PyroGenesis Announces Successful Validation of Dross Residue

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Confirmation of Chemical Value by Joint Venture Partner Moves Process to Final Stage

MONTREAL, Sept. 01, 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 provide an update further to its press release dated September 27th, which announced that the Company had signed a joint venture and license agreement (both agreements collectively the "JV") with a leading residue processor (the "JV Partner") to ultimately build and operate plants around the globe to transform dross residues (a by-product of the Company's DROSRITE™ process) into high value chemical and metallurgical products. The Company is proud to announce today that the JV Partner has completed primary testing of residues from an operational DROSRITE™ facility. The results confirm that the residues are of such high quality as to be able to be processed into highly marketable products.

"We are extremely happy to announce today that for the very first time the existing process, around which we are basing the joint venture on, has successfully tested residues from PyroGenesis' DROSRITE™ metal recovery system," said P. Peter Pascali, CEO of PyroGenesis Canada Inc. "Of note, these residues are from the same site where we plan to build and operate our first dross residue processing plant. It is expected that this will be the first plant of several that will be built to transform dross residues into high value chemicals. Timing could not be more perfect, as these residues are being increasingly regulated, with some jurisdictions banning them outright from landfills. The success of these test results further validates the "inside-the-fence", on-site discovery and upsell strategy we have often described as key to our customer relationships. This bodes well for our long-term goal of building out and operating many such plants. These results further demonstrate the value of this JV, and reinforces PyroGenesis' strategy as an eventual one-stop shop for aluminum producers aiming to reduce CO2 emissions with environmentally friendly processes."

As background, aluminum dross is a waste by-product of aluminum production or transformation, created when the top layer of the molten metal is exposed to oxygen. Composed of a mix of aluminum metal (typically 60%) as well as oxides and other chemicals (typically 40%) that get trapped together in this layer, it is constantly skimmed off and removed from furnaces containing molten metal. Toxic in nature, dross is stored, landfilled, or processed, with the goal to recover some of the metal that it contains.

PyroGenesis' DROSRITE™ dross processing metal recovery system can recover up to an industry-leading 98% of the aluminum metal fraction in dross, returning it directly back to production. This results in cost savings for aluminum producers, who benefit with instantly higher output levels, less waste, and less cost to store or landfill the material.

The material left after DROSRITE™ processing – the remaining fraction comprising typically 40% of the original dross – is referred to as secondary dross, dross residue or often just "residue". With little purpose in this form, this residue is most often either disposed in landfills or, in some cases, sold as-is as a cheap production additive to other industries. It is the transformation of these residues into high-value products to sell on the open market – a process known as "valorization" - for which the 50:50 JV agreement was signed, with an end goal of building and operating dross residue valorization facilities worldwide to serve areas of high dross production, and locations where PyroGenesis' DROSRITE™ systems are operating.

This testing of residue from actual factory-processed dross was done not only with a view to validate that the process can manage dross, but more importantly to help identify the higher value chemicals that result from this specific dross stream (as chemical composition of dross can vary from producer to producer).

The Company is happy to report that the results reveal that the residues are of an extremely high quality, for both alumina and aluminum nitrides. This reflects both the quality of the aluminum produced by the Company's client (a major producer of aluminum), and of PyroGenesis' DROSRITE™ process which, unlike legacy processing technology used by some in the industry, contains no salt or other contaminants as part of the process.

With these results in hand, steps to confirm specific techno-economic aspects of the first JV plant can be completed, a phase that's ongoing this quarter (Q3) and which is expected to conclude during the next quarter (Q4), at which point actual factory planning can commence.

"These preliminary results, while not surprising, underscore the benefit of utilizing PyroGenesis' DROSRITE™ system for aluminum dross processing, as well as the Company's commitment to finding unique, in-line technology solutions for heavy industry, particularly the aluminum, steel, and mining industries," said Mr. P. Peter Pascali, CEO and Chair of PyroGenesis. "As we have stated previously, we believe that this announcement is a game-changer for the aluminum industry, as it allows PyroGenesis to offer a truly complete dross processing service, delivering zero-landfill/reduced carbon solutions while at the same time increasing clients' profitability. We look forward to final results and to moving forward with our facility construction plans, for the first and subsequent factories. As previously announced, it is expected that the residues can be converted into high margin products, such as aluminum sulfate and ammonium sulfate, then sold for use in in-demand applications such as fertilizer production and water purification for global markets, thereby rescuing a waste stream and unlocking a potentially significant new revenue stream for the Company."

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.

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