

New Technology Continuous Feed Pyrolytic Sludge Remediation System:

A system for dramatic waste reduction



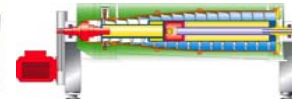
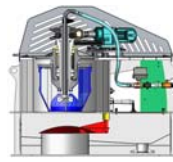
After five years of research and trials with pilot systems; USIG has developed a universal continuous feed Thermal Pyrolytic Sludge Remediation System capable of processing a large variety of organic waste sludges and materials including:

- Industrial, Food, and Municipal waste treatment sludges
- Oily waste sludges
- Paint sludge
- Animal and agricultural waste sludges



Oily waste sludge before and after processing
zero hydrocarbons present in final ash

The benefits of thermal remediation systems make it the coming trend for safe and efficient sludge reduction



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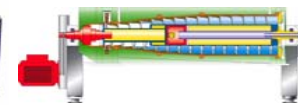
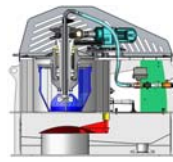
Having recognized the potential environmental and economic benefits to our current and potential US Centrifuge customers, USIG is making a commitment to design, develop, and manufacture stand alone proprietary Pyrolytic Sludge Remediation System for the purpose of sludge drying, destruction, and minimization. US Innovation Group is actively developing this unique continuous feed process for minimization of a variety of industrial sludges and waste to energy applications under the new divisional brand name “US Thermal Technologies”.



This innovative technology can cost effectively provide benefits such as:

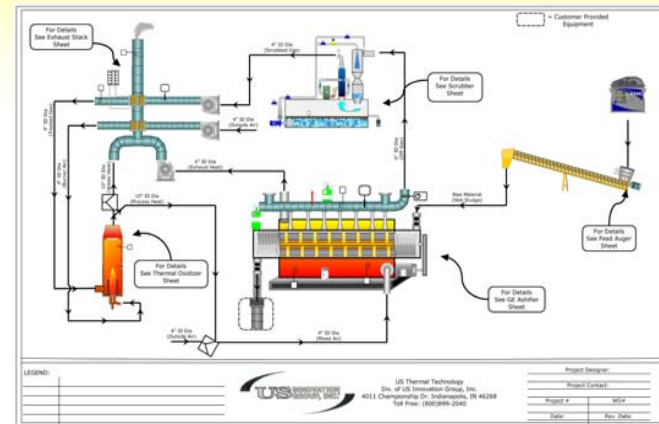
- *Reducing cradle to grave liabilities*
- *Reducing containment and storage risks*
- *Eliminating hauling risks and expense*
- *Reducing in plant sludge handling efforts and disposal costs*
- *Saving potential energy costs through co-generation and waste heat recovery*

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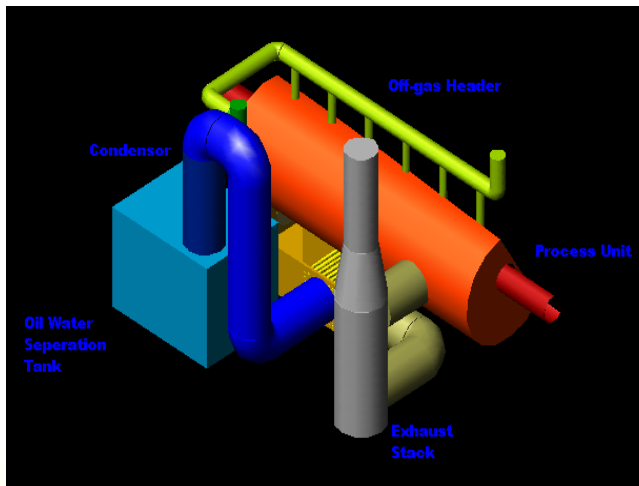
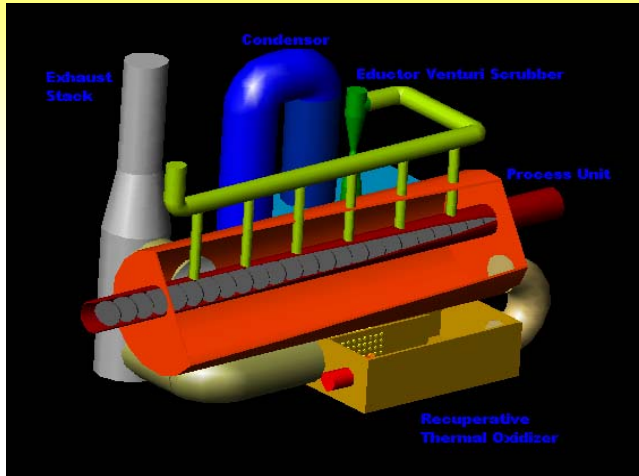
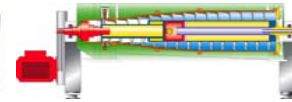
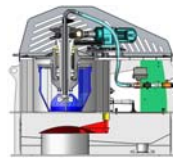
Pyrolytic Sludge Remediation is a simple, safe, efficient industrial sludge minimization treatment process that substantially reduces the weighted volume of sludge and destroys all dangerous / hazardous and organic materials and emissions. The Sludge Destruction process will treat even the most contaminated sludge by indirectly heating the sludge chamber to approximately 1000°F. The chamber is automatically maintained at a constant negative pressure to insure efficient gasification of the organic materials. The VOCs and other organic material gasses off directly to a secondary combustor chamber where a burner at the flame's highest temperature zone insuring complete combustion destroys them. This re-circulation of combustible gaseous provides partial self-fueling of the process.

