PyroGenesis Announces Additional Projects for Magnesium Processing

September 7, 2022

Continues to Expand Solution Set for the World's Most In-demand Metals

MONTREAL, Sept. 07, 2022 (GLOBE NEWSWIRE) -- PyroGenesis Canada Inc. (http://pyrogenesis.com) (TSX: PYR) (NASDAQ: PYR) (FRA: 8PY), a high-tech company (hereinafter referred to as the "Company" or "PyroGenesis"), that designs, develops, manufactures and commercializes advanced plasma processes and sustainable solutions which are geared to reduce greenhouse gases (GHG), is pleased to announce that the Company has been selected by a an international producer of magnesium metal (the "Client"), to test PyroGenesis' zero-emission plasma torches as part of their process for transforming mining waste and recycled minerals into high-value metal. At this time, the name of the Client remains anonymous for confidentiality reasons.

The contract outlines two separate initiatives, occurring at different points in the process. First, at the request of the Client, PyroGenesis has developed a method to clean and decontaminate particulate matter produced during primary magnesium production. The cleaning of this by-product – a hydrocarbon – is key to the Client's strategy to produce magnesium using the most sustainable methods available. This will allow the Client to achieve their goal to scale their operations while, at the same time, decreasing their environmental impact. The expectation is to conduct internal tests to remove any remaining uncertainties in the proposed concept, after which PyroGenesis will complete the detailed design to allow the implementation of the solution by PyroGenesis on-site at the Client's facility.

The second initiative is to process the metal waste stream known as dross, for the purpose of recovering valuable metal. Currently, as with many magnesium producers, the Client's dross is cleaned for storage, or disposal, with no efforts made to salvage remaining metals. With PyroGenesis' expertise in recovering high-value metal from dross in other industries (such as aluminum), the Company believes it can provide significant value to the Client while decreasing their environmental impact.

Metal recovery from dross is not widespread in the magnesium industry, due to the complexity of the process and the inherent challenges of working with magnesium – a very combustible and volatile metal that is highly reactive to oxygen (which is why magnesium powders are used in pyrotechnics and fireworks). PyroGenesis believes it has the solution to the specific challenges posed by magnesium, potentially opening up a large opportunity for growth.

PyroGenesis has already received a small purchase order for the cleaning and decontamination initiative, with a Q4 2022 targeted end date for the conceptual testing. The dross recovery initiative is still in the planning stages.

"This Agreement continues to underscore the applicability, and timeliness, of PyroGenesis' offerings within the primary and secondary metal production industries," said Mr. P. Peter Pascali, CEO and Chair of PyroGenesis. "After our groundbreaking efforts in introducing our state-of-the-art technology to the iron and steel industry – the world's most used metal – and our rapid growth in doing the same for the aluminum sector – the world's second most popular metal – we are now targeting sector solutions for magnesium, the third most-used metal[1]."

"This is another example of how success begets success. Our recent successes have not been lost on others with similar challenges in other industries and sectors," continued Mr. Pascali. "Our focus on targeting the largest commercial opportunities to solve some of the world's most pressing environmental, engineering, and energy problems in heavy industry with our unique solutions, is designed as a sustainable model for the Company's long-term growth. With escalating requirements for ultra-light weight materials and products, combined with an ongoing supply pressure for magnesium pushing the demand and price of magnesium to new highs[2], we are positioning PyroGenesis to capture a foothold in yet another sector that is vital to global industrial growth."

Magnesium is the world's third-most used metal in construction. Magnesium's popularity stems from the fact that it has the lowest density of all the metals used, and is the lightest structural metal known[3]: 75% lighter than steel, 50% lighter than titanium, and 33% lighter than aluminum. Magnesium alloys have traditionally been driven by aerospace and medical industry requirements for lightweight materials, but with the shift to electric vehicles and the growth of lightweight consumer electronics, magnesium demand continues to increase. Perhaps most importantly, magnesium is a key component in aluminum production, used in combination with aluminum to create stronger alloys. With the aluminum sector expected to rise by 80% over the next two decades[4], magnesium supply is expected to be further pressed. Complicating magnesium supply is that with up to 90% of magnesium produced in China, and with energy availability under pressure in China due to soaring energy costs plus a government-mandated carbon reduction initiative leading to power rationing, supply shortages of magnesium were seen throughout 2021[5]. This highlights the importance for North American magnesium producers to find technologies to help increase their output and reduce their environmental impact.

