Medical Incinerators

Board of Trade Award Winner
Double Award Winners
Excellence in Manufacturing & International Business
Greater Birmingham Chambers of Commerce

International leaders of medical incineration solutions since 1982
www.addfield.com
‘The most thermally efficient, robust and reliable incinerators on the market - Simply Built Better!’

We are extremely proud to be one of the UK’s most established manufacturers of Medical Waste Thermal Treatment Solutions.

Our machines have been in production for more than 35 years and in such time we have invested continuously in developing the most productive, reliable and efficient machines that you can own.

We build all of our machines by hand in our facility in the heart of the UK. Combining expert craftsmanship with cutting edge technology, enabling you to invest in the best options available for treating medical waste safely whilst meeting all required regulations.

Constructed from the best materials available to deliver a return on investment that lasts for years. As a result we have installed machines in over 95 countries across 6 continents, for customers that return to us time and again for one reason, our machines are simply built better. Proudly winning the prestigious Board of Trade Award and multiple Chamber of Commerce Awards recognising our Manufacturing and excellence in International business.

I hope that you find the information that you are looking for in this brochure and if you do have any questions do not hesitate to call our expert sales team.

Steve Lloyd - Managing Director.

Successful Management Of Healthcare Waste

Incineration of healthcare waste is typically supplemented with recycling, landfill and autoclaving. Below is Government guidance of the correct management of healthcare waste.

- **Waste: Yellow - Clinical Waste**
  - Method: Disposal by incineration

- **Waste: Orange - Treated Waste**
  - Method: ATP plants or incineration

- **Waste: Red - Anatomical waste**
  - Method: Disposal by incineration

- **Waste: Purple - Cytotoxic & cytostatic waste**
  - Method: Disposal by incineration

- **Waste: Yellow/Black stripe - Offensive/hygiene waste**
  - Method: Disposal by landfill or incineration

- **Waste: Blue - Medicinal waste**
  - Method: Disposal by incineration

- **Waste: Black - Domestic (municipal) waste.**
  - Method: Disposal by landfill or incineration

- **Waste: White - Amalgam waste**
  - Method: For recovery

Source: Safe management of healthcare waste, www.gov.uk
The MP range:
The most successful medical machine for small hospitals

The Addfield MP range of medical waste incinerators have been developed specifically to provide complete destruction of biological, pharmaceutical and hazardous waste safely.

As with all Addfield machines the MP range is constructed using only the most proven traditional techniques alongside cutting edge advances in incineration technology. Built to last out of high grade 10mm Steel to deliver a robust machine that can withstand decades of regular usage and continue to perform exceptionally. With multi layered insulation ensuring that the heat is securely focussed where it is required delivering complete incineration whilst using more than 40% less fuel to deliver a highly economical and environmentally sustainable approach to incineration.

With the added advantage of utilising Hot Hearth technology usually only found in much larger machines. The Hot Hearth boosts the machines results through providing additional heating beneath the primary chamber which speeds up the incineration process through removing cold spots found in most common incinerators.

With the benefit of a Primary and Secondary chamber all MP machines will consistently deliver safe sterile ash whilst producing smokeless and odourless emissions.

There is a clear reason why Addfield have become the manufacturer that aid agencies and health organisations throughout the world turn to for reliable and quality solutions.

Additional Options:

Containerised Waste Management Systems.
Our fully containerised, ready to go medical incineration configuration provides a disposal solution that is easy to install and requires minimal ground and civil work to implement. The structure provides housing and protection for the incineration machine, as well as a clean, safe working environment for the operative. A highly cost efficient and effective medical waste disposal solution.

Automatic Loading Systems.
With the addition of an automatic bin tipper and waste charging system, you can enable a hands free loading option, minimising the operatives interaction with the waste stream.
Advanced cleaning with Venturi System

The Addfield ‘Venturi’ system is a highly developed, stainless steel engineered, flue gas scrubber. Built to provide additional cleaning of exhaust gasses. Removing and neutralising particulates and airborne by-products created through the combustion process.

Neutralise waste at a microscopic level

Able to be scaled to fit all sizes of Addfield machines. The Venturi system creates a turbulent environment designed for flue gas scrubbing.

