

AUZ Advances High-Density Hydrogen Storage

Australian Mines Limited (ASX: AUZ) (Company) advises that additional metal hydride samples have been submitted to the National Laboratory of the Rockies (NLR) for independent testing by the relevant U.S. Department of Energy national laboratory team. Prior AUZ testing was undertaken through the Hydrogen Materials Advanced Research Consortium (HyMARC)¹.

The submission forms part of AUZ's strategy to advance its proprietary solid-state hydrogen storage technology toward potential commercial applications, with the current work focused on:

- optimisation of follow-on metal hydride formulations;
- independent assessment of material performance characteristics;
- validation of reproducibility under independent testing conditions; and
- assessment of potential commercial pathways for safe, compact and dispatchable hydrogen storage.

The Company believes metal hydride-based hydrogen storage may have potential application across a range of hydrogen storage and energy markets, including:

- backup power systems utilising solid oxide fuel cell (SOFC) technology;
- data centres and AI-related energy infrastructure;
- remote and off-grid power systems;
- industrial energy storage;
- transport-related hydrogen storage; and
- broader clean energy infrastructure.

The current testing relates to new formulations and does not represent results from the previously announced MH-May24 testing program. The Company will provide further updates to the market as results become available.

AUZ's CEO, Andrew Nesbitt, commented: *"The submission of additional samples to NLR marks another important step in advancing AUZ's metal hydride technology. Our objective is to continue improving and independently validating material performance, while assessing potential*

¹ HyMARC was established as part of the U.S. Department of Energy's Energy Materials Network. Members include the National Renewable Energy Laboratory*, Lawrence Livermore National Laboratory, Sandia National Laboratories, Lawrence Berkeley National Laboratory and Pacific Northwest National Laboratory.

*This laboratory has been renamed to The **National Laboratory of the Rockies** in December 2025. Prior AUZ testing was conducted at NREL.

commercial pathways in markets where safe, compact and dispatchable hydrogen storage could be valuable. Fuel cell backup power, including for data centres and AI-related infrastructure, is one potential application within a broader hydrogen storage opportunity.”

Background - Previous HyMARC Evaluation

Following initial screening, HyMARC agreed to evaluate the performance of Australian Mines’ MH-May24. The HyMARC team assessed the following MH-May24’s key storage parameters:

- hydrogen absorption capacity,
- hydrogenation and dehydrogenation kinetics, and
- system parameters, including:
 - energy density by volume and weight
 - thermodynamic characteristics.

HyMARC’s independent evaluation, provided in figures 1 to 3, is consistent with previously announced² MH-May24 performance parameters. HyMARC also observed that MH-May24 can be hydrogenated and dehydrogenated repeatedly. This is a key performance parameter that offers the potential for multi-year long-term energy storage.