This closed loop process requires no additional emissions control even where local air quality regulations are excessively demanding and the residual ash is safe to dispose in municipal waste or fill dirt. The residual ash is characterized by mostly silica compounds (grit and sand) and common minerals (Al, Ca, Cu, Na, Mg, Fe, etc.).



Oily waste sludge reduced to harmless hydrocarbon free ash

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Proprietary Pyrolytic Sludge Remediation System:

The process features a simple yet highly versatile design consisting of a tube conveyor routed through a temperature controlled oven and off-gas handling system with complete automation and adjustable process controls.

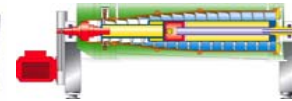
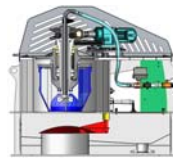
Features:

- Conveyors are available in multiple configurations depending on waste material (multiple pitches and shapes)
- Utilizes Krom-Schroder Hauck gas burners
- Optional multi-ported conveyor tube for off-gassing
- Optional rotary valves on feed and discharge ends

Advantages:

- Handles nearly any waste sludge
- Non-batched continuous operation
- Indirect Heating (not incineration)
- Fully Automated
- Modularized approach for several configurations:
 1. Thermal Unit
 2. Off-Gas Treatment
 3. Raw Material Treatment
 4. Processed Material Handling
 5. Recuperative Thermal Units
 6. Energy Recovery Units

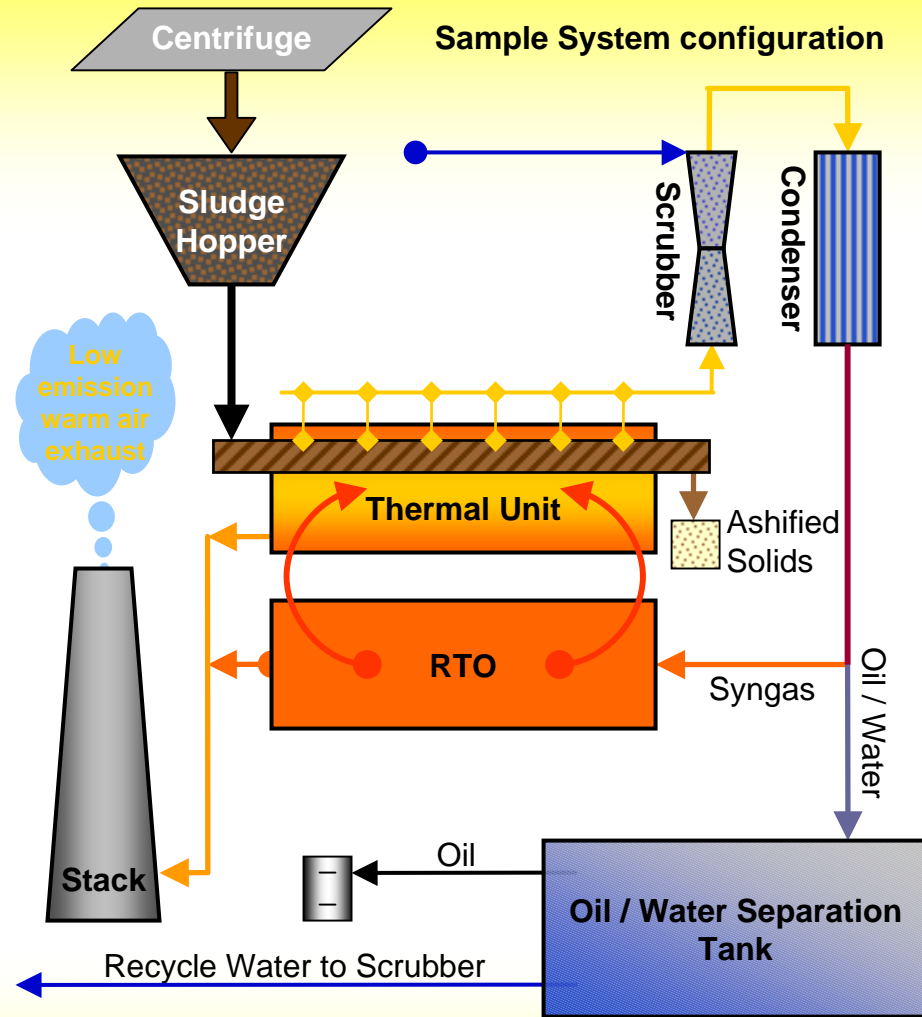
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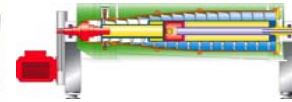
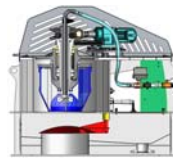
Pyrolytic Sludge Remediation System for Processing of Organic Waste Materials:

