

addfield
Incinerate • Cremate

International Leaders of
Incineration Solutions

Advanced Waste to Energy Solutions



Dependable solutions for waste to energy with an Addfield installation.

We are one of the UK's most established manufacturers of large-scale incinerators for converting waste to energy. Proudly leading the way with our unparalleled design, innovation, service and quality.

Welcome to the Addfield range of waste to energy solutions. We are all very proud of the positive impact that we have been able to achieve globally, completely transforming the way that many forms of waste is now disposed of.

Delivering genuinely life-changing benefits to the communities that they are installed in, whilst providing a reliable source of waste disposal for what could be decades to come. I am sure that you may have many questions on just what makes Addfield the supplier of choice for many prestigious organisations. Hopefully, through the next few pages, you will be able to find the answers to many of these.

For over 35 years we have been constantly developing and manufacturing what I believe are the most advanced, reliable, and efficient solutions available for managing non-recyclable waste. I am confident that you will be able to see how, as well as providing a

secure source of disposal you can also achieve visible reductions on operating costs and provide a safer facility for operators.

Our client list includes many of the world's largest international aid agencies and prestigious government and medical bodies. When our clients choose to invest in an Addfield incinerator it's a decision that lasts for many years into the future. Our machines are built to work hard, having an average life expectancy of over 20 years. They are constructed from premium materials by a team of highly experienced professionals and we will be here for you with our exceptional support and service for the life of every machine.

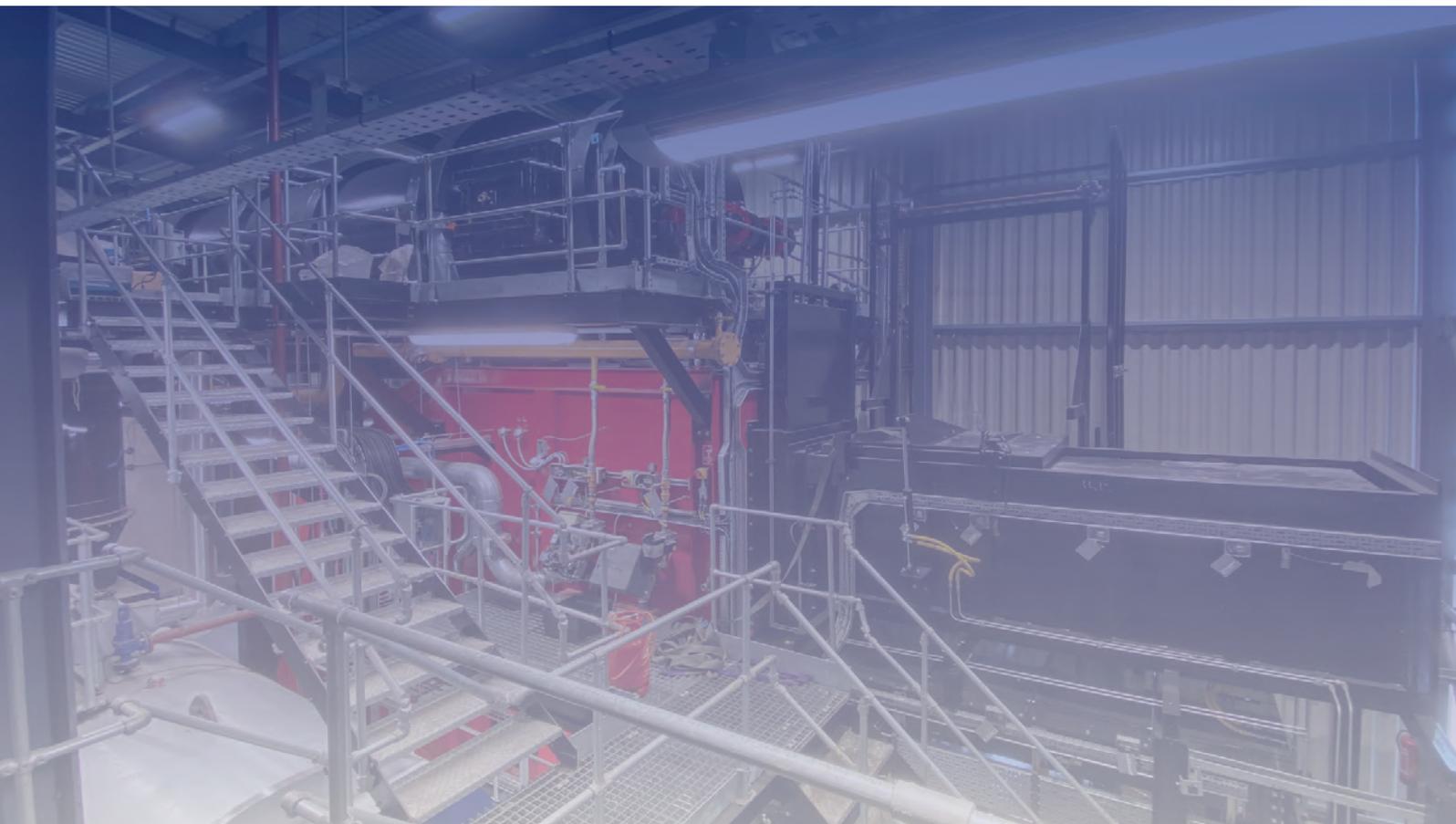
What really makes an Addfield machine stand apart from others is our fully bricked refractory lining, finishing off our advanced triple-layered refractory. This approach delivers incredible thermal efficiency requiring up to 40% less fuel to operate compared to our

