

When plastic becomes oil again: igus invests in chemical recycling pioneer

Cat-HTR technology developed by a German scientist regains resources from plastic waste in 20 minutes

Renewable, sustainable and waste-reducing: these are the aims underpinning Cat-HTR (Catalytic Hydrothermal Reactor) technology. It can be used to recycle plastic waste within 20 minutes. The oil obtained can be used again to make new polymer products. In order to support the circular economy of plastics, igus has now invested €4.7 million in a company that plans to start up the first commercial Cat-HTR plant.

Every year, eight million metric tons of plastic are deposited in the world's oceans¹. These lost resources are worth around 80 billion US dollars². The problem: up to now, most plastic has been incinerated and only 14 per cent recycled³. Plastic recycling is also an important issue for igus. In the case of classic recycling – shredding and reusing plastic – since last October igus takes a courageous step by launching its new *chainge* program. The company takes back energy chains when the service life of a machine is over, irrespective of their manufacturer. It then regranulates the plastic and processes it again. "With the igus *chainge* programme, we have started to recycle the plastic of old products", says Frank Blase, CEO of igus GmbH.

Back to oil with water, high temperatures and pressure

However, mixed waste always remains worldwide. In the case of non-technical plastics, in quantities 100 to 1000 times greater. "Chemical recycling offers new solutions in this regard", explains Blase. "In the middle of last year, I read an article about Catalytic Hydrothermal Reactor technology in the [FAZ](#). The next day, I contacted the German inventor Professor Thomas Maschmeyer in Sydney." Seven months later, after intensive research, igus now invests four million British pounds (=€4,7 million) in Mura Technology Limited and therefore

¹ <https://web.unep.org/environmentassembly/estimated-8-million-tons-plastic-waste-enter-world%E2%80%99s-oceans-each-year-0>

^{2,3} The New Plastics Economy: Catalysing Action. January 2017. Ellen McArthur Foundation

also in construction of the first Cat-HTR plant. The patented chemical Catalytic Hydrothermal Reactor (abbreviated: Cat-HTR) technology was developed in 2007 and tested in a pilot plant in Australia for 10 years. With Cat-HTR technology, plastic waste that was previously impossible to recycle can be converted back into oil within 20 minutes; this is more resource-efficient than the extraction of fossil fuels from the ground. Only water, high temperatures and pressure are used to separate the cells and join them together again. One plant alone can process 20,000 metric tons of plastic per year and reduce CO2 output by 28,180 metric tons. This corresponds to the annual consumption of 5,983 cars or the annual energy needs of 4,914 households⁴.

Plastic recycling Cat-HTR-plant

The first commercial Cat-HTR-plant is currently being planned in Wilton, Great Britain, and construction is to start this year. Waste companies supply the waste plastic to meet their recycling goals. Oil is then obtained that can be sold as a replacement for virgin fossil oil. A total of four catalytic hydrothermal reactors are to be built in Wilton and will be able to process more than 80,000 metric tons of plastic waste every year. As a next step, Mura is planning to issue licences all over the world and build new plants. "We are committed to the achievement of a state of balance in the world of plastics with technical solutions", says Frank Blase.

You can find out more about Cat-HTR technology in the video:

<https://www.youtube.com/watch?v=dGx4m0KiFac>

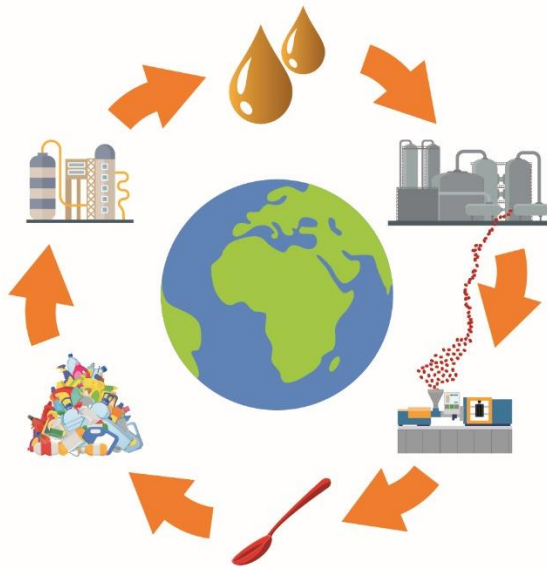
⁴ <https://www.licella.com.au/our-story/>

Captions:



Picture PM0220-1

Together, Steve Mahon, CEO of Mura Technology Limited (left), Oliver Borek, CEO of Mura Europa GmbH (right) and Frank Blase, CEO of igus GmbH (middle) want to recycle plastics and give them a new life. (Source: igus GmbH)



Picture PM0220-2

The new plastic life cycle: With the Catalytic Hydrothermal Reactor technology, plastic waste can be converted into oil, thus enabling new polymer products to be created again. (Source: igus GmbH)

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ABOUT IGUS:

igus GmbH is a global leading manufacturer of energy chain systems and polymer plain bearings. The Cologne-based family business has offices in 35 countries and employs 4,150 people around the world. In 2018, igus generated a turnover of 748 million euros from motion plastics, plastic components for moving applications. igus operates the largest test laboratories and factories in its sector to offer customers quick turnaround times on innovative products and solutions tailored to their needs.

The terms "igus", "Apiro", "chainflex", "CFRIP", "conprotect", "CTD", "drylin", "dry-tech", "dryspin", "easy chain", "e-chain", "e-chain systems", "e-ketten", "e-kettensysteme", "e-skin", "e-spool", "flizz", "ibow", "igear", "iglidur", "igubal", "kineKIT", "manus", "motion plastics", "pikchain", "plastics for longer life", "readychain", "readycable", "ReBeL", "speedigus", "triflex", "robotink", "xirodur", and "xiros" are protected by trademark laws in the Federal Republic of Germany and internationally, where applicable.