



MISSION:

Providing affordable energy resource management for federal and commercial clients through sustainable and renewable energy technologies, land reclamation, products and services.



MOBILE EMERGENCY DEPLOYMENT



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Waste management problems

The United States seeks to be a global leader on the forefront of ensuring clean remediation of medical and other hazardous wastes with the least amount environmental impact. To date the availability of open landfills in the US has always been the most cost effective choice, and landfills have tried to keep public favor positive with extensive lining and capping efforts. Space for landfill is now decreasing each year, after decades of availability. At no time in our history has the need for reducing our landfill waste volume been so great, while at the same time we have growing concern over hazardous waste effects on our environment coupled with allocation of government resources toward green technology. The technology of pyritization is such that when compared to general mass waste land filling or common incineration, it is in an absolute sense the cleanest technology available while it also is a truly viable means to recover carbon and hydrogen for sustained energy renewal. Additionally, it enables the complete capture of all metals for recycle, and nonmetal inorganic materials are similarly captured as an aggregate.

Problem highlights

- The USA incinerates over 32 Million Tons of hazardous, toxic, medical, and chemical waste every year creating toxic ash, waste products, and air pollution, and residues allowing the spread of disease. The worst of these being dioxins and furans that are not created by our pyrolysis solution.
- Tens of thousands of hospitals, surgery centers, and medical facilities are required to store body parts, carcasses, contaminated medical tools, etc. and send to incineration. This creates hazard in shipping storing and incinerations
- Chemical, Pharmaceutical, Electronic, Paint & Solvent, and many manufacturing companies create several millions of tons of toxic waste.
- Many industries who create hazardous materials have left well regulated US States like CA, WA, OR and FL and moved to states where there is little to no regulation, less enforcement, and more corruption friendly.
- Waste is stored, buried, poured into settling ponds, incinerated, or illegally dumped all of which continue to pollute and contaminate the air, water, and environment and continue to spread disease.
- Many industries who create toxic chemicals have moved to third world countries
- Mexico and US Companies set up warehouses to store hazardous materials, and bring them back to the USA for proper disposal as per current NAFTA agreement. To date, just 91 of over 3,000 companies are in compliance.

MedMaster has designed and developed for the complete remediation of hazardous waste.

MedMaster is the solution

The power and opportunity in MedMasters proprietary design lies in mobility and flexibility. The system can be located close to the source of hazmat, which largely eliminates the need for long haul transportation of dangerous materials on highway, rail and barge systems. The system also can be up and operating within 2 days of arrival on site. MedMaster unique business services model can accommodate large jobs by assigning several systems to a specific region that need immediate attention. For national disasters these systems can also be called on in masse to respond to process hazardous wastes. Two complete systems can be transported in military C17 aircraft. Units created for military deployment can be made to Mil-Spec protocol in order to accommodate combat zone



Forward operating bases (FOBs). MedMaster can greatly reduce the environmental impact of combat operations. MedMaster is 100% effective in remediation of all medical hazardous wastes including infectious wastes, pathogens, pharmaceutical wastes and other hazardous wastes (includes sharps medical waste). Collectively EPA and DOT have issued fines to hospitals, medical waste transfer companies and disposal companies in 2008 exceeding \$300M for mishandling of medical hazardous wastes. When comparing MedMaster to fixed warehouse type processing facilities you see that profits are derived from differing sectors. Large fixed units must meet a minimum 200+ tons of waste a day to capture enough synthesis gas to see substantial gains, whereas MedMaster units derive value from the remediation of the waste itself. Pyrolysis technology as a for-profit business would show relative gains per amount of waste volume processed. With the exuberant amount of waste created by medical, municipal, and military entities there is more than enough demand for portable remediation, therefore capturing a larger portion of waste removal market share.



Who uses MedMaster

Nationally, there are thousands of large companies manufacturing products whose process, and or end product creates, Hazardous Materials. These include Chemical, paint, pharmaceutical, bioscience, plastic molders, and many more. These companies create waste that cannot be dumped legally in landfills, nor can they be treated or recycled. These materials are incinerated which is toxic while being released into the environment. The ash left behind still leaves a problem with its toxicity, and is usually gathered up, sealed in a container, and buried in the desert.

What MedMaster is used for

- Hazardous materials as solids or liquids, that pose detriments to all living organisms
- Regulated Medical Wastes and other medical Hazardous Wastes
- Medical wastes from laboratory research or pharmaceutical industries
- Materials that are non-radioactive, corrosive, oxidizing or asphyxiating
- Biohazards in the form of toxins, pathogens, or allergens
- Plastics are reduced to carbon and hydrogen instead of dangerous dioxins and carcinogenic furans
- Mercury, lithium metals are positively captured and recycled
- Industrial and Chemical waste including pesticides, concentrated sludge waste are remediated



About MedMaster

MedMaster was formed in 2018 with an overall mission statement of providing sustainable environmental solutions for energy, water management and waste remediation services. MedMaster has the engineering depth, total life cycle cost and operations analysis to provide the best technology solution set for the energy, water and waste management needs of an industrial complex or a residential community. MedMaster has focused most recently on the environmentally appropriate pyrolyzation of waste ranging from portable hazardous material processing to major fixed-base installations for the complete remediation of municipal and landfill wastes for energy or ethanol production. Depending on the customer needs, MedMaster has alliances with both small and major companies, including disabled veteran-owned and native American Indian owned businesses. MedMaster is aggressively stepping out with manufacturing of a series of portable pyrolyzation systems that will be deployed regionally in-service unit sets as well as offering individual systems for sale in the US and abroad.