The three stage process begins when liquid and gas are introduced into the ‘Converging Chamber’. Following a funnel styled construction as the area reduces the velocity of the gas increases. It then proceeds to the ‘Throat’ where the gas is forced to move at very high speeds. This shears the water from the sides and breaks it down into thousands of tiny water particles. This then leads into the ‘Diverging Chamber’ where the particles interact with the exhaust gas created through incineration. With the particles of water stripping any gaseous and particulate pollutants and transporting them into the final settling tanks. The remaining cleaned exhaust gas, can pass through the chimney into the environment.

Waste water is transferred into the settling tanks at the base of the system it is equipped with automatic levelling and controllable drainage systems for safe disposal. Caustic Soda and other additives can be introduced into the process to neutralise any specific by-products produced. The flue gas scrubbing process is both highly economical and efficient. Capable of removing over 95% of Sulphur Dioxide produced alongside other by-products of incineration.

Additional Filtration options available

Ceramic Filters
Gas is pulled through vacuum formed ceramic filter tubes, these filters remove the heavy particulates and used sorbent powders in an extremely efficient manner. A dry system that requires minimal long term maintenance and is up to 97% effective in removing particulates.

De-NOx Systems
De-NOx systems involve the use of Urea to neutralise nitrogen oxides (NOx) formation. NOx is typically kept under control using good combustion however for unusual waste streams a De-NOx system may need consideration.

Sorbent Injection
Sorbent powders come in two forms lime (or sodium bicarbonate) and activated carbon. Such powders are used to neutralise gases on large installations. Sodium Bicarbonate is used to neutralise acid gases whereas activated carbon is used to neutralize heavy metals, dioxins and furans. In small-medium scale installations good combustion in the primary and secondary chambers operating at 1150deg.C can be used to control such elements.

Waste to Energy Recovery Systems

An efficient way of transforming heat into energy in the form of hot water, hot air, steam and electricity. A green source of energy, which can save on your costs whilst reducing your carbon footprint.

We currently offer a range of recovery systems for our medical incineration machines.

Waste Heat Recovery:
Energy is recovered in the form of clean hot water or hot air. A heat exchanger or boiler is used to exchange heat with the flue gas. This hot water can then safely be used to heat local facilities, whereas hot air can be used in drying processes.

Steam Generation:
Generated in the form of unsaturated/saturated steam or superheated steam. Saturated steam is typically used in a variety of cleaning or humidity generation applications. Superheated steam is used almost exclusively to drive electric turbines.

Electricity Generation:
Benefitting from the generation of superheated steam, we can offer a standard turbine capable of generating usable electricity from waste.
Typical Medical Waste incineration plant installation

As the experts in Medical Waste incineration we have been involved in range of unique installations across the world.

Working with a diverse range of customers we are often required to deliver complete solutions beyond simply supplying a machine. Our Medical Incinerators are built robustly to be able to work effectively in a wide array of environments. With a recommended installation for a continuous process incineration containing additional accessories and Venturi System illustrated below.

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<thead>
<tr>
<th>No.</th>
<th>Item Description</th>
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<tbody>
<tr>
<td>1</td>
<td>Optional 240L Bin Tipper</td>
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<tr>
<td>2</td>
<td>Hopper Door</td>
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<tr>
<td>3</td>
<td>Automatic Waste Charging Door</td>
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<td>4</td>
<td>Automatic Vertical Lift Door</td>
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<tr>
<td>5</td>
<td>Medical Incinerator</td>
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<tr>
<td>6</td>
<td>De-Ashing Door</td>
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<tr>
<td>7</td>
<td>Waste Charging Control Panel</td>
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<td>8</td>
<td>Main PLC Control Panel</td>
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<td>9</td>
<td>Venturi Wet Scrubber System</td>
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<tr>
<td>10</td>
<td>Condenser</td>
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<tr>
<td>11</td>
<td>ID Fan</td>
</tr>
<tr>
<td>12</td>
<td>Emergency By-pass</td>
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Medical Waste Facility Isle of Man

In 2006, Addfield installed a 1000kg per hour medical waste treatment plant on the Isle of Man, UK. The plant was integrated into the existing municipal waste site and conceived to manage a wide variety of hazardous waste streams that included clinical waste, animals, and sewage filtering. The machine was designed and built specifically based on the unique customer requirements. The plant was further enhanced to supplement the burn process with waste oil. However, the key drivers for the plant were to offset the environmental aspect and cost associated with transportation of waste off the island, whilst minimising the biosecurity risks of waste movement.