About PyroGenesis Canada Inc.

PyroGenesis Canada Inc., a high-tech company, is a leader in the design, development, manufacture and commercialization of advanced plasma processes and sustainable solutions which reduce greenhouse gases (GHG), and are economically attractive alternatives to conventional "dirty" processes. PyroGenesis has created proprietary, patented and advanced plasm a technologies that are being vetted and adopted by multiple multibillion dollar industry leaders in four massive markets: iron ore pelletization, aluminum, waste management, and additive manufacturing. With a team of experienced engineers, scientists and technicians working out of its Montreal office, and its 3,800 m2 and 2,940 m2 manufacturing facilities, PyroGenesis maintains its competitive advantage by remaining at the forefront of technology development and commercialization. The operations are ISO 9001:2015 and AS9100D certified, having been ISO certified since 1997. For more information, please visit: www.pyrogenesis.com.

This press release contains certain forward-looking statements, including, without limitation, statements containing the words "may", "plan", "will", "estimate", "continue", "anticipate", "intend", "expect", "in the process" and other similar expressions which constitute "forward-looking information" within the meaning of applicable securities laws. Forward-looking statements reflect the Corporation's current expectation and assumptions and are

subject to a number of risks and uncertainties that could cause actual results to differ materially from those anticipated. These forward-looking statements involve risks and uncertainties including, but not limited to, our expectations regarding the acceptance of our products by the market, our strategy to develop new products and enhance the capabilities of existing products, our strategy with respect to research and development, the impact of competitive products and pricing, new product development, and uncertainties related to the regulatory approval process. Such statements reflect the current views of the Corporation with respect to future events and are subject to certain risks and uncertainties and other risks detailed from time-to-time in the Corporation's ongoing filings with the securities regulatory authorities, which filings can be found at www.sedar.com, or at www.sec.gov. Actual results, events, and performance may differ materially. Readers are cautioned not to place undue reliance on these forward-looking statements. The Corporation undertakes no obligation to publicly update or revise any forward-looking statements either as a result of new information, future events or otherwise, 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 NASDAQ Stock Market, LLC accepts responsibility for the adequacy or accuracy of this press release.

SOURCE PyroGenesis Canada Inc.

For further information please contact:
Rodayna Kafal, Vice President, IR/Comms. and Strategic BD
Phone: (514) 937-0002, E-mail: ir@pyrogenesis.com
RELATED LINK: http://www.pyrogenesis.com/

[1] Magnesium, The Essential Chemical Industry Online
https://www.essentialchemicalindustry.org/metals/magnesium.html

[2] Aluminum Makers Sound the Alarm About U.S. Magnesium Shortage, By Joe Deaux October 14, 2021
https://www.bloomberg.com/news/articles/2021-10-14/aluminum-makers-sound-the-alarm-about-u-s-magnesium-shortage

[3] Magnesium, Encyclopedia Britannica
https://www.britannica.com/technology/magnesium-processing

[4] World aluminium industry must cut emissions by 77% by 2050 -IAI, by Eric Onstad, Editing by Nick Zieminski, March 2021
https://www.reuters.com/world/china/world-aluminium-industry-must-cut-emissions-by-77-by-2050-iai-2021-03-16/

[5] Magnesium Still Considered a Risky Market; Supply Challenges Loom: 2022 Preview, By Cristina Belda, Ruby Liu, Fola Malomo
https://www.fastmarkets.com/insights/magnesium-still-considered-a-risky-market-supply-challenges-loom-2022-preview