



Epichem Confirms Effectiveness of OHD E-Waste Project

- Epichem has successfully completed and processed e-waste using OHD technology as part of the \$200,000 WasteSorted e-waste grant from the Western Australian Government New Industries Fund
- The e-waste project confirms:
 - OHD technology successfully processes e-waste samples
 - OHD technology removes plastics via oxidative dissolution, thereby concentrating major metals such as gold, tin, copper, iron and zinc
 - Minor metals also identified include silver, barium, nickel, chromium, magnesium and manganese
 - The technology converted plastics in the e-waste into small organic molecules that can potentially be repurposed and/or made biodegradable
 - Continuous flow and semi-batch processing capability
- Given the promising outcomes, Epichem will continue to seek government support and project grant funding to further develop and validate the OHD technology

16 February 2022 – Perth, Australia: PharmAust Limited (ASX: PAA & PAAO), a clinical-stage oncology company, is pleased to announce that its wholly owned subsidiary, Epichem Pty Ltd, has completed the Oxidative Hydrothermal Dissolution (OHD) e-waste project funded by the Department of Jobs, Tourism, Science and Innovation (JTSI). The project yielded promising results and as a result Epichem will continue to advance the research and development of this technology.

Epichem is in confidential discussions with mining and waste industry stakeholders regarding the use of its OHD technology.

The project has allowed Epichem to convert and re-purpose waste using two potential techniques; continuous flow and semi-batch processing giving flexibility to use the process most suited to different feedstock or biomass.

Epichem will now optimise the OHD process specific to different waste materials and determine the OHD processed solids biodegradability via respirometry tests.

Other feedstock and biomass for conversion and re-purpose consideration now include coal, agricultural plant matter, solar panels, batteries, textiles and anti-corrosive film.

The grant funding was designed to see Epichem use OHD technology to convert e-waste into useful end products, recover valuable metals and produce useful high value chemicals.

The research and development program supported a new and innovative solution to process collected e-waste and reduce the amount of e-waste ending up in landfill.

The WasteSorted e-waste grants support the WA Waste Avoidance and Resource Recovery Strategy 2030 objectives – to avoid waste, recover more value and resources from waste and protect the environment from the impacts of waste.

The \$16.7 million New Industries Fund was established to support and accelerate new and emerging businesses to diversify the WA economy and create new jobs.

Epichem will continue to advance the novel, disruptive and innovative OHD technology using several types of feedstocks to convert into a wide range of valuable fuels, fine chemicals and fertilisers.

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 is carbon neutral, environmentally sustainable and uses oxygen and water at high temperatures and pressure to break down input materials and form useful end products.

The flow reactor has the potential to convert:

- Plastics into renewable fuels or make them biodegradable
- Coal into diesel or agricultural biostimulants (diesel, fine chemicals and biostimulants)
- 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.

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.

“The e-waste project using OHD has delivered promising and encouraging results. We will continue to research and optimise the technology, process different waste streams and enter into commercial agreements with key stakeholders to validate their waste potential,” said Epichem CEO, Colin La Galia.

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
- Convert potential waste liabilities into assets.

This announcement is authorised by the Board

Enquiries:

Dr Roger Aston
Executive Chairman
PharmAust Limited
Tel: 0402 762 204
rogeraston@pharmaust.com

Mr Colin La Galia
Chief Executive Officer
Epichem Pty Ltd
Tel: 0419 941 301
colin.lagalie@epichem.com.au

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 \$2.2 million in sales of goods & services in FY 2021

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 18 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 also specialises in Custom Synthesis, Analytical Chemistry and Materials Science. Epichem is the winner of the WA Industry Export Award 2021 for International Health, an award also won in 2019, 2018 and 2017, the 2020 Inspiring Story of Celebrating Remarkable Resilience Nomination for WA for the Australian Export and Investment Awards and the 2021 and 2020 GHP Biotechnology Award winner for Most Innovative Chemistry Service Provider –Australia and Best in Organic Chemistry Solutions. Epichem has been inducted into the WA Export Hall of Fame.

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