concrete-lined competitors.

I am proud to say that whatever you need and regardless of where you are that we have the machine that genuinely will help. Supported by our global network of engineers and distributors we have installed machines in over 110 countries and are welcoming new territories all the time. I look forward to hearing from you soon.

Steve Lloyd
CEO

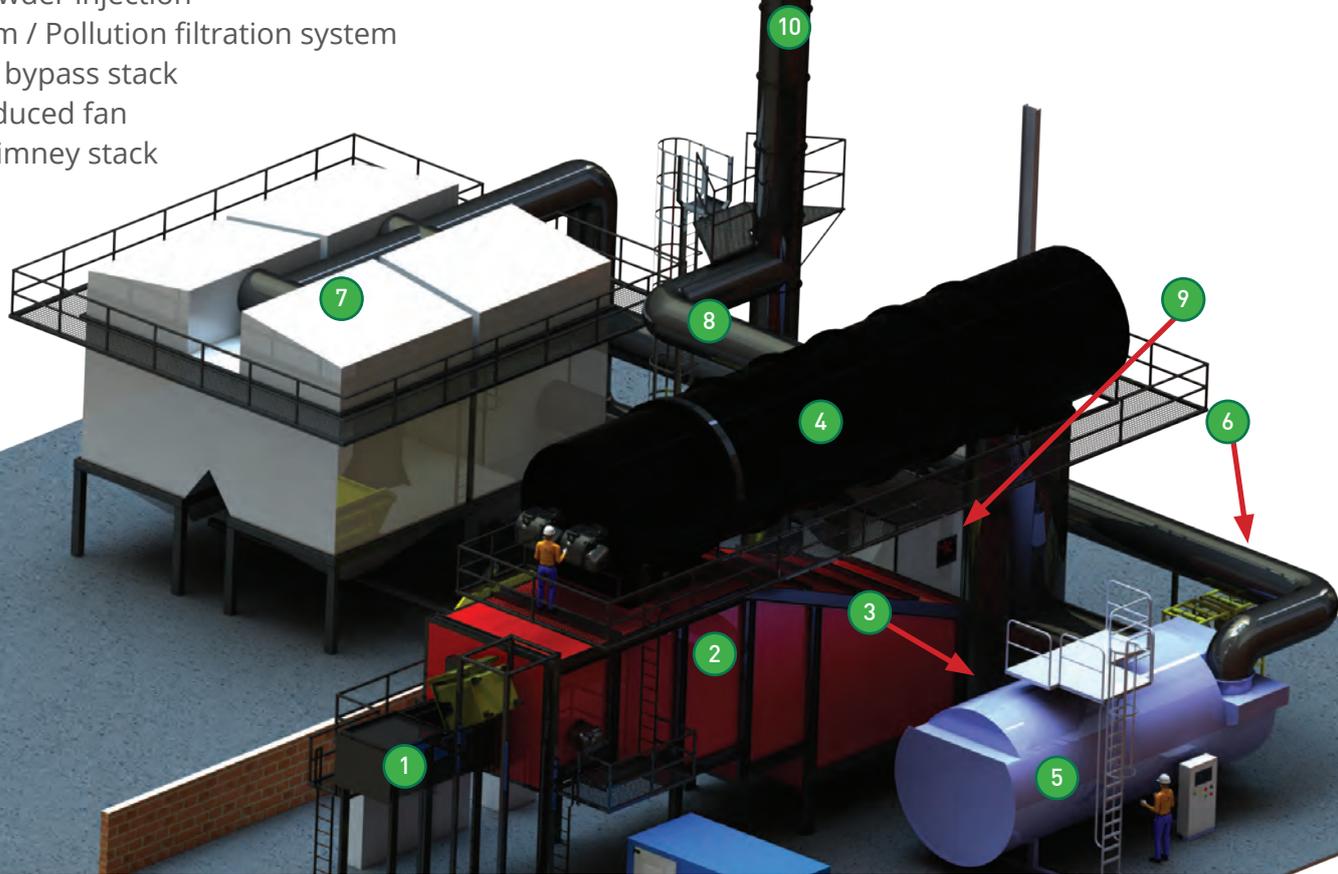
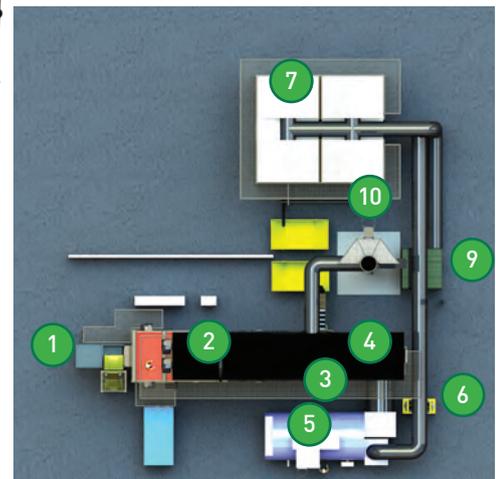
Addfield Environmental Systems



Example Waste to Energy Incineration Plant (>2000kg/hr)

Our expertise enables us to tailor your installation to match your sites unique needs. Delivering sustainable solutions for all waste types.

1. Ram feed system
2. Stepped hearth primary chamber
3. Automatic de-ashing system
4. Secondary after chamber
5. Heat recovery options including:
 - Hot water generation
 - Steam generation
 - Electricity generation
6. Sorbent powder injection
7. Filter system / Pollution filtration system
8. Emergency bypass stack
9. Draught induced fan
10. To main chimney stack



Global Growth In Waste To Energy Generation.

During the past 20 years Refuse Derived Fuel (RDF) plants have grown in popularity. Continuing worldwide investment and development has enabled many countries to approach RDF as a viable source of electricity supporting many communities.

Europe is leading the world in this field, followed closely by America and the UAE. Many countries have become so successful in this approach that they regularly import waste from neighbouring countries including the UK. For example Sweden processes over 2,200 tons of waste per day directed into the generation of 1200 MWh of electrical energy, which is enough to power over 110,000 average homes. The opportunities for clean energy are enormous as in 2016 America burned 30 million tons of municipal solid waste destined for landfill creating 14 Billion Kilowatt-hours of electricity.

A trend that is only set to continue as a viable approach to managing the increasing global mountains of waste. Now is the ideal time to begin investing in RDF facilities as new regulations are being implemented on a global level to combat the impending waste crisis.

