance with eligibility limits
- **Innovative phyto-purification plant** for the treatment and recovery of first and second rain water



Founded in 2017 in Rovereto (TN) and part of Greenthesis Group since 2022, CarboREM is a society dedicated to the design, construction and operation of innovative plants based on hydro-thermal conversion (HTC) technology for the transformation of organic waste into energy and materials with high added value. This state-of-the-art technology allows not only to increase the efficiency of digestate and organic waste treatment processes but also, on the one hand, to transform waste into a liquid that increases biogas production in existing wet-type anaerobic digesters by more than 50 per cent, and on the other hand, to recover important elements contained in sludge such as nitrogen, phosphorus, magnesium, copper and aluminum. The team consists of a company manager and a pool of PhD engineers from the University of Trento, with significant investment in R&D.

Specifically, CarboREM reuses sludge from wineries and dairies in the Trentino area to recover ammonia at a pressure of 12-15 bar and a temperature of 180°-200° in order to obtain a slurry: a fluid, sterilized mixture with reduced suspended solids content, including Hydrochar.

### **FROM VINEYARD TO CARDBOARD, THE HYDROCHARTA PROJECT**

The society has patented a system called Hydrocharta to reuse sludge from wineries in the production of new cardboard used for wine bottle packaging. In Europe alone, about 22 million tonnes of it is produced each year, and with this innovative new application, CarboREM and technical partner Specialized Polymers Industry (SPI) aim to help wineries in Trentino reuse the sludge they produce in a circular economy. .





# ► A SUSTAINABLE COMMITMENT MADE UP OF CONCRETE ACTIONS

Greenthesis Group believes in innovation as a driver of sustainable development. A daily commitment carried out through valuable partnerships and collaborations with Italian companies, universities and research centers.

The Group's sustainable vision has always been inspired by a green pragmatism made up of concrete actions and projects in favor of collective growth and well-being, for a social responsibility that embraces citizens institutions, territory, families, schools and businesses.

Innovation, in both services and processes, is a key factor in the Group's strategy. The Group's companies aim to constantly improve and update their facilities and services to remain competitive in constantly evolving sectors.

The development of an integrated design, based on technological innovation and environmental sustainability, while respecting circular economy principles, is the basis of the company's vision through the design, implementation and commissioning of highly innovative plant solutions.



