



Major Industrial Users Confirm Advantages of PyroGenesis' Plasma Torches

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Plasma torches reduce energy requirements, melting times, dross generation, and cycle times in aluminum casthouse furnaces

MONTREAL, March 19, 2026 (GLOBE NEWSWIRE) -- PyroGenesis Inc. ("PyroGenesis" or "the Company") (TSX: PYR) (OTCQX: PYRGF) (FRA: 8PY1), a leader in ultra-high temperature processes and engineering innovation, and a plasma-based technology provider to heavy industry & defense, announces that Rio Tinto and Alcoa are presenting today, at the annual conference of The Minerals, Metals & Materials Society ("TMS"), data that confirms that PyroGenesis' patented plasma torches provide significant reductions and/or cost savings in key operational metrics when compared to natural gas burners. The data is derived from a live furnace trial conducted by PyroGenesis and its clients Rio Tinto and Alcoa. Overall, the results show that plasma improves furnace thermal performance, leading to significant energy savings and shorter melting times, and reduces dross generation (i.e. aluminum loss), all without compromising metal quality.

"Effectively," said Mr. P. Peter Pascali, President and CEO of PyroGenesis, "this means that by replacing a natural gas burner with a patented PyroGenesis plasma torch, you can produce more output from the same footprint, or produce the same output from a smaller footprint. What this also means is that, especially for greenfield projects, major CAPEX costs for metal and refractory construction, or for associated equipment like fume treatment systems to neutralize hazardous air pollutants, can be reduced. This is significant given that in many aluminum plants there is not enough system capacity to process the desired amounts of aluminum. In these cases, the bottleneck is operational capacity not aluminum availability. Switching out natural gas burners for plasma torches would be a quick and efficient way to immediately increase throughput, and profit."

As previously reported in the Outlook section of PyroGenesis' earnings reports [including 3rd quarter results, [press release dated November 11, 2025](#)], PyroGenesis has been engaged in live furnace tests of plasma as a process heat source in melting and holding furnaces with major aluminum companies. The results announced today are released publicly in (i) a [symposium presentation](#) and (ii) in the form of a technical paper in Light Metals 2026. Light Metals is a major peer-reviewed publication containing the work presented at the annual conference of The Minerals, Metals, and Materials Society (TMS 2026). The [newly published technical paper](#) titled "Decarbonization of Aluminum Cast House Furnaces Using Plasma Torches", outlines a campaign conducted by PyroGenesis, Rio Tinto, and Alcoa, during 2025, and is now available online.¹

For this campaign, a pilot furnace was installed at PyroGenesis' facilities in Montreal. This same furnace is used by the clients to replicate the processes in their industrial aluminum casthouse while producing aluminum alloys. Over several months, furnace technicians and engineers from the two clients, together with PyroGenesis engineers, operated the furnace in two configurations: (a) as a casting furnace, and (b) as a melting furnace. The impact of furnace electrification was measured in both configurations, by replacing the furnace's natural gas burners with a patented PyroGenesis plasma torch. Specifically, data collection and analysis revealed the following results:

- (i) For Heating Efficiency, which relates to the amount of energy used during operation, energy consumption was reduced by an average of 35%.
- (ii) Cycle Time, which impacts the duration of operations, was reduced by approximately 20 to 27%.
- (iii) The Metal Quality obtained when using plasma is equivalent, if not better, than with natural gas burners, because of a reduced hydrogen content in the metal of between 40 and 50%.
- (iv) The Amount of Dross Generated was reduced by between 24% and 55% in the case of clean metal, and about 9% for scrap containing organics. Dross is the layer of material that forms on top of molten aluminum when in contact with oxygen. This layer must be constantly removed as a waste product. As the dross contains a percentage of valuable aluminum, it needs to be processed at an additional expense.

"The results of this major campaign with two of the most important companies in the global aluminum sector, reveal once again the widespread benefits of replacing natural gas burners with PyroGenesis plasma torches. Alongside Rio Tinto and Alcoa, PyroGenesis has shown that, in addition to a major reduction in carbon footprint, there are real and significant operational advantages in using plasma torches instead of fossil fuel burners," said Mr. Pascali. "Combined with the results from other similar campaigns we have conducted which compare our plasma torches against both natural gas and diesel burners, in our opinion, plasma is the clear winner for powering the future of aluminum melting and casting furnaces."