Sustainable Incinerators For All Waste Streams

Control Waste Efficiently

Not all waste can be managed in the same way. Different waste streams consist of vastly different compositions requiring unique approaches to clean and reliable incineration. Our expertise lies in designing machines that meet your requirements. Animal, Medical and Municipal waste all behaves differently, burns at different speeds and needs differing levels of filtration to deliver optimal results efficiently and consistently. Through developing each machine with you before applying our design and modelling expertise, we have consistently supplied equipment capable of delivering the expected results for many years of intense operation.



Dedicated Project Management

A full waste to energy facility is a significant investment. As such you need to be assured that you will receive the focus and attention to ensure your site is fully capable of achieving all the goals you have planned. Our dedicated project management team works exclusively with our high capacity and bespoke customers to give a service you can trust.

Waste to Energy Recovery Systems

Addfield currently offer a range of recovery solutions for multiple incineration systems. Such recovery options include the following:

Waste Heat Recovery:

In the form of hot water or hot air. A heat exchanger or boiler is used to exchange heat with the flue gas. Hot water can be used to heat local facilities, whereas hot air can be used in drying processes.

Steam Generation:

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:

(From the generation of superheated steam), Addfield offer a standard turbine capable of generating electricity from waste.

Complete Project Management At Every Stage.

1. Advanced 3D Modelling.
2. Computational Fluid Dynamics.
3. Premium Construction.
4. Dedicated Projects Team.
5. Full Training.
6. Ongoing Remote Support.



Working with customers worldwide in the development of incinerators and facilities has provided us with a unique insight into what makes the most reliable and successful installations. Our growing network of international distributors, and engineers gives you security alongside ongoing support following installation and commissioning.

Whether you are choosing a high capacity incinerator or full waste to energy site. When working with Addfield you will be able to access more than 35 years of technical innovation. Proudly manufactured exclusively in the UK by highly skilled craftsmen using only premium materials and components. Backed up by a projects team accessing the latest in 3D design, modelling, visualisation and simulation.

Contact us

Tel +44(0)1543 571280

Email: sales@addfield.com
or visit www.addfield.com



Filtration Systems

At Addfield we can provide a wide range of filtration systems suitable for various types of waste to energy incineration systems.

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

The Addfield De-NOx systems involves the use of Urea, a common, widely available harmless fertiliser 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.

Gas Cleaning Wet Scrubber

A water tower whereby the incinerator gas stream will traverse upward, while liquid is sprayed downward into the incoming gas stream. This counter current flow exposes the outlet gas to the scrubbing liquid. Particulates along with other components are intercepted and removed.



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 gasses whereas activated carbon is used to neutralise heavy metals, dioxins and furans. In small-medium scale installations good combustion in the primary and secondary chambers operating at 1150°C can be used to control such elements.

Addfield Case Studies

Rotary Incineration System

The R1200 rotary kiln was a complete design, manufacture, install and commission contract in Macau for CSR a sister company of Swire SITA Waste Services Limited.

The project was to provide a hazardous waste incinerator for the Government of Macau. In fact, the incinerator was required to treat a wide spectrum of waste, which included flammable liquids and solids. The solids were subdivided into hazardous (primarily pharmaceutical and printed circuit board manufacturers residues), shredded tyres, pets, abattoir waste, medical waste and horse carcasses from the local race track. The incinerator has a nominal capacity of 1200kg/hour and operates to the emission standards set out in the relevant European Union directives.

The key elements of this plant are waste feeding systems for solids and liquids which included: a tyre shredder with screw conveyor, dedicated ram loading system capable of accepting oversized loads and large Eurobins via the integrated automatic bin lift system, liquid injection, adapted dual fuel burner for hazardous solvent waste, the main rotary kiln combustion chamber, a highly efficient secondary combustion chamber, hot water waste heat recovery system, flue gas abatement system using sodium bicarbonate and activated carbon injection with bag house filter

with automated periodic cleaning and extraction system, inverter controlled induced draught fan, stand-alone chimney and automatic de-ashing system.

