



## **NOTICE TO THE MARKET**

**Joinville, February 28, 2024** – Tupy S.A. ("Company", B3: TUPY3) hereby informs its shareholders and the market of the presentation of the case *Hydrogen combustion engine with highest efficiency* at the 11<sup>th</sup> International Engine Congress held in Baden-Baden, Germany.

The results presented are the outcome of a pioneering project in partnership with AVL List GmbH ("AVL") and Westport Fuel Systems Inc. ("Westport") for the development of a high-efficiency hydrogen combustion engine, an important solution in the pursuit of decarbonization for commercial vehicles.

Currently, hydrogen engine projects have focused on spark combustion technology, also known as the Otto thermodynamic cycle, which provides complete decarbonization of the engine but still faces challenges regarding performance and design.

This solution is scheduled to hit the market starting in 2025, and Tupy has already secured its role as a supplier to MAN Truck & Bus SE ("MAN") for its first hydrogen combustion truck.

For the past three years, Tupy has been dedicated to studying and understanding these challenges and anticipating customer demand. To this end, it invests in various projects. In hydrogen, the main focus is the partnership with AVL and Westport, aimed at exploring High-Pressure Direct Injection (HPDI). This diffuse combustion technology enables the extraction of benefits from a higher-energy fuel like hydrogen, enabling more efficient engines with greater power and lower fuel consumption.

Hydrogen combustion engines represent a zero-emission solution with lower cost and higher durability. In addition to economic issues and less environmental impact, this technology can leverage existing diesel engine infrastructure, making it highly competitive.

## Main results presented

**Efficiency and performance:** the hydrogen-optimized version with HPDI technology achieved a thermal efficiency of 50.5%, exceeding the original diesel cycle engine, which was 47.6%. Furthermore, maximum power increased from 475 hp to 537 hp.

This efficiency increase shows not only the capacity to replace diesel engines with carbon-neutral solutions but also the possibility of future development of more powerful, cleaner engines with lower fuel consumption.

**Technological maturity and availability:** with the results of this project, HPDI technology reached a high level of maturity, with expectations for commercial introduction by 2030.

Also regarding this development, Tupy, known for its high-resistance alloys, plays a crucial role in overcoming the high mechanical and thermal loads associated with this technological innovation. With SinterCast AB ("SinterCast"), the Company has conducted various evaluations on hydrogen embrittlement to ensure high strength and durability.

We make forward-looking statements that are subject to risks and uncertainties. Such statements are based on the estimates and assumptions of our Management and information to which the Company currently has access. Forward-looking statements include information about our current intentions, estimates or current expectations, as well as those of the Company's Board of Directors and Board of Executive Officers. The reservations related to forward-looking statements also include information on possible or presumed operating results, as well as any statements preceded, followed or including words such as "believe", "may", "will", "continue", "expect", "foresee", "intend", "estimate" or similar expressions. Forward-looking statements are to guarantee of performance. They involve risks, uncertainties and assumptions, as they refer to future events, thus depending on circumstances that may or may not occur. Future results and value creation for shareholders may differ significantly from those expressed or estimated in these forward-looking statements. Many factors determining these results and values are beyond Tupy's ability to control or predict.



## Corporate Taxpayer's ID (CNPJ/MF): 84.683.374/0003-00 Company Registry (NIRE): 42.3.0001628-4 Publicly Held Company – Novo Mercado



This initiative reinforces the commitment of the companies involved in innovation and the continuous pursuit of sustainable and competitive solutions.

The Company will keep the market informed of developments arising from this project in due course.

Fernando Cestari de Rizzo Chief Executive Officer Inverstor Relations Officer

IR Contact: Mail: <u>dri@tupy.com.br</u> Website: <u>www.tupy.com.br/ri</u>

This release may contain forward-looking statements that are subject to risks and uncertainties. Such forward-looking statements are based on the management's beliefs and assumptions and information currently available to the Company. Forward-looking statements include information on our intentions, beliefs or current expectations, as well as on those of the Company's Board of Directors and Officers. The reservations as to forward-looking statements and information also include information on possible or presumed operating results, as well as any statements preceded, followed or including words such as "believes", "may", "will", "expects", "intends", "plans", "estimates" or similar expressions. Forward-looking statements and therefore, depend on circumstances that may or may not occur. Future results may differ materially from those expressed or suggested by forward-looking statements. Many of the factors which will determine these results and figures are beyond Tupy's control or prediction capacity.