

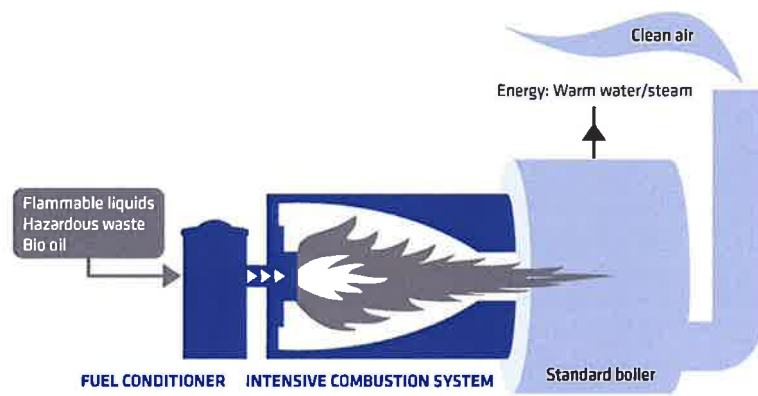


PureteQ



# ICS - Intensive Combustion System

High-tech sustainable conversion of liquid low caloric organic matter with a high content of water to pure energy.



## ABOUT PURETEQ

PureteQ is an engineering company that specializes in the development, installation, startup and commissioning of patented high-tech process plants. We solve environmental issues for our customers in the on and offshore industries, including the maritime sector. We install systems that transform liquid hazardous waste and industrial by-products into sustainable, clean energy, we construct technologies that reduce or eliminate combustion and incineration-related issues such as systems for treatment of flue gas, exhaust gas and process water, and we provide heat recovery systems for flue gas emissions. PureteQ is a subsidiary of the Dansk Synergi A/S conglomerate, with headquarters, production facilities and test center located in the city of Svendborg.

PureteQ has developed, constructed and tested a unique and patented energy plant. The ICS enables conversion of numerous low caloric industrial by-products and liquid hazardous waste to energy in an environmental and sustainable manner.

## ICS combustion process

Optimal combustion of hydrocarbon requires the presence of water, typically 10% to 50%. A high concentration of water in fuel in a 500°C combustion chamber leads to a process of combined pyrolysis and water shift reaction. In a simple formula it can be explained as:

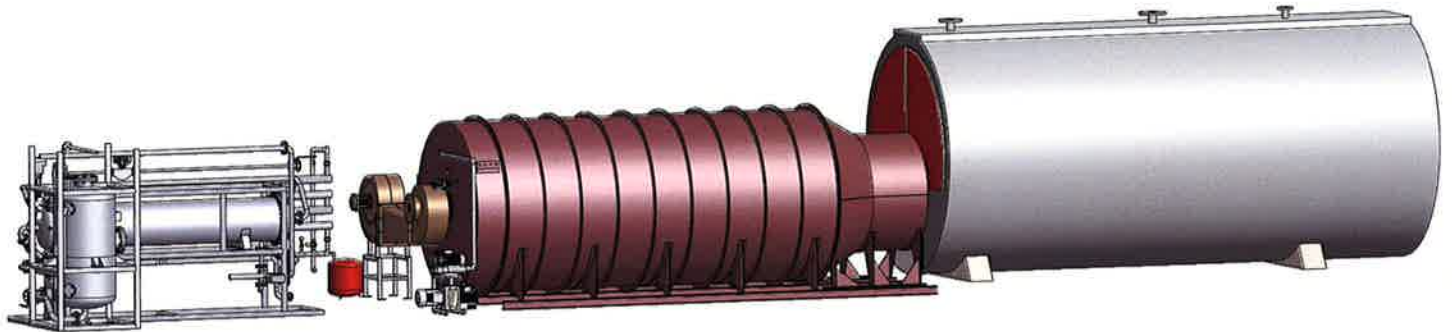


Fuel is pumped to the intensive combustion chamber through the low pressure nebulizer (nozzle). When a single drop is exposed to heat, it is stratified to even smaller drops, thus adding to a greater combined surface. From the surface of the single drop, a forceful outbound gas will suppress the flow of oxygen to the surface. Reduced conditions exist.

This mechanism is the prerequisite to obtain total oxidation of organic matter by means of water gas shift reaction. The ICS combustion process applies general physical and scientific laws.

What makes the ICS technology unique is that all control systems and components are designed to ensure that this process is optimal and stable.

**We transform environmental issues into sustainable solutions**



### Some benefits of a PureteQ ICS Plant:

- Ability to use alternative, low-cost fuels and industrial by-products
- Total combustion of all organic components (low or no CO, low NOX)
- Plug and play - easy to fit to existing boiler/kiln
- ATEX equipped for treatment of flammables with low flashpoint

The ICS Plant consists of three main components – a burner, an intensive combustion chamber and a fuel conditioner. It allows for significant variation in caloric value, viscosity, particles and water content. PureteQ ICS can be fitted to new as well as existing boilers, either as a stand-alone main unit or as a satellite (sub-system) on large boilers/kilns.

### Dimensions:

ICS is delivered in the following nominal sizes

Added effect	Fuel consumption
1 MW	100 - 260 kg/h
2.5 MW	250 - 650 kg/h
5 MW	490 - 1300 kg/h
7.5 MW	740 - 1950 kg/h
10 MW	980 - 2600 kg/h

The effect can be modulated within 25 - 100% of the nominal effect

### Required fuel properties

Caloric value	11 - 45 MJ/kg
Water content	10 - 50%
Density	0.8 - 1.3 kg/dm <sup>3</sup>
Viscosity	Must be pumpable
Particle size	Less than 1 mm