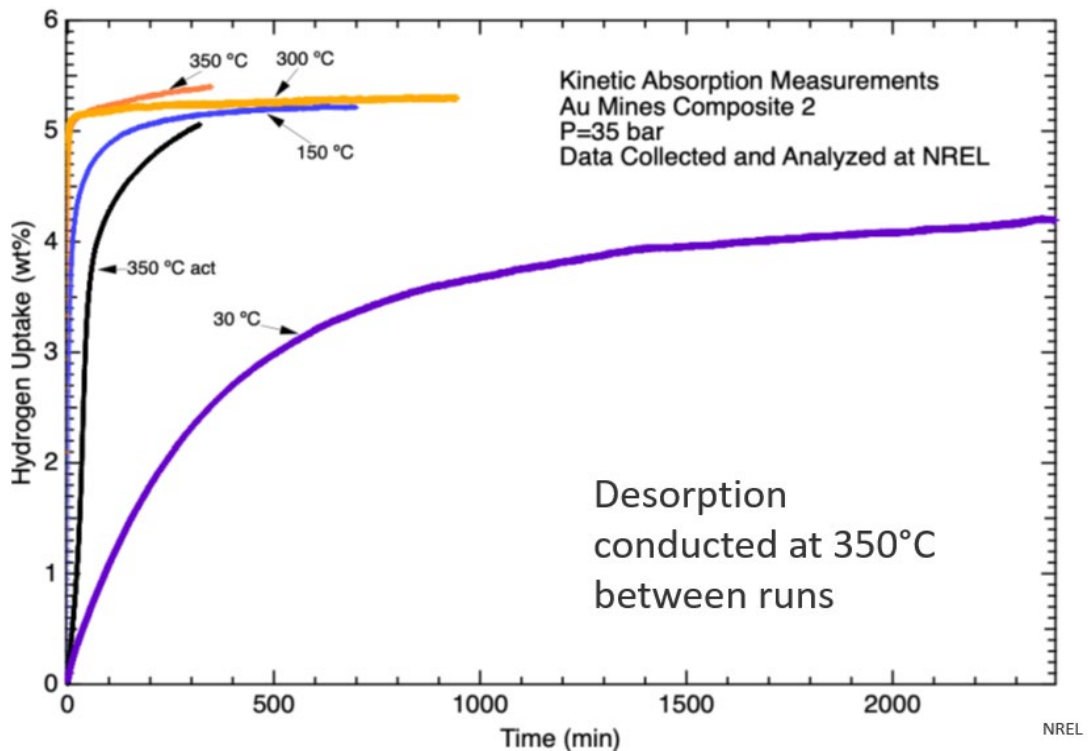


Figure 1: NREL: MH-May24 Kinetics

² Please refer to ASX Announcement, 13May 2024



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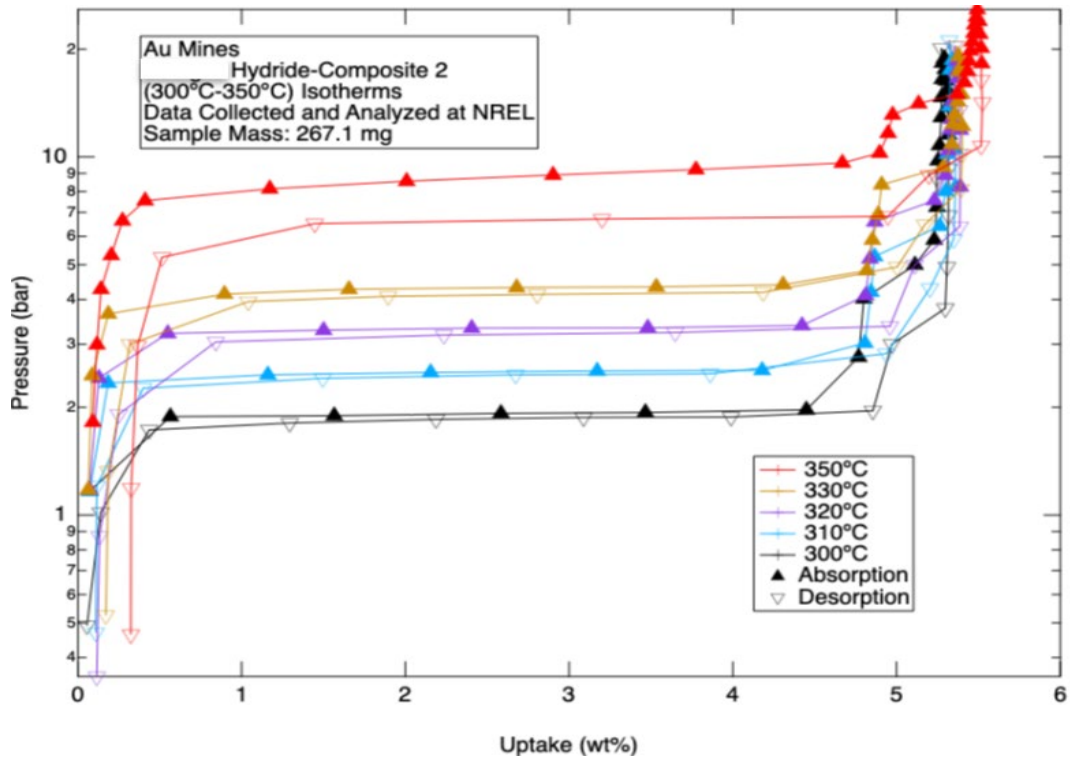