The whole plant is controlled and monitored by a sophisticated control system that is designed and configured to provide the maximum supervision and sequenced operation but with the minimal operator intervention via SCADA and Windows based software. As part of our commitment to the client our overall aim was to provide a full turnkey package that satisfied their waste disposal requirement, makes significant contribution towards their energy needs and has a minimal impact on the local and global environment.

“As anticipated with the unusual mix of wastes, there were issues during commissioning. These problems were overcome due to the integrity and hands on perseverance of your staff. The project was completed to the satisfaction of CSR and the Macau government”. Chief Operating Officer at Swire SITA Waste Services Limited.



High Capacity NHS Installation

The C350 has been designed to provide a complete solution for managing all medical waste for the New Cross NHS hospital in Wolverhampton. The C350 is the key component in the custom designed Thermal Treatment and Waste to Energy plant installed by Addfield. Built to manage the safe destruction of up to 350kg of waste an hour, whilst also converting all heat generated through the daily operation, into the production of economical, green energy in the form of hot water, which is then used to heat the hospital.

Providing a more secure and environmentally sustainable approach for reliably disposing of the medical waste created by the hospital alongside several surrounding smaller health centres and clinics.

Incineration is recognised as the safest way to fully destroy all bacteria, pathogens and harmful particulates from medical waste. Operating at temperatures in excess of 1100°C for more than 16 hours a day the C350 will deliver highly sustainable waste management and energy generation all year round. To reinforce the green credentials the installation includes an advanced multi stage filtration system ensuring that only clean gases are returned back into the environment.

Following a long consultative process, the C350 was developed as a replacement to their ageing system. As with all high capacity installations we ensure that each facet is optimised to be compliant with the EU Waste Incineration Directive 2000/76/EU, alongside the most recent legislative requirement, the EU Industrial Emission Directive 2010/75/EU.



Why Choose Addfield?

The name Addfield Environmental Systems has been synonymous with revolutionary thermal technology and innovative ideas since its foundations back in the early 1980's. Throughout over 35 years, Addfield has become the chosen name for state-of-the-art engineering. Today Addfield is a multiple award winner recognised for its manufacturing quality and international expertise. Recognised and respected around the world for continued quality and reliability. Currently supporting more than 95 countries globally Addfield incinerators are assisting to: -

1. Reduce hazardous waste.
2. Maintain biosecurity.
3. Convert waste to energy.
4. Reduce landfill obligations.
5. Meet emission compliance.



Multiple ISO Accredited, with world-class on-site engineering and technical support teams, it is little wonder Addfield are the preferred supplier to many of the world's international governments and aid agencies. Addfield provide comprehensive cost-effective turnkey solutions, to solve your waste stream problem, we are experts in sustainable thermal combustion. All of our installations are designed by our experienced in-house engineering teams using 3D Solidworks & fluid dynamics software. Our teams of engineers regularly work alongside some of the most respected healthcare organisations in the world to ensure maximum results are achieved. Our global after sales support has enabled us to generate long term sustainable partnerships resulting in continued growth. Benefiting from a large support team, including back office services, highly experienced field engineers, and growing global network of approved distributors you are never too far away from the Addfield support mechanism that so many customers have come to rely upon.

International Supply & Installation. Turnkey Operations



C1000 - 1000kg/hr Clinical Waste
Isle of Man



Petrochemical Waste Plant
Chad



Containerised Treatment Facility
Ascension Islands

Incineration Experts

Working with international aid agencies and government bodies to develop the most reliable solutions for all clinical waste needs. We understand the complications of installations in remote and isolated locations. Therefore we ensure that all machines can be easily serviced and maintained. Plus we supply a full range of spares to keep machines in operation.

Full training to local engineers is provided as well as lifetime access to our international network of partners. Our engineers are some of the most experienced in the industry and help our customers to keep their machines operational from anywhere in the world.

All of our machines are designed and manufactured from our headquarters in the heart of England.



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Addfield Environmental Systems Ltd
Unit 9 - Zone 4
Burntwood Business Park
Burntwood
Staffordshire
WS7 3XD

+44 (0)1543 571280
sales@addfield.com



www.addfield.com