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Mura Technology selects EREMA extruders for their world-first HydroPRS™ chemical recycling flagship plant ReNew ELP in the UK

EREMA's CHEMAREMA® extrusion-based raw material preparation – maximum feedstock flexibility and highly energy-efficient in one single process step

Chemical recycling is a growing sector in the circular economy of plastics, whereby plastic waste is broken down to a molecular level for manufacture into new plastics and other products. This allows for a wider range of mixed plastic waste to be recycled than would be possible with mechanical recycling alone.

Mura Technology, a world leader in chemical recycling, developed the unique HydroPRS™ technology. This is a market-first process to convert waste plastics into recycled hydrocarbon products for use in the manufacture of new plastics and other petrochemical products. The use of supercritical water makes HydroPRS™ inherently scalable. Mura will commence commercial operations at this first site, ReNew ELP, in Teesside, England, in 2024.

Mura has selected EREMA with its CHEMAREMA® single-screw extrusion-based raw material preparation technology, allowing for robust and energy-efficient material input into the chemical recycling process at scale. EREMA has an unmatched global track record for post-consumer plastic recycling technology.

What makes the CHEMAREMA® single-screw material preparation unique for chemical recyclers?

The CHEMAREMA® quickly transforms difficult-to-handle, post-consumer mixed plastic waste into well-defined melt streams for direct transfer into the chemical recycling reactor. The patented Counter Current® preconditioning unit enables the feeding of heterogenous, moist, contaminated and low bulk density feeds in a reliable and energy-efficient way.

Another important benefit of the CHEMAREMA® single-screw extrusion for Mura's HydroPRS™ technology is its capability to provide high-temperature melt streams at pressures of up to 300 bar without the additional use of a melt pump. The CHEMAREMA® line of machinery is available at throughputs of up to 4500kg per hour.

The features and advantages of the selected CHEMAREMA® setup are:

- Quickly melts input streams by shear and friction for chemical recycling in one single heat.
- Saves 40% energy during the mechanical preparation of the input stream compared to a conventional workflow (agglomeration + conventional extrusion).
- Provides highest feedstock flexibility (films, flakes, agglomerates, rigids, regrind, fibre).
- Maximum robustness of single-screw extrusion when it comes to highly abrasive post-consumer plastic feedstocks.
- Removal of residual air.

“Working with EREMA offers the Teesside HydroPRS™ site the technologies and services that enable us to recycle plastics that would otherwise be sent to incineration. EREMA brings valuable experience when dealing with difficult-to-handle post-consumer feedstocks. The CHEMAREMA® extruder system will feed our first plant with over 20.000 tonnes per year, providing pressures of up to 300 bar at high melt temperatures. We are now developing additional projects in Germany and the USA, whilst EREMA continue to support some of our HydroPRS™ licence holders.” Richard Daley, Chief Technology Officer.

“By working together with MURA Technology we created a thorough understanding for the needs of chemical recyclers. This allows us to drive our development further, enabling our customers to work with lowest quality mixed plastic waste. This is our contribution to establishing chemical recycling as a complementary technology stream to mechanical recycling, focusing on those feedstocks that would otherwise not be recycled.” Klaus Lederer, Business Development Manager Chemical Recycling at EREMA Group.

Chemical recycling moves towards a circular economy

EREMA is continuously developing its offering based on the growing understanding of the needs of chemical recyclers and contributes to the transformation of the recycling industry. Mura Technology will continue to roll out their HydroPRS™ technology supported by EREMA and the CHEMAREMA® line of machinery. Together they are making a substantial contribution to the recycling industry's move towards a circular economy.



Caption: Mura Technology's chemical recycling flagship plant ReNew ELP in Wilton, UK



Caption: The EREMA CHEMAREMA® single-screw extrusion system for all input materials in chemical recycling

MURA Technology

Mura Technology's mission is to protect the land, oceans and air from pollution caused by plastic.

We are pioneering a globally scalable technology to prevent millions of tonnes of plastic and CO2 from entering our natural environment every year, turning an \$80bn lost resource of plastic waste into a valuable global commodity. Our technology can recycle the 'unrecyclable' – plastic materials currently sent to landfill, incineration or leaked into the environment – producing from it the ingredients for new plastic, creating a circular economy and significantly reducing carbon emissions. This eliminates the need for fossil resource in the manufacture of plastic. We are partnering with some of the largest global companies to scale our process worldwide. Our ambition is for 1,000,000 tonnes of annual plastic recycling capacity in operation or development within this decade.

The company is based in London, UK. Visit <http://www.muratechnology.com/>

EREMA Engineering Recycling Maschinen und Anlagen GmbH

Since its founding in 1983, EREMA Engineering Recycling Maschinen und Anlagen Ges.m.b.H has specialised in the development and production of plastics recycling systems and technologies for the plastics processing industry and is regarded as the global market and innovation leader in these sectors. The company is part of the Austrian group of companies EREMA Group GmbH based in Ansfelden/Linz, which employs around 900 people worldwide.