Continuous feed units consists of the following components and modules:

- 1) Sludge Feed Hopper & Mixer
- 2) Sludge Feed Conveyor
- 3) Thermal Box with Specialized Sludge Auger
- 4) Eductor Venturi Exhaust Scrubber
- 5) Vapor Condenser
- 6) Recuperative Thermal Oxidizer (RTO) with Primary Heating Option
- 7) Oil / Water Separation Tank
- 8) Central Exhaust Stack



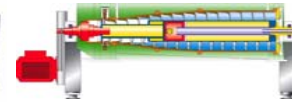
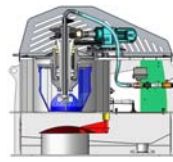
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Benefits of Pyrolytic Sludge Remediation:

- Complete destruction of all pollutants
- All sludge components are separated
- 90%+ reduction of sludge is typical
- Reduces more sludge volume per hour than other methods
- No additional emissions controls required
- Re-circulates sludge vapor gases to the RTO
- Thermal oxidizer exhaust heat is recycled to provide heat for the process
- Small footprint and space requirements with skid mounted unit
- Less capital cost
- Less operating cost
- Less maintenance cost

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CUSTOMER PROFILE REPORT (CPR)

ACCOUNT NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

PHONE _____ FAX _____ E-MAIL _____

KEY PERSONNEL

• NAME _____ TITLE _____

• NAME _____ TITLE _____

• NAME _____ TITLE _____

DECISION MAKER _____ CONTACT _____

TYPE OF BUSINESS _____

DAILY HOURS OF OPERATION _____

WHAT MATERIAL WILL BE GASIFIED _____ ?

PHYSICAL COMPOSITION _____

CHEMICAL COMPOSITION _____

SOLIDS % _____ LIQUID % _____ EST. SOLID TO LIQUID RATIO _____

DESCRIBE ANY PRETREATMENT _____

DESCRIBE DEWATERING PROCEEDURES _____

SLUDGE VOLUME GENERATED / PER HOUR _____ PER DAY _____

PER MONTH _____ PER YEAR _____

HOW IS MATERIAL LOADED FOR HAULING _____

HAULING VOL. / DAILY _____ WEEKLY _____ MONTHLY _____

VOL. PER EA. HAULING / TONS _____ CU.FT _____ CU YDS _____

TRANSPORATION COSTS PER LOAD _____

LANDFILL COST PER LOAD / VOLUME _____

SAMPLE TESTING TO DO LIST:

1. COMPLETE THE ABOVE FORM.
2. OBTAIN DENSITY OF MATERIAL TO BE GASIFIED.
3. WEIGHT PER CUBIC FT. = _____ LBS.
4. CUSTOMER AGREES TO SHIP A 30 OR 55 GALLON DRUM OF MATERIAL TO INDIANAPOLIS FACILITY FOR PROCESSING AND AGREES TO PAY ALL FRIEIGHT CHARGES TO AND FROM.
5. CUSTOMER AGREES TO PAY \$2,500 SAMPLE TESTING FEE, PLUS ALL SAMPLE ANAYLSIS PERFORMED BY A CERIFIED LAB. IDENTIFY AND ATTACH WHAT TESTS THE CUSTOMER NEEDS FOR SATISFACTION.
6. CREDIT FOR THESE CHARGES WILL BE ISSUED UPON PURCHASE AGREEMENT.
7. THIS FORM MUST SUBMITTED PRIOR TO SHIPPING MATERIAL FOR TEST. EST. SHIPPING DATE _____ HOW SHIPPED _____
8. OBTAIN PRIOR LAB RESULTS FOR MATERIALS DEFINED AS AZARDOUS.
9. OTHER INSTRUCTIONS: _____

DATE: _____ EMPLOYEE OR REP. _____