

Treatment of petrochemical waste using Tetronics' technology offers commercial advantage over existing waste management options, whilst reducing landfill liabilities and conserving natural resources.

BENEFITS

- 1 High Destruction and Removal Efficiency (DRE) of organics
- 2 Intensive, compact process plant package that can be readily retrofitted to existing installations
- 3 Tolerant to chemically and thermally challenging waste feeds and is simple to operate and maintain
- 4 Vitrification of waste into a stable building product, called Plasmarok®

WHAT IS PETROCHEMICAL WASTE?

Examples of petrochemical wastes include spent industrial petrochemical catalysts, general oily sludges/cakes from oil tank cleaning operations and hazardous streams contaminated with heavy metals and persistent organic pollutants, e.g. Polychlorinated biphenyls (PCBs) and Hexachlorobenzene (HCB).

PETROCHEMICAL WASTE CHALLENGE AND TETRONICS' SOLUTION

Traditionally, the Petrochemical Sector has operated with basic technological solutions with ultimate reliance on landfill and High Temperature Incineration (HTI). Within Europe, the impact of national statute derived from the adoption of the Landfill Directive 1999/31/EC, Integrated Pollution Prevention and Control (IPPC) Directive 96/61/EC and Waste Incineration Directive 2000/76/EC, has demanded technological advancement for continued compliance. Similar legislative drivers are seen worldwide. The impact of these changes has been magnified by other factors such as the landfill tax escalator, the requirement for pre-treatment to meet WAC and the end of co-disposal, which has limited the number of accessible hazardous landfill sites.

Tetronics offers Waste Recovery Plants to meet a growing number of waste management challenges specific to the Petrochemical Sector, including the recovery of hazardous and chemically difficult wastes. Recovery of waste using Tetronics' technology offers a commercially advantageous solution to existing waste management solutions whilst reducing landfill liabilities and conserving natural resources.

Below, we provide examples of waste management issues faced within the petrochemical industry as well as the Tetronics solution to these issues:

OILY SLUDGES

Generated during oil tank cleaning operations.

How Tetronics can Help:

Tetronics' technology enables the combustion of the organic waste components to form a fuel gas and vitrification of the inorganic waste components to form Plasmarok®. The oxidation of the hydrocarbon content is controlled to limit the demand for primary electrical power, whilst providing an off-gas of sufficient calorific value to allow for viable waste heat recovery. Upon plasma treatment the waste will partition into three streams: the Plasmarok® phase, metal phase (if present) and the off-gas phase. The Plasmarok® will be removed from the furnace on a continuous basis, whilst the off-gas will be oxidised in a thermal oxidiser to liberate its calorific value. Any metal produced (from reducible oxides such as iron oxide) will be tapped periodically after accumulation.



HAZ PETROCHEM

“ 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

POP, PCBs & HCB

Hazardous waste streams contaminated with heavy metals & persistent organic pollutants, e.g. PCBs and HCB.

How Tetronics can Help:

Tetronics also has numerous projects at various stages of development for the treatment of waste contaminated with Persistent Organic Pollutants (POPs). The objective is to treat contaminated waste so that the bulk of the material mass is recovered for reuse at the same location, i.e. back-fill for land redevelopment, and the pollutant destroyed. PCBs are some of the most persistent toxic chemicals in the environment and, therefore, require special consideration when conducting ecological risk assessments. Tetronics’ technology destroys PCBs and other types of Persistent, Bio-accumulative, and Toxic (PBT) pollutants at very high efficiencies across a wide range of concentrations.

SPENT INDUSTRIAL PETROCHEMICAL CATALYSTS

The petrochemical industry sees the need for recycling routes for its spent catalysts to enable the recovery of the valuable metals that can be used in the production of fresh catalysts.

How Tetronics can Help:

The use of Tetronics’ plasma technology allows the recovery of both precious metals and base metals because of its industry-leading ability to separate metal and slag phases and to control process chemistry independently of furnace temperature in an economic and compact manner.

Contact Tetronics to find out how we can assist with your petrochemical waste challenge.

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Tetronics - Petrochemical Datasheet, Version 7, 27052021

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ABOUT TETRONICS

Tetronics is an environmental company with more than 50 years experience globally delivering clean plasma technology for maximum resource recovery, and the highest levels of hazardous material destruction. Tetronics focuses on providing an economically stable cost base and attractive revenue streams to ensure maximised financial returns.

As a pioneer in using plasma technology for hazardous material treatment, our multi-faceted, highly qualified research and engineering team have applied the technology to an unrivalled range of material challenges. Our capabilities encompass everything from initial modelling/feasibility assessment, pilot testing of the process material, through to design, supply onsite installation/commissioning and on-going support of full commercial plants.

Tetronics’ track record in advanced environmental hazardous material treatment and resource recovery processes

for a range of toxic, hazardous/industrial wastes, as well as other resource rich streams, has resulted in more than 95 technology references across a wide and varied range of applications.

Applications include but are not limited to: recovery of Platinum Group Metals (PGMs) from Spent Catalysts, recovery of Precious Metals (PMs) from electronic waste, recovery of Base Metals from Steel Plant waste, Hazardous Waste treatment (e.g. Nuclear, Air Pollution Control residues (APCr), Asbestos, Spent Potliner, Petrochemical and Organics).

Tetronics continues to work in association with many of their customers, in developing upgrade/optimisation improvements, providing specialist advice, spares and service. Our principal aim is to provide sustainable and future proof solutions to support organizations in recovering value from their hazardous materials while meeting their waste disposal and carbon footprint challenges.