The C1000 thermal treatment plant consists of a fully automated incineration line. The primary incineration chamber is fed from the hydraulic loader. Consisting of a fully bricked stepped hearth with multi-point hearth sweeping system. The chamber is continually de-ashed with an automatic system that deposits ash into a receiving wheeled bin. The secondary after chamber provides a two second retention time at a minimum of 1100 deg.C. Designed to thoroughly oxidise flue gas and the first stage of the gas cleaning system. This chamber is also fitted with an SNCR de-NOx kit. Fitted as a precaution but never used as the combustion process proved to be extremely efficient. Oxygen sensors on the secondary chamber ensure 6% oxygen output. A transit duct connects the secondary chamber to a 4000kw thermal recovery boiler after which it is passed to the main municipal waste sites filtration system.

Networked PLC controls are available at various stations around the plant. The site is controlled principally from the main control room that has complete feedback of all possible variables. The clinical waste system is still in operation today, some many thousands of cycles later.

Reliable destruction of medical waste

With a very strong reputation internationally we were approached by representatives from the Punjab Ministry of Health to assist them in the development of new facilities across the state as part of a planned investment.

With many older healthcare sites operating without a suitable waste disposal system in place. The few locations where there were incinerators available, many have become decrepit and beyond repair. A clear result of this is that waste was simply strewn across the ground accessible to all. With published reports highlighting contaminated plastics being collected and reintroduced into the Ecosystem through inscrutable recycling facilities. The resulting risks from cross contamination and rapid spread of infection became a real danger.

Following a period of planning and development including visits to our UK factory, as well as our senior management team meeting with the Ministry in Pakistan to review and confirm the requirements in person to ensure that we would provide only the most suitable machine for their needs. In 2017 the final decision was made to purchase 13 MP500 machines. With the addition of automatic loading systems and our ‘Venturi’ systems on each machine.

Although automatic loading is not common on smaller machines, it shows the commitment of our customer to provide a safe working environment. Due to the nature of the waste and the levels of usage planned an automatic loading system was requested to improve efficiency and safety for the operators removing the risks of cross contamination. Alongside the addition of our Venturi system shows a genuine commitment to safe long term sustainability. The Venturi system has been designed to completely neutralise any by-products left over after the medical waste has been processed through the primary and secondary chamber. The system utilises water to neutralise the hot waste gas before releasing it safely into the environment.

The MP500 is our largest MP machine capable of managing up to 1000kg per day which is the equivalent to the amount of waste created daily by a 500-1000 bed hospital.

Quality is assured
ISO 9001:2015
ISO 14001:2015
International Supply & Installation. Turn Key Operations

Clinical Waste Disposal Plant
Edinburgh, UK

Pharmaceutical Disposal Plant
Constanine, Algeria

UNICEF Funded Treatment Center
Dapaong, Togo

Why Choose Addfield?

A brand you can trust.
The name ‘Addfield Environmental Systems’ has been synonymous with revolutionary thermal technology and innovative ideas since being founded in the early 1980’s.

Service you can rely on.
Throughout our history, Addfield has become the go-to provider for state of the art thermal engineering. Today the Addfield brand is known and respected around the globe for quality and reliability. Currently servicing more than 95 countries where our products are assisting to:

1. Reduce medical and hazardous waste.
2. Control biosecurity.
3. Convert waste to energy.
4. Reduce landfill obligation.
5. Meet emission compliance.

Exacting attention to detail.
With our ISO Accreditation, world class on site engineering and technical support teams, it is little wonder Addfield are the preferred supplier to many of the worlds recognised aid agencies. Providing comprehensive cost effective turnkey solutions, to solve your medical waste stream problem, we are experts in thermal combustion.

Cutting edge Research and Development.
All of our products are designed by our in-house engineering team using the best available 3D solid-works & fluid dynamics software. Our design engineers regularly work alongside some of the most well respected healthcare organisations in the world.

With you for the long term.
Addfield machines are built to last delivering you continuous results for years to come. With a full after sales team in place to quickly address all your needs. Alongside consistent investment in our after sales operations including knowledgeable back office personnel, working with our highly experienced field engineers.

Addfield – Robust, Reliable, Efficient.... Simply built better.

Call for FREE advice on +44 (0)1543 571 280
or visit www.addfield.com for more information
Specialists in the design, manufacture and supply of Incineration and Cremation solutions

Discover the full benefits of an Addfield incinerator.

Call our expert sales team today on
+44 (0)1543 571280

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