



Epichem Completes Build of OHD Benchtop Flow Reactor for Waste to Fuels Technology

- Epichem will further research and develop the innovative, disruptive technology using flow reaction to convert biomass and feedstock into valuable end user products
- Epichem will continue to seek government support and project grant funding to accelerate the initiative

3 August 2021 – Perth, Australia: Epichem Pty Ltd, through its subsidiary Epichem OHD Pty Ltd, has completed building its benchtop Oxidative Hydrothermal Dissolution (OHD) Flow Reactor to research, develop and promote a novel, innovative and disruptive waste to fuels technology.

The flow reactor is located at Epichem's purpose-built state of the art laboratory at Technology Park in Bentley, Western Australia. Epichem Pty Ltd is a wholly owned subsidiary of PharmAust Limited (ASX:PAA).

Epichem OHD will advance the innovative OHD technology using biomass/feedstock flow reactor material science. The OHD technology is a world-first with its potential to turn a wide range of waste and biomass feedstock into valuable fuels, fine chemicals, fertilisers, agricultural growth stimulants and ethanol.

Epichem OHD is capitalising on recent Australian policies at national, state and local government levels towards zero organic waste to landfill.

The benchtop flow reactor will be carbon neutral, environmentally sustainable and uses oxygen and water at high temperature and pressure to break down input materials and form useful end products.

The flow reactor has the potential to convert:

- Plastics into renewable fuels
- Coal into diesel or agricultural bio-stimulants (diesel, fine chemicals and bio-stimulants)
- Rubber tyres into liquid fuels/valuable chemical products
- Trees into cellulosic ethanol/fine chemicals
- Leftover stock or crops into liquid fuel – cellulosic ethanol and agricultural biostimulants.

Epichem is in discussions with several mining and fertiliser stakeholders regarding the use of its OHD Technology.

The technology used in the flow reactor could also be used to enhance the process of carbon storage in soils. It may also have application in the minerals recovery sector.

“We are very encouraged to achieve this milestone of having the OHD benchtop flow reactor set up and operational. Now we move to the next stage of evaluating its potential. We are eager to learn more of its capabilities and applications,” said Epichem CEO, Colin La Galia.

“The flow reactor has the potential to help deal with converting and re-purposing waste. It has the ability to create a new innovative and disruptive technology in Australia, can be scaled up for a range of industry partners and create employment in WA and Australia.”

The technology has the potential to create new revenue streams from:

- Removal of organic waste
- Conversion of organic waste to valuable end user products
- Reduce landfill.

Epichem was awarded a \$200,000 WasteSorted e-Waste Grant from the Western Australian Government New Industries Fund in January 2021. This will support developing a new process for e-waste and reduce the amount of e-waste in landfill.

The Company continues to seek other government grants and funding support to advance these initiatives.

This announcement is authorised by the Board

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About PharmAust (PAA):

PharmAust Limited is listed on the Australian Securities Exchange (code: PAA) and the Frankfurt Stock Exchange (code: ECQ). PAA is a clinical-stage company developing therapeutics for both humans and animals. The company specialises in repurposing marketed drugs lowering the risks and costs of development. These efforts are supported by PAA's subsidiary, Epichem, a highly successful contract medicinal chemistry company which generated \$3.5 million in revenue in FY 2020.

PAA's lead drug candidate is monepantel (MPL), a novel, potent and safe inhibitor of the mTOR pathway – a pathway having key influences in cancer growth and neurodegenerative diseases. MPL has been evaluated in Phase 1 clinical trials in humans and Phase 2 clinical trials in dogs. MPL treatment was well-tolerated in humans, demonstrating preliminary evidence of anticancer activity. MPL demonstrated objective anticancer activity in dogs. PAA is uniquely positioned to commercialise MPL for treatment of human and veterinary cancers as well as neurodegenerative disease as it advances a reformulated version of this drug through Phase 1 and 2 clinical trials.

About Epichem:

Epichem is a wholly owned subsidiary of the ASX listed company PharmAust Limited. Located in Technology Park, Western Australia, Epichem has been delivering products and services in synthetic and medicinal chemistry to the global drug discovery and pharmaceutical industries in over 40 countries worldwide for over 17 years. Epichem has newly constructed purpose-built, state-of-the-art laboratories and has world class equipment and expertise in synthetic and medicinal chemistry to support drug discovery projects, and for the cost-effective synthesis of drug analogue libraries and intermediates. It also has a rapidly growing catalogue of pharmaceutical reference standards. Epichem has expanded its chemistry capability and expertise to include material science applications to the Energy, Resources, Waste, Recycling and AgTech sectors. Epichem is the winner of the WA Industry Export Award 2019 for International Health, the 2020 Inspiring Story of Celebrating Remarkable Resilience Nomination for WA for the Australian Export and Investment Awards and the 2020 GHP Biotechnology Award winner for Most Innovative Chemistry Service Provider – Australia and Best in Organic Chemistry Solutions 2020.

For more information, visit www.epichem.com.au