SLUDGE RECYCLING ECO-FRIENDLY

SIZE
[sq.ft.]
484
= 3 CAR GARAGE

CARBON STORAGE
[t CO_2] per year
440
= 84 ACRE FOREST

WASTE HEAT
[kWh] per year
1,125,000
= 45 HOUSEHOLDS

Disposal or recycling of sewage sludge and industrial sludge is becoming increasingly demanding due to high environmental protection requirements and capacity bottlenecks.

PYREG CARBON TECHNOLOGY

YOUR SLUDGE RECYCLING SOLUTION

ADVANTAGES

Up to 90 % final mass reduction.

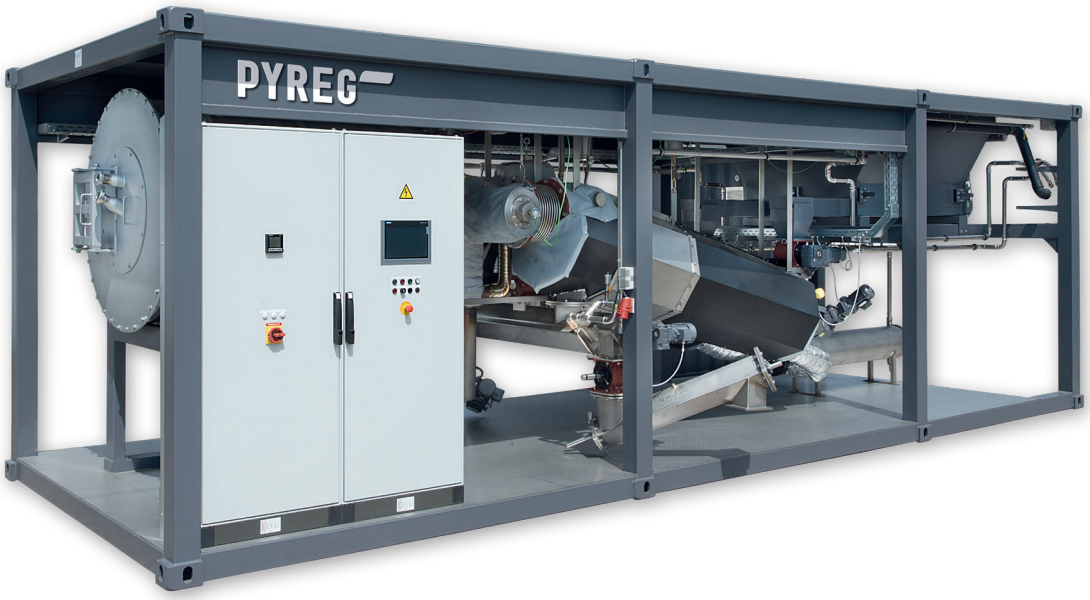
Energy efficient: The required energy is generated by the system itself; in addition, up to 150 kW_{th} of waste heat can be used for other purposes.

Phosphorus recycling: The phosphorous contained in the sewage sludge remains available to plants after carbonization and can be marketed directly as fertilizer substructure.

The sewage sludge is completely recycled, **no „residuals"**.

Carbonization process is compliant with **EU environmental standards**.

CO_2 sequestration: The process of carbonization binds carbon on a long-term basis. After insertion of the phosphorous fertilizer in the soil, the carbon contained is removed from natural cycles for centuries.



SLUDGE

PYREG CARBON TECHNOLOGY SOLUTIONS

SYSTEMS

	P500 STANDARD UNIT	P750 / 1500 INDUSTRIAL UNIT
Size	l 9,000 mm w 3,000 mm h 5,800 mm	l 13,000 mm w 3,000 mm h 5,800 mm
Combustible rating	500 kW	750 / 1,500 kW
Annual throughput DS, dry substance	1,100 t	up to 3,250 t
Annual production	up to 610 t	up to 1,760 t
Excess thermal energy	up to 150 kW_{th}	up to 600 kW_{th}
Operation hours per year	up to 7,500 h	up to 7,500 h
Power consumption	12 kW_{el}	up to 30 kW_{el}
Additional technology module with flue gas cleaning system flue gas scrubbers, activated carbon filters	l 6,000 mm w 3,000 mm h 5,800 mm	l 12,000 mm w 3,000 mm h 5,800 mm

Based on 25 % DS sewage sludge, (dried > 11 MJ/kg OS)

PYREG systems are designed as a compact, decentralized recycling technology that can easily be integrated into existing material cycles and infrastructures. The process is based on the principle of dry carbonization. That means, the sludge is not burned, but carefully degassed and then carbonized (500 - 700 °C), by admission of a tightly targeted air stream. The excess thermal energy of up to 1.13 million kWh per year can be used onsite (e.g. for drying) or fed into a local heating grid.

REFERENCES

WWTP LINZ-UNKEL, GERMANY

Operation company:
Zweckverband Abwasserbeseitigung Linz-Unkel
(Special purpose association for sewage disposal)

Location site: Unkel (near Bonn), Germany

Waste Water Treatment Plant (WWTP), Service: 30,000 PE

PYREG unit in operation since 2015: P500

Sludge treatment:

Stabilization of the sludge (2 stage compact digestion).

Dewatering and drying (60 % volume reduction, 100 % self sustainable process with excess thermal energy of PYREG plant and compact digestion).

Carbonization with PYREG unit P500 (90 % final volume reduction, 100 % self sustainable process).

The carbonizates are EU-wide marketable as phosphorus fertilizer.

WWTP SILICON VALLEY CLEAN WATER, USA

Operation company: Bioforcetech Corporation

Location site: Redwood City, California, USA

Waste Water Treatment Plant (WWTP), Service: 200,000 PE

PYREG unit in operation since 2017: P500

Sludge treatment:

Drying (75 % volume reduction, 60 % less energy consumption vs gas dryer).

Carbonization with PYREG unit P500 (90 % final volume reduction, 100 % self sustainable process).

Marketing the carbonizates as natural soil conditioner to the agriculture.

Further PYREG sewage sludge treatment plants:
Germany (1 in operation, 1 under construction), Sweden (1) and Czech Republic (1)

+ made in germany

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