Tetronics: Plasma Trials Facility

Tetronics Trials Facility Benefits:

- Technology assessment using real wastes to validate the technical basis of commercial plant business case
- Trials carried out at a commercially relevant scale
- Comprehensive data acquisition and external chemical analysis services
- Four plasma furnace stations can be configured in a variety of ways to cover different mass throughputs and operational configurations
- Huge range of materials processed by Tetronics
- Trials facility meets the appropriate regulatory approvals from the UK Environment Agency
- The most sophisticated plasma trials facility in Europe
- Up to 1 MW power input available
- Resource of highly trained team of operators and technical experts

Tetronics offers the most sophisticated Plasma Trials Facility in Europe for conducting material processing tests on: hazardous wastes, metal recovery and clean heating.

Overview:

Tetronics International has a unique suite of highly flexible furnaces for conducting plasma trials across a wide range of processes, including: hazardous waste treatment, metal recovery and clean heating. These furnaces are supported by all the necessary services and utilities, under the appropriate regulatory approvals from the UK Environment Agency and backed up by comprehensive data acquisition and external chemical analysis services. This enviable combination of facilities continues to enable Tetronics to investigate the plasma treatment of an enormous number of wastes and other materials in support of client and government-sponsored programmes, often as a prelude to the supply of major capital equipment.

Plasma Facilities:

Tetronics' trials facilities are built around its highly flexible plasma furnaces. Four plasma furnace stations can be configured in a variety of ways to cover different mass throughputs and operating conditions. Depending on the specific requirements of the plasma trial, containment for the molten material can be provided by refractory lining, graphite crucible or water-cooled copper hearth, while plasma heating can be provided by single or twin graphite electrodes or plasma torches. At the end of a plasma trial the molten contents can be allowed to solidify in-situ for later removal by mechanical means or tapped, by oxygen lancing or tilt pouring. In some configurations it is also possible to tap separate molten layers, e.g. metal and Plasmarok®*, as individual streams.

Support Facilities:

The operation of the plasma furnaces is supported by all the necessary services and utilities. The Direct Current (DC) plasma power supply and associated bus bars are capable of delivering up to 5,000 Amps at up to 600 Volts, while power output is only limited by the 1 MW thermal load management of the water cooling system. Deionised and raw water systems are available for cooling the equipment and a wide variety of gases can also be provided to the process, including for bubbling through the melt if required. Solids feeding systems are provided for all furnace stations, with a typical feed rate of up to 100 kg per hour; liquids feeding systems are also available for all stations, either alone or in conjunction with solids feeding as required.

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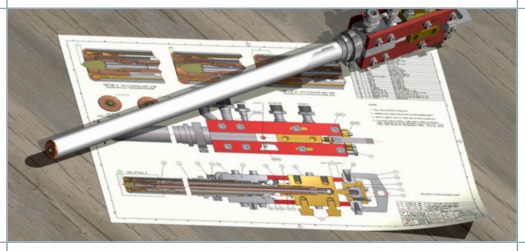

Data Acquisition & Control:

The plasma furnaces and all supporting services are linked to a central Supervisory Control and Data Acquisition (SCADA) system and a plant safety system. These provide the necessary interlocks and alarms to protect operating personnel and equipment and ensure the operating conditions used during the plasma trials are recorded for later diagnosis and analysis. In conjunction with chemical analysis that is provided by independent accredited organisations on the raw materials and solid, liquid and gaseous products from the trials, a comprehensive data suite are recorded, enabling Tetronics to provide a complete picture of the process being investigated. Such knowledge often forms the basis of process and business models for larger commercial plants, which in turn provide our customers with a high level of confidence in Tetronics' plasma technologies as the solution for their materials processing requirements.

Environmental:

The Tetronics plasma trials facilities are operated under the terms of the latest UK Environmental Permitting regime and the receipt and dispatch of all materials are handled by qualified personnel. Regular monitoring of gaseous emissions to atmosphere ensures that customers and public alike can have the confidence that all trials fulfil our clients' duty of care by being conducted in compliance with the terms of our licence to operate.

About Tetronics:

Tetronics International is the global leader in the supply of Waste Recovery Plants. We have the capability to manage the complete deployment lifecycle of a Waste Recovery Plant from initial testing of the waste material at Tetronics' test facility, the most comprehensive in Europe, through to the physical onsite installation of a full commercial plant, and subsequent support and maintenance.

Tetronics' patented Direct Current (DC) Plasma Arc plant technology provides the closest solution to Zero Waste currently available. This "green" sustainable alternative for waste management uses ultra-high temperatures to melt, gasify or vaporize any waste material, in order to treat, recover or generate useful commercial products.

As a pioneer in using plasma technology for waste treatment, our multi-faceted, highly qualified research and engineering team have applied the technology to an unrivalled range of waste challenges.

Our technology has been tried and tested over five decades and has been used globally in more than 80 plants across a wide and varied range of applications. These applications include, transforming hazardous waste into environmentally safe building aggregate, recovering precious metals from spent catalysts, recovering energy from waste oil, reducing the volume of radioactive materials and improving the quality and efficiency of steel production.

Our principal aim is to provide sustainable and future proof solutions to support organizations in recovering value from waste materials while meeting their waste disposal carbon footprint challenges.

Contact Tetronics to find out how we can assist with your plasma processing test work and business case evaluation.

Tetronics' experience in the application of plasma technology has resulted in an enviable international reputation, not only for the quality of plasma systems but also for the depth of technical expertise.

Fichtner:
a leading engineering, project management and technical advisor to the waste management, process and renewable energy sectors.

*Plasmarok® is a dense, mechanically strong and environmentally benign product that can generate value as it may be readily employed in a range of building applications.

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