



**PyroGenesis Additive Announces Significant Developments to its New Plasma-Based Atomization Process; Higher Production Rates, Higher Yields, Narrower Particle Size Distributions, Lower Costs.**

MONTREAL, QUEBEC--(Marketwired – September 12, 2017) - PyroGenesis Additive, a division of PyroGenesis Canada Inc. (<http://pyrogenesis.com>) (TSX-V: PYR) (OTCQB: PYRNF), a high-tech company (the “Company” or “PyroGenesis”) that designs, develops, manufactures and commercializes plasma waste-to-energy systems and plasma torch products, is pleased to announce today that, further to its press release dated August 14<sup>th</sup>, 2017, the Company has made additional developments to its previously announced new plasma-based atomization process, which produces metal powders for metal 3D printers. Specifically, these developments include the ability to produce extremely narrow size distributions which can be easily shifted to any particle size required for Additive Manufacturing (“AM”), at significantly higher production rates, higher yields (i.e. little to no waste), and at much lower operating costs than seen to date. Management believes that this new plasma-based atomization process will have as great, if not greater, impact on the AM market, specifically addressing metal 3D printers’ demand for new particle size distributions.

Mr. P. Peter Pascali, President and CEO of PyroGenesis, provides an overview of today’s announcement in the following Q&A format:

*Q. On August 14<sup>th</sup>, 2017, the Company announced a new plasma-based atomization process. How have you developed this further?*

*A. What we announced on August 14<sup>th</sup> was revolutionary in its own right. What we are announcing today is that this new process can effectively produce higher yields of very narrow particle size distributions, with little or no waste, and for any powders under 150µm (the sweet spot for 3D metal printers), and not just the MIM cut (which we define for the purposes of the discussion herein as small fine metal powders, that can be used by metal 3D printers, typically in the 5µm-25µm size range).*

*In short, for any particle size distribution used by metal 3D printers we can:*

- 1) Produce extremely narrow size distributions, of bulk powders, which are easily shifted to any other size cut required by metal 3D printers (i.e. 5µm-25µm, 15µm-45µm, 45µm-106µm, 45µm-150µm, etc.);*
- 2) At significantly higher production rates than seen in the past;*
- 3) With higher yields (i.e. little to no waste); and*
- 4) At much lower operating costs.*

*Q. This is extraordinary.*

*A. It is, but not only from a cost perspective. Of course, increasing production rates, narrowing size distributions, increasing yields and lowering operating costs all lower the cost of production significantly, but the most significant aspect of this new process is that we can do this for any specific powder size catering to the AM Industry. What this means specifically is that, when producing a specific size cut, you do not have to worry about selling the off-cuts, or getting rid of waste, as you did in the past. We can now shift the particle size distribution to a customer's specific needs and then shift it easily to address another's.*

*Q. So total control?*

*A. Yes, and management believes this is beyond anything seen to date as production rates are significantly higher than in the past.*

*Q. Can you put this in perspective? What was happening in the past, and how is this better today?*

*A. Most certainly. To put it in perspective, in the past, you could meet a customer's order with a specific production run, but you would have a significant amount of powder left over of a different particle size distribution that was either ideal for different 3D printers ("off-cuts") or was waste. That means that, in the case of off-cuts, one would have to, hopefully, have another client for these cuts, which is quite challenging, as you can imagine, as not all particle size demands are equal. If the off-cuts are waste then the problem is a bigger one of disposal. In both cases, storage is also an issue.*

*Q. How does this enable 3D printers, and how may this be game-changing?*

*A. It all has to do with the production profile, rates and costs. If as a powder producer, you must sell multiple size cuts, from each production run, to different clients it becomes a limiting factor; It becomes a limiting factor in terms of both your ability to store off-cuts you haven't matched a client to, and your ability to meet the demand for new powder size cuts; this is particularly true if there is a significant demand in new powder size cuts that does not match your production profile.*

*Our game-changing process has changed all that as it is no longer dependent on a broad production profile which, as we said, is limited by client matching, storage and/or disposal.*

