Extra igus investment paves the way for innovative plastic recycling technology

Recycling pioneer Mura Technology begins construction of world's first commercial HydroPRS plant for chemical recycling of plastics

Hydrothermal Plastic Recycling Solution (HydroPRS) is an advanced chemical recycling process designed to rapidly convert waste plastic that cannot be recycled easily, into valuable raw materials, reusing waste that would otherwise pollute the environment. Motion plastics specialist igus has invested further in recycling company Mura Technology, to a total of €5 million, to advance this important technology worldwide. Mura Technology and igus have also partnered with KBR to help license the technology globally.

Several eye-catching facts capture the scale of the global plastic crisis: The majority of used plastic is incinerated and not recycled, eight million tons of plastic enter the world's oceans every year, and only 14 per cent of global packaging waste is recycled. Low plastic recycling represents an economic loss of $80 billion dollars per year. At the same time, new grades of plastic are being produced from fossil fuels, linked with further CO^2 emissions. Plastic manufacture already accounts for six per cent of the world's oil production, which is expected to rise to 20 per cent by 2050.

Hydrothermal Plastic Recycling Solution (HydroPRS) is a ground-breaking new technology that should enable the plastics industry to become part of a sustainable circular economy. HydroPRS has the potential to recycle all types of plastic and prevent plastic from being incinerated or sent to landfill, polluting the environment. Mura Technology, a technology partner of igus, has developed HydroPRS that utilises a new thermo-mechanical process to convert plastic waste into valuable chemicals and oil. It is estimated that every tonne of plastic processed by the advanced recycling process saves 1.5 tonnes of CO^2 compared to combustion.

Mura's HydroPRS uses the Catalytic Hydrothermal Reactor (Cat-HTR) process developed by Licella Holdings Ltd. The method uses water, heat and pressure and is particularly effective where mechanical recycling has been unsuccessful so far, for example in contaminated and mixed plastics.

Valuable resource instead of harmful waste

This potential has inspired igus to support the technology and in 2020 it invested in UK start-up Mura Technology, which plans to commission the first commercial HydroPRS plant in 2022. Now igus has increased its investment in Mura Technology to a total of €5 million. "We know the great opportunities that plastic and reusing plastic has," says Matthew Aldridge, Managing Director of igus UK. "Our tribopolymers are used millions of times in moving applications all over the world, reducing weight, maintenance and lubrication. Although igus motion plastics should not be confused with the single use plastic waste that pollutes oceans, we are still working hard to help industry to be more sustainable, through almost 100 per cent recycling."

Mechanical recycling is an important first step in this direction. For more than 50 years, igus has been re-granulating 99 per cent of the plastic waste generated in its production operations. At the end of 2019, the company also initiated the "chainge" programme, where igus takes back any plastic energy chains at the end of a machine's life, compensates the customer with an igus voucher, re-granulates the plastic and then processes it again. Now with HydroPRS, there is a chemical process to turn more plastic waste into a valuable, useable bi-product. "In the future, chemical recycling will be able to play out its advantages where classic recycling is not possible. That is why we support Mura in this start-up phase to help this ground-breaking technology make an essential breakthrough for plastics recycling worldwide."

Through investment and cooperation to global success

Mura Technology has also succeeded in bringing on board KBR, an exclusive licensing partner to help to distribute the technology globally. With 28,0000 employees, KBR is active in more than 80 countries, including planners, plant builders and operators of refineries and chemical factories. "We knew that as a start-up company, we had developed a highly innovative and promising technology," says Oliver Borek, Managing Director Europe at Mura Technology.

"However, it was also clear to us that we could never roll this out on a large scale on our own. Thanks to igus' investment at this crucial stage, as well as the development and expansion of further partnerships, we now have precisely this opportunity." Construction of Mura's first HydroPRS plant at the Wilton International site in the UK is currently underway and is expected to go into operation in the second half of 2022. A total of four HydroPRS reactors will be built there in order to process more than 80,000 tons of plastic waste annually. Further plants are planned in Germany and the USA as well as in Asia.

See how to recycle plastic with HydroPRS: https://youtu.be/eouFBpVVGEQ

Caption:

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igus increases its investment in HydroPRS pioneer Mura Technologies to around €5 million. HydroPRS has the potential to recycle all types of plastic and thus make plastic a far more sustainable material.