A better way to deal with waste

AquaCritox®

A world-first in sustainable waste destruction

Research carried out with the support of the EU Eco-innovation initiative indicates that there is little general knowledge of modern methods of dealing with our growing waste problem. 70% of consumers are unaware of the wet waste treatment methods currently being used in their countries, while only around 1 in 20 have heard of Hydrothermal Oxidation as a treatment process.

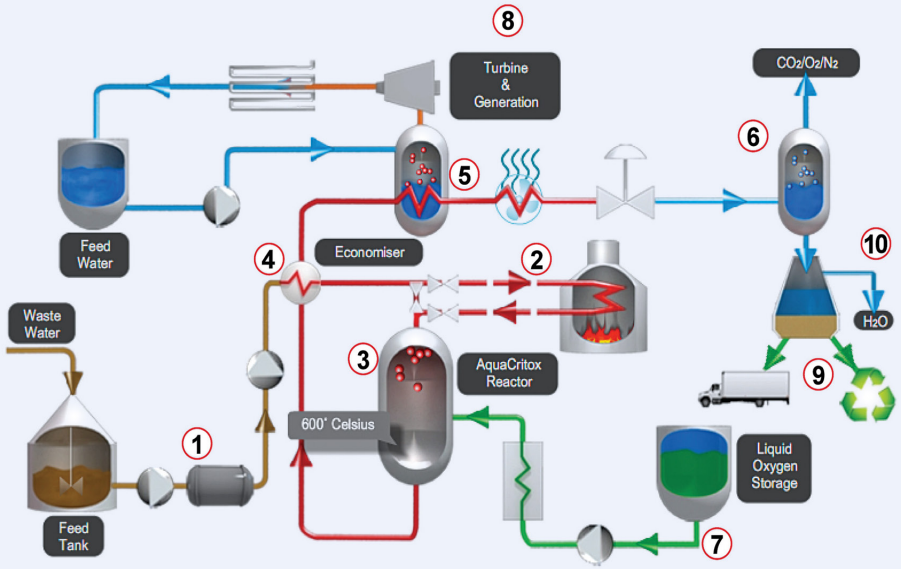
Tackling a global issue

The disposal of wet waste is a huge problem worldwide. The EU alone is on track to produce 13 million dry tonnes of sewage sludge each year by 2020 – and traditional disposal and destruction methods face growing opposition.

The public is voicing concerns over current practices (such as land spreading, landfill and incineration), with available land dwindling, the threat of disease outbreaks and other environmental implications. Wider political and economic pressures are also creating resistance.

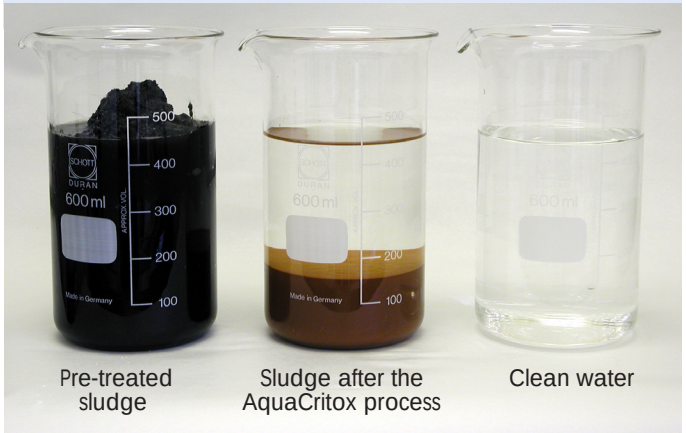
AquaCritox® is a world-first technology that provides a sustainable solution for the treatment of a variety of municipal and industrial wastes. It can take toxic waste streams such as sewage and industrial effluent and completely convert them into harmless substances like water, CO2 and inert oxides, while at the same time generating energy.

1. High pressure feed pump
2. Process heater
3. Reactor
4. Heat exchanger
5. Boiler
6. Gas / Liquid separator
7. Liquid oxygen storage
8. Turbine / generator set
9. Solids capture
10. Clean water discharge



How does AquaCritox work?

- It uses hydrothermal oxidation (HTO) to convert virtually all (99.99%) of the organic materials present in waste into inert by-products
- It reduces volume by 97% and produces an inert residue that is safe for disposal
- It allows the recovery of valuable resources (like phosphorus) from treated waste
- It is fast, safe and odourless
- It eliminates the need for landfill and land spreading, and mitigates social, political and environmental concerns in a single-step, cost-effective process
- Its process is exothermic, so it can be used to generate renewable energy



Pre-treated sludge | Sludge after the AquaCritox process | Clean water

About SCFI

Irish environmental firm SCFI developed the AquaCritox technology for waste treatment applications after 10 years of research. With a dedicated team of experts, SCFI offers a range of bespoke packages to ensure customers across a variety of industries can reap the environmental, operational and financial benefits of AquaCritox.

Eco-innovation generates success

SCFI has unveiled a fully functioning AquaCritox demonstrator unit following the award of funding under the EU's Eco-innovation initiative to develop commercial opportunities for its sustainable waste treatment technology.

The portable unit is housed in three adapted shipping containers and can be taken to sites across the globe to demonstrate the effectiveness of the AquaCritox system in actual industrial environments and across a range of waste types.

Eco-innovation funding helped the project overcome a number of technological and commercial hurdles, to create a flexible modular demonstrator which delivers hydrothermal oxidation (HTO) at various pressures and temperatures while handling different types of waste.

What is Eco-innovation?

The Eco-innovation initiative helps SMEs with innovative, environmentally beneficial products which have been proven through piloting, overcome obstacles to commercial success. It's part of the EU's commitment to not only boost economic growth, but ensure Europe leads the way in helping meet the world's sustainability challenges.

With the destruction and disposal of wet waste a notable commercial and environmental problem globally, SCFI's AquaCritox technology was selected for grant funding – providing a safe, secure and sustainable solution that had not been realised before.

The project

The Eco-innovation grant supported SCFI's mission to position AquaCritox technology at the forefront of the global waste treatment industry. The project has provided evidence of its significant environmental and financial benefits, and also demonstrated the commercial feasibility of the technology, establishing a viable route to market for a range of applications.

The specifics

SCFI has carried out the design, manufacture and construction of the modular AquaCritox demonstrator in Cork. This has processed a range of municipal and industrial sludges during a comprehensive test phase. The modular unit can be transported to specific waste generation sites for demonstration purposes.

For more information about the Eco-innovation project please visit: **www.scfi.eu**
SCFI Group Ltd, Bishopstown, Cork, Ireland.

Project partners

SCFI
SCFI is the coordinator and is supported by four partners in delivering the Eco-innovation project:

Air Products (worldwide)
Supplier of atmospheric gases, process and speciality gases, performance materials, equipment and services. Air Products has provided all oxygen equipment and oxygen.

Eras Eco (Ormonde Organics) (Ireland)
A Cork-based waste treatment and recycling facility, which has provided demonstrator testing support.

Ecuity Consulting (UK)
A sustainable energy policy specialist, which assisted with regulatory and certification activity.

Richmond & Towers (UK)
A sustainability communications agency, which coordinated marketing and dissemination.

Co-funded by the Eco-innovation Initiative of the European Union