INDUSTRY AND MARKET CONTEXT

- Primary aluminum production is an energy intensive process that is typically produced using electricity; secondary aluminum production, using recycled aluminum, requires 95% less energy to produce.²
- According to *Pathways to Decarbonization: A North American Aluminum Roadmap*, aluminum production emissions must decline by 24% by 2030, 63% by 2040, and 92% by 2050 compared to 2021 levels to meet net-zero targets, highlighting the urgent need for cleaner technologies across both primary production and secondary remelting.³
- Aspects of secondary aluminum production that use fossil fuels (natural gas, diesel), such as the remelting of scrap metal, can potentially utilize alternative energy sources such as plasma.
- Global aluminum demand is projected to rise nearly 40% by 2030 and up to 80% by 2050, driven by growth in automotive, aerospace, and packaging.^{4 5}
- Plasma-based electrification offers a cleaner, scalable alternative to traditional fuel-based heating, aligning with energy transition and decarbonization mandates.

PyroGenesis leverages 35 years of plasma technology leadership to deliver advanced engineering solutions to energy, propulsion, destruction, process heating, emissions, and materials development challenges across heavy industry and defense. Its customers include global leaders in aluminum, aerospace, steel, iron ore, utilities, environmental services, military, and government. From its Montreal headquarters and local manufacturing facilities, PyroGenesis' engineers, scientists, and technicians drive innovation and commercialization of energy transition and ultra-high temperature technology. PyroGenesis' operations are ISO 9001:2015 and AS9100D certified, with ISO certification maintained since 1997. PyroGenesis' shares trade on the TSX (PYR), OTCQX (PYRGF), and Frankfurt (8PY1) stock exchanges.

Cautionary and Forward-Looking Statements

This press release contains "forward-looking information" and "forward-looking statements" (collectively, "forward-looking statements") within the meaning of applicable securities laws. In some cases, but not necessarily in all cases, forward-looking statements can be identified by the use of forward-looking terminology such as "plans", "targets", "expects" or "does not expect", "is expected", "an opportunity exists", "is positioned", "estimates", "intends", "assumes", "anticipates" or "does not anticipate" or "believes", or variations of such words and phrases or state that certain actions, events or results "may", "could", "would", "might", "will" or "will be taken", "occur" or "be achieved". In addition, any statements that refer to expectations, projections or other characterizations of future events or circumstances contain forward-looking statements. Forward-looking statements are not historical facts, nor guarantees or assurances of future performance but instead represent management's current beliefs, expectations, estimates and projections regarding future events and operating performance. Forward-looking statements are necessarily based on a number of opinions, assumptions and estimates that, while considered reasonable by PyroGenesis as of the date of this release, are subject to inherent uncertainties, risks and changes in circumstances that may differ materially from those contemplated by the forward-looking statements. Important factors that could cause actual results to differ, possibly materially, from those indicated by the forward-looking statements include, but are not limited to, the risk factors identified under "Risk Factors" in PyroGenesis' latest annual information form, and in other periodic filings that it has made and may make in the future with the securities commissions or similar regulatory authorities, all of which are available under PyroGenesis' profile on SEDAR+ at www.sedarplus.ca. These factors are not intended to represent a complete list of the factors that could affect PyroGenesis. However, such risk factors should be considered carefully. There can be no assurance that such estimates and assumptions will prove to be correct. You should not place undue reliance on forward-looking statements, which speak only as of the date of this release. PyroGenesis undertakes no obligation to publicly update or revise any forward-looking statement, except as required by applicable securities laws. Neither the Toronto Stock Exchange, its Regulation Services Provider (as that term is defined in the policies of the Toronto Stock Exchange) nor the OTCQX Best Market accepts responsibility for the adequacy or accuracy of this press release.

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¹ https://link.springer.com/chapter/10.1007/978-3-032-13832-3_168

² <https://natural-resources.canada.ca/minerals-mining/mining-data-statistics-analysis/minerals-metals-facts/aluminum-facts>

³ <https://www.aluminum.org/Decarb>

⁴ <https://international-aluminium.org/report-reveals-global-aluminium-demand-to-reach-new-highs-after-covid/>

⁵ <https://www.reuters.com/world/china/world-aluminium-industry-must-cut-emissions-by-77-by-2050-iaj-2021-03-16/#:~:text=Demand%20for%20aluminium%20is%20due.and%20power%20cabling%2C%20Bayliss%20added>