MedMaster provides

- A rapidly deployable pyrolyzation capability that can fully remediate all non- radiological medical hazardous wastes on site or within a locally identified service region.
- Pyrolysis of medical wastes, unlike common incineration practices where dangerous dioxins and furans are formed, but will actually break down such complex chemical chains to base elements such as carbon and hydrogen, which is captured as a reusable energy source called synthesis gas. The high temperatures of pyrolyzation will fully remediate nearly all hazardous materials, with only radiological hazmat being unaffected in this environment. Radiological isotopes are best handled separately.
- MedMaster eliminates extensive storage time violations and transportation hazards associated with handling and rehandling dangerous medical and other hazardous materials. This reduces the occurrences of illegal or inappropriate dumping of hazardous wastes.
- Transportable on two to three standard 48-foot tractor-trailers rigs, the MedMaster system can be operating within two days of arrival. Relocation can occur within 5 hours of shut down. Additionally a fully functioning system can be transported onboard a cargo aircraft.
- The MedMaster system will handle 100 to 150 kg per hour of medical hazardous wastes, all organics including plastics are gasified in an extreme plasma environment, creating a synthesis gas that can be directly converted to electrical energy, or used as syngas if a demand is evident at the location, or if no electrical or gas demand can merely dispose of the waste. - Note that due to expected municipal constraints a normal run time is anticipated to be 16 hrs. a day for 6 days a week. This equates to a minimum of 3520 lbs. of hazardous materials processed per day. - A metropolitan area of three to four million people may generate sufficient medical waste for 10 to 12 systems.
- The MedMaster is initiated with a diesel-powered generator set, which can then shift from diesel to the self-produced synthesis gas fuel after 40 minutes of run time.
- Any metals in the medical waste, including needles and disposable surgical devices are captured in the residue in sterile form and may be separated and recovered for reuse, so they do not enter the air or ground as pollutants.

MedMaster characteristics

- Requires two or three conventional flatbed trailers, Plant is built into standard ISO shipping containers.
- MedMaster, being transportable, can be located close to the source of hazmat, which largely eliminates the need for long haul transportation of dangerous materials on highway, rail and barge systems.
- MedMaster is run by a 2-man team (systems foreman and machinery operator).
- MedMaster can be up and operating within 2 days of arrival on site.
- MedMaster has a unique business services model in that several systems can be assigned to a given region, relocating on a recurring schedule to meet the hazmat remediation needs of that region.
- The MedMaster system can be transported in the C17 and similar aircraft
- A MedMaster is ruggedized for military forward operating base needs.
- Excess electrical power can be as much as 120KW per system, saving valuable fuel resources for combat vehicles.





MedMaster specifications

The MedMaster mobile system is designed to remediate medical, commercial, and industrial hazardous and nonhazardous wastes utilizing the proven science of Pyrolyzation to break dangerous complex chemical bonds to their base elements, primarily of carbon, hydrogen and nitrogen. Remediation of hazardous materials by going to their source, significantly reduces the inherent risks associated with highway transportation as well as significantly reducing the number of personnel handling these hazardous materials. Regionally deployed, the MedMaster systems can service a wide variety of customer sets in municipalities across the country, relocating on an optimized schedule, to minimize the need to transport hazardous materials and enabling compliance with storage times and volume constraints.

- MedMaster is fully transportable in two to three standard 40 ft. semi-trailers.
- MedMaster can also be delivered in two to three standard ISO 40 ft. containers via air, cargo ship or rail. A complete system and operating spares can be airlifted in a C-17 military aircraft MedMaster can be operating within 2 days of delivery time, and can be ready to relocate 5 hours after system shutdown
- MedMasters rapid mobility is key for real-time responsiveness to natural disaster situations or in response to major accident or terrorism events
- MedMaster is capable of processing 100-150 kg per hour of medical and other hazardous waste (approx. 3500 to 5200 lbs in a 16 hour work day) o MedMaster II is expected to remediate 250-400 kg per hour (8000 to 12,500 lbs per day)
- A team of three service personnel are all that are required for the materials handling and system operation o OSHA safety trained, US EPA compliant and US DOT certified for HAZMAT handling No additional personnel are required for routine maintenance and system inspections

- Integrated control system will also capture remediation data for use in required federal and state reporting
- MedMaster has two unique options for feeding hazardous materials into the pyrolysis chamber
- Pumping system for liquefied waste
- Archimedes type auger for feeding shredded waste materials (red bag wastes)
- Ram feeder for small containers of hazardous materials (pathogens; toxins)
- MedMaster is expected to have a service life of 20 or more years when used as directed and maintained with manufacturer approved parts.