Figure 2: NREL: MH-May24 PCT Isotherm measurement results

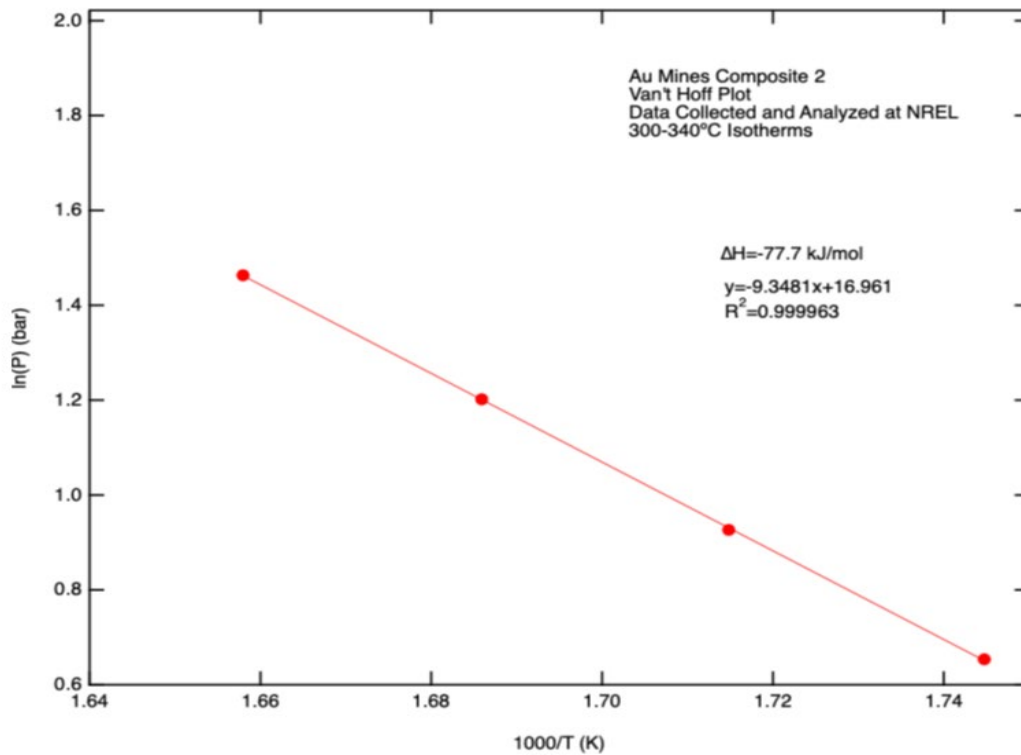


Figure 3 NREL: Van't Hoff Plot

MH-May24 Results (as tested and previously announced by AUZ)³

Previously AUZ announced MH-May24, under isothermal conditions and at a pressure of 38 bar MH-May24 absorbs hydrogen as follows:

- Absorbs 5.2wt% hydrogen at 200°C.
- Absorbs 4.2wt% hydrogen at 200°C in less than 4 minutes.
- Absorbs up to **4.7wt% hydrogen at 100°C.**
- Absorbs **hydrogen at room temperature.**
- Under isothermal conditions of 250°C and at vacuum⁴MH-May24 desorbs 5wt% **Hydrogen in approximately 3.3 hours.** Practical applications generally require hydrogen desorption kinetics over several hours.

Based on a theoretical system, AUZ calculated gravimetric and volumetric energy densities for **MH-May24** of **1.15 kWh/kg** and **1.78 kWh/dm³**, respectively. These values place MH-May24 at the position marked by the red cross **✗** in Figure 4. This positioning indicates the potential for a material improvement in energy storage performance relative to conventional lithium-ion batteries and compressed hydrogen storage at 700 bar (CGH₂).

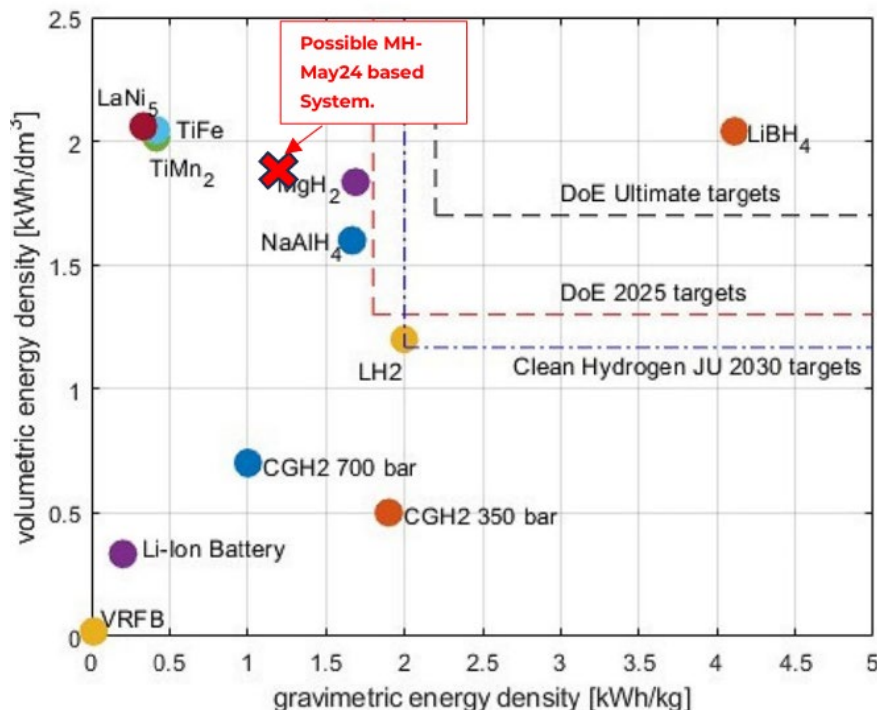


Figure 4: Adapted from “A review on metal hydride materials for hydrogen storage” The densities are presented as theoretical “system” densities by applying an assumed penalty of 50% extra weight and 100% extra volume to metal hydride materials.

³Please refer to ASX Announcement, 13May 2024

⁴In this announcement where the term vacuum is used the pressure was less than 0.5 bar.



Further Work

Going forward AUZ expects to continue engagement with the relevant U.S. national laboratory team / HyMARC-related technical network, which may provide access to strategic knowledge necessary for potential pathways to additional funding to advance AUZ's metal hydride.

Authorised for release by the Board of Directors of Australian Mines Limited

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Australian Mines Limited supports the vision of a world where the mining industry respects the human rights and aspirations of affected communities, provides safe, healthy, and supportive workplaces, minimises harm to the environment, and leaves positive legacies.