



ADVANCED PYROLYTIC SYSTEM

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Pyrolysis has been known for hundreds of years. The singular advantage of pyrolysis, unlike incineration, is the destructive decomposition of waste materials using indirect heat in the absence of oxygen. Burning wastes through incineration with direct flame in the presence of oxygen can be explosive, causing turbulence in the burn-chamber, which fosters a recombination of released gases. Waste destruction in an oxygen-rich atmosphere makes conversion far less complete, is highly inefficient and creates harmful substances. Pyrolysis is the solution.

Pyrolytic Thermal Converter Systems, historically plagued with an assortment of operating problems, are maintenance-intensive, inefficient and sometimes even dangerous to operate. APS IP Holding, LLC (APS) is systematically engineering solutions to produce efficient, reliable, continuous and safe pyrolytic systems for processing a variety of waste materials, including industrial hazardous, non-hazardous solid and liquid, toxic solid and liquid, municipal solid, medical, PCBs, petrochemical, and many other waste streams.

APS is using a pyrolytic process, which applies high temperatures (from 600°C to 922°C) indirectly to a retort chamber which houses an environment free of flame and oxygen. Inside, hydrocarbons and other waste components are converted into gases and basic elemental solids via destructive distillation and molecular decomposition. All of the off-gases are diverted to a thermal oxidizer operating at 1,232°C for conversion to carbon dioxide, oxygen and water vapor. The remaining solid residues passing out of the retort are typically organic carbon char, sterile sands and fixed, non-leachable metals depending on feedstock.

Waste materials are fed through airlocks to the horizontal retort chamber, which houses a proprietary rotating auger. APS has designed a three-arch, triangular chamber, which uses the upper portion to transport the generated gases to the thermal oxidizer, while the two bottom arches contain a suspended twin-rotary screw (auger) with paddle flights that convey the waste through the retort as pyrolysis occurs. Another set of airlocks is positioned at the "solids discharge" end of the retort chamber to prevent the introduction of oxygen. APS Advanced Pyrolytic Systems are designed for trouble-free operation and minimal down-time.

APS Advanced Pyrolytic Systems, in addition to destroying waste materials, facilitate the cost-effective use of all processing by-products. For example, the heat from the thermal oxidizer can be routed to waste-heat boilers to produce process steam or electricity via steam turbine generators. Solid residues, depending on composition, can often be recycled, sold as commodities, or formed into construction material.

APS Advanced Pyrolytic Systems are environmentally sound, have outstanding energy efficiency and portability, and they provide up to 92% volume reduction of many feed materials. Specialized processing lines have been engineered to treat industrial wastes, PCBs, medical wastes, petrochemical wastes, municipal solid wastes and a variety of other waste materials. APS's individual processing systems range in sizes from 5 TPD (tons per day) to 120 TPD through-put. By using multiple processing lines with our modular-style units, the total design capacity can be virtually unlimited.