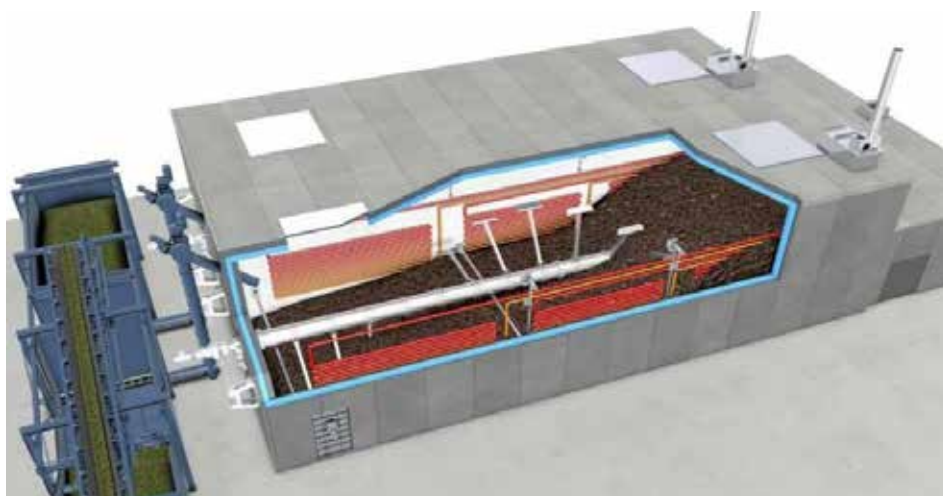




ANAEROBIC DIGESTION TECHNOLOGIES SEMI-DRY PLUG-FLOW

Semi-Dry Plug-Flow Digester

The semi-dry plug-flow digester is the high solids, high capacity digester option that allows for maximum feedstock flexibility for a variety of applications and a wide range of feedstocks. The modular and robust design of the digester enables the user to capitalize on creative organic feedstock blending, maximizing utility and biogas yield. Solutions involving the semi-dry plug-flow have high biogas production per volume of digester.



Feedstock Flexibility

The semi-dry plug-flow can process 12-45% total solids and offers a high level of flexibility in feedstock blends. Some suitable feedstocks include: Green waste, MSW, high solid manure, energy crops, and food waste.

Maximized Biogas Production

Eisenmann's refined technology ensures an optimal digestion environment: Being fully automated, the system features a slow moving agitator for continuous mixing to keep substrate and microbes in contact. The remote control system monitors and adjusts feed rates and temperatures for optimum conditions within the digester.

Safe Operations and Low Maintenance Costs

Thanks to the automated and semi-continuous material dosing, the system operates smoothly without the need to enter the system for unloading and restacking. All bearings and maintenance parts are located on the outside of the digester to ensure easy access for check-ups.

Robust, Modular System

The system has a high tolerance of inorganic materials such as incidental plastics and papers. The modular design ensures optimum uptime and is ideal for future plant expansions.

Eisenmann Environmental Technologies

Eisenmann is a German-based technology provider that has been in the US for over 40 years. The company's environmental technologies encompass air abatement, recycling, waste water treatment and anaerobic digestion solutions with proven success in a wide range of industries.

Eisenmann's Solution Platform for Agriculture is specifically designed to address the challenges of manure management. With more than 100 anaerobic digestion systems and 1,000 waste water treatment systems worldwide, Eisenmann draws from extensive experience in engineering and process technologies.

ANAEROBIC DIGESTION TECHNOLOGIES WASTE TO ENERGY

CR&R Facility, Perris (CA) / USA High Solid Waste to CNG

One of the Largest Anaerobic Digestion Projects in the US

CR&R serves more than 2.5 million people and 25,000 businesses throughout Orange, Los Angeles, San Bernardino, Imperial, and Riverside counties. Expanding on their state-of-the-art recycling processes, CR&R will integrate the new anaerobic digestion plant into their existing operations in Perris, California. The system is permitted to process over 160,000 tons of organic waste per year in the first two phases and expandable to process over 320,000 tons per year in two additional phases, making it one of the largest anaerobic digestion projects in the US.



Benefits of Biogas Production

Biogas is an attractive renewable energy which has become a critical part of alternative energy plans for both industry leaders and legislative bodies. It directly replaces fossil fuels and can do so (1) as a baseload energy source, unlike solar or wind which is intermittent, and (2) with distributed generation, which lowers the overall cost of energy and raises reliability. Recycling organic wastes such as manure, food waste, and green waste by sending it to an anaerobic digester generates environmental, economic, and agronomic benefits.

Environmental Benefits

Anaerobic digestion and subsequent waste treatment reduce the impact on (1) air pollution by capturing greenhouse gases like methane and dramatically reducing odor, and (2) water pollution by stabilizing nutrients while reducing the volume of land-applied material by concentrating nutrients.

Economic Benefits

Energy offtake opportunities such as power purchase agreements or carbon credits programs create revenue streams where previously there were costs to treat waste. These projects can also create jobs and improve infrastructure in rural areas.

Agronomic Benefits

Anaerobic digestion can provide reductions in pathogen level in land-applied waste. Digestion is an efficient process allowing for faster recovery and recycling of NPK, which can increase crop yield.

Technical Data CR&R Plant (Phase I and II)

Feedstocks	Green Waste, Food Waste
Throughput	~ 160,000 tons/year
Digester Capacity	Digesters: 8 x 330,000 gal (1,250 m ³) Post digester: 2x 660,000 gal (2,500 m ³)
Nominal Biogas Flow	~ 1870 SCFM (1,400 Nm ³ /hr)
Biogas Yield	~ 12.2 million Nm ³ /year