*This problem has become evident as companies (such as Desktop Metal, 3DEO, and Markforged) started to express an interest in very fine powders which, until recently, could only be considered as an off-cut of broad production profiles. How could an explosive need for such powders be met if production was limited to matching the balance of production? PyroGenesis' new plasma-based atomization process can now address this by producing extremely narrow size distributions, which easily shift to any particle size distribution, at significantly higher production rates, higher yields (i.e. little to no waste), and at much lower operating costs.*

*This is a huge breakthrough which we consider game changing, and the very reason why we consider this development to be as significant, if not more significant, than PyroGenesis' original Plasma Atomization invention.*

*Q. Conclusion?*

*A. Not only are we the inventors of Plasma Atomization but we coined the term in our original patent issued in 1998. All other plasma atomization technologies used in the AM space owe their existence to our original patent notwithstanding any improvements they purport to have made.*

*We are back as a powder producer. Our stated goal is to enable AM (i.e. 3D printing) to reach new heights while at the same time address the current powder needs of the industry. We believe we have, so far, not only been true to this goal, but have excelled in pursuing it; which is the essence of our press release today. We have only had a system in ramp-up phase since March of this year, but in this short timeframe have new patents pending and, as of late, developed further game-changing know-how. In addition, the reception by the market has caused us to look at ways to accelerate our original strategic plan.*

*We look forward to completing the ramp-up phase, by incorporating our advances, and developing strategic relationships to accelerate our growth. We are also looking forward to playing a significant role in this dynamic AM market and anticipate a very exciting year ahead.*

PyroGenesis Additive further announces that it will be exhibiting at this year's TCT show in Birmingham, England (Sept 26 – 28). The TCT Show is one of the world's leading events dedicated to 3D printing, additive manufacturing and product development as over 250 exhibitors are showcased to more than 7,000 attendees. We invite those who will be attending the show to stop by our booth# C61 and speak with our sales team; Mr. Massimo Dattilo, VP, PyroGenesis Additive, and Mr. Alex Pascali, Sales Manager, PyroGenesis Additive.

Separately, PyroGenesis announces today that it is featured as a presenting company at the 19<sup>th</sup> Annual Rodman & Renshaw Global Investment Conference, sponsored by H.C. Wainwright & Co., LLC. The conference is currently in process, scheduled for September 10-12, at the Lotte New York Palace Hotel in New York City. Mr. Pascali will provide an overview of the Company's business on Tuesday, September 12<sup>th</sup>, during a live presentation and has scheduled several one-on-one meetings with investors who are registered to attend the conference. The conference is attended by over 2,000 attendees.

Finally, the Company announces today that an additional CAN\$600,000 of previously issued warrants have been exercised. "Once again, this exercise of warrants is timely," said Mr. Pascali. "As announced herein, we are currently looking beyond the ramp-up phase towards increasing production capacity ahead of our original expectations. This exercise of warrants, together with any future exercise of warrants and options, will enable us to implement plans to accelerate this growth, including our original schedule to increase our production capacity of metal powders for the AM (3D Printing) Industry. As previously announced, we are still looking at ways to have up to three (3) additional powder production systems operating in 2018. To

date, our metal powder production strategy is progressing far better than planned, and we are very pleased."

### **About PyroGenesis Canada Inc.**

PyroGenesis Canada Inc. is the world leader in the design, development, manufacture and commercialization of advanced plasma processes. We provide engineering and manufacturing expertise, cutting-edge contract research, as well as turnkey process equipment packages to the defense, metallurgical, mining, advanced materials (including 3D printing), oil & gas, and environmental industries. With a team of experienced engineers, scientists and technicians working out of our Montreal office and our 3,800 m<sup>2</sup> manufacturing facility, PyroGenesis maintains its competitive advantage by remaining at the forefront of technology development and commercialization. Our core competencies allow PyroGenesis to lead the way in providing innovative plasma torches, plasma waste processes, high-temperature metallurgical processes, and engineering services to the global marketplace. Our operations are ISO 9001:2008 certified, and have been ISO certified since 1997. PyroGenesis is a publicly-traded Canadian company on the TSX Venture Exchange (Ticker Symbol: PYR) and on the OTCQB Marketplace (Ticker Symbol: PYRNF). For more information, please visit [www.pyrogenesis.com](http://www.pyrogenesis.com)

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