

# ANTACO: CLEAN WASTE, CLEAN ENERGY, A CLEAN WORLD

ANTACO's technology converts any type of organic waste into a solid biofuel, termed biocoal. This process known as hydrothermal carbonization, or HTC, naturally occurs, but takes millennia.



In 1913, the Nobel Laureate Friedrich Bergius discovered a way to achieve this process within hours, rather than millennia. Incredibly, there was little interest in 1913; it was only in 2006, with the rediscovery of HTC by the Max Planck Institute in Germany, that scientists realised that his findings were highly relevant to the problems faced in the modern world. Here was a solution to the global carbon problem: a fossil coal substitute, produced from organic waste, that represents a carbon-neutral renewable energy source. Although HTC's significance is still somewhat opaque to the uninitiated, it's one of the most important innovations of the century.

Founder and CEO of ANTACO, Dr Dominik Peus, recognised the immense value of this revolutionary discovery. He experimented with organic waste in his garage and realised it worked. Working with industry specialists, he developed an engineering solution to commercialise the process, while at the same time also filing patents for his innovations. In simple terms, ANTACO's technology cooks the organic waste at domestic oven temperature and at 20bar pressure. After several hours, the organic matter is broken down into its constituent elements. Carbon particles join together, while oxygen and hydrogen combine to form water; the result is a carbon-rich solution that is easily dewatered and pelletised.

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Martin Bolton, the former MD of an environmental services company and an expert in sustainability and the low-carbon sector, joined ANTACO in 2013. 'I knew the landscape and I understood just how important Dominik's findings were', explains Martin. 'Firstly, we took the concept to the Department of Energy and Climate Change and won a grant of 1m. Combining this with private investment through crowd and angel fundraising, we were able to build our first biocoal plant and prove



the concept at scale. Ironically, one of the problems we've encountered is that people think it's too good to be true! Nevertheless, prospective customers are waking up to the potential of this technology, especially with tightening legislation driving demand for new solutions in the waste market. Sewage sludge is the waste product from the water cleaning process and wastewater treatment plants can no longer spread this on land or dump it in landfill sites. Instead, they are forced to use more expensive ways of disposal, such as incineration. This is where we come in, as we can offer a more cost-effective solution for wastewater treatment plants to process their waste. In 2017, we signed our first commercial contract (value £5m – £7m) with a public utility in Central Europe to convert organic waste into biocoal'.

ANTACO's waste processing activities with the public utility are profitable in their own right, without the sale of the subsequent biocoal product, which can be used as a replacement for fossil coal in existing energy infrastructure to generate clean energy. ANTACO sent biocoal samples to an industrial energy provider, who instantly recognised their value and are prepared to offer the company a biocoal commodities future, as soon as production scales. Today, there is an increasing acceptance that clean power is of paramount importance. For example, Drax, the second-largest power station in Europe, spent somewhere in the region of £700m converting half of its capacity to generate power from wood chips. HTC could have provided a far cheaper option had they investigated it.

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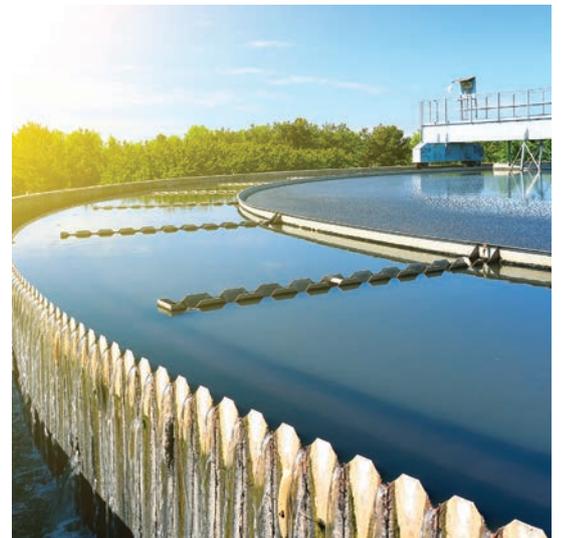
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HTC is the ultimate sustainability story. Many global business giants are driven by social, financial and environmental pressure to reduce their carbon footprint, and there is significant global demand for HTC. For example, 60% of the Indonesian city of Jakarta's waste is organic. By employing ANTACO's HTC process, the Indonesian government could have a cost-effective, green way to manage their waste and supply this city with clean energy.

ANTACO's innovative solution hasn't gone unnoticed: they have won multiple awards and have run a number of successful fundraising campaigns. In the 12 years since the rediscovery of HTC, a number of companies have recognised just how important the process is and have started to explore it. ANTACO considers itself ahead of the competition on account of its robust patents and the fact that they are the first HTC provider to have secured a contract with a European wastewater treatment plant.

Cleantech and innovation, in its most impressive form. Could ANTACO and their patented HTC process be the answer to increasing waste and dwindling energy, as well as climate change?



**Antaco**