



## **PyroGenesis Announces Receipt of Down Payment Towards Previously Announced Zinc Paid-for-Demonstration of DROSRITE™ in India; Provides Update on DROSRITE™ Business Line.**

**MONTREAL, QUEBEC (GlobeNewswire – October 25<sup>th</sup>, 2018)** - PyroGenesis Canada Inc. (<http://pyrogenesis.com>) (TSX-V: PYR) (OTCQB: PYRNF), a TSX Venture 50@ high-tech company, (the "Company", the "Corporation" or "PyroGenesis") a Company that designs, develops, manufactures and commercializes plasma waste-to-energy systems and plasma torch products, is pleased to announce today the receipt of a down payment towards the previously announced zinc Paid-for-Demonstration of DROSRITE™ in India, and provides herein a general update on its DROSRITE™ business line.

Mr. P. Peter Pascali, President and CEO of PyroGenesis, provides this update in the following Q&A format. The questions are for the most part derived from inquiries received from investors, analysts, and potential customers:

***Q. Before we jump into the essence of your announcement could you once again, for those that are new to the DROSRITE™ story, please describe to us what DROSRITE™ is, and some of its many advantages?***

**A.** Most certainly.

It's simple. Let's take an aluminum smelter as an example. As the hot aluminum is formed, it comes in contact with oxygen, and a dross is formed on the surface. This dross acts like a sponge and it effectively absorbs valuable metal. The smelter skims the dross and puts it aside to cool down. Although dross is considered a waste generated by the metallurgical industry, it contains valuable metal that the smelter would like to reclaim. Typically, the dross is sent off site to be processed by a third party who usually uses a salt-based recovery system. Salt, if it comes in contact with aluminum, could contaminate the batch and, as such, salt is usually prohibited from being on site and, ergo, the need to ship dross off-site to be processed. These third parties, who use salt, generate salt cakes, which are a hazardous by-product of their dross processing technique.

PyroGenesis' DROSRITE™ system is a salt-free, cost-effective, sustainable process for maximizing metal recovery from dross. PyroGenesis' patented process avoids costly loss of metal while reducing a smelter's carbon footprint and energy consumption, thereby providing an impressive return on investment.

With metal manufacturers, such as aluminum, being subjected to increased pressure from regulatory authorities to eliminate landfilling of hazardous salt cakes from traditional recovery operations, combined with tight operating margins, PyroGenesis' DROSRITE™ system is able to (i) increase metal recovery, without producing any hazardous by-products, while at the same time (ii) reducing operating costs.



**Figure 1 - PyroGenesis' Drosrite™ System**

In short, PyroGenesis' DROSRITE™ system is a proven method of recovering valuable metal from dross that (i) is salt-free, so no hazardous by-products, (ii) can process the dross cheaper than conventional methods, and (iii) has demonstrated higher metal recovery rates. Non-hazardous, cheaper and with higher recovery rates, who could ask for more? The increased recovery rate alone can save an owner/operator over \$1M/yr using PyroGenesis' DROSRITE™ system.

Click on the link below to watch the DROSRITE™ video: <http://www.pyrogenesis.com/products-services/advanced-materials-processing/drosrite/>

***Q. Is the PyroGenesis patented DROSRITE™ process limited to processing Aluminum Dross?***

***A.*** Absolutely not.

Our primary target is currently aluminum dross as this was the market we first introduced the DROSRITE™ process to and, as you can imagine, it is much easier to leverage of that success than to start marketing to a new sector. However, we have identified zinc and copper smelters as being potential beneficiaries of our proprietary process as well. In fact, our announcement today is important because the last hurdle to demonstrate our DROSRITE™ process for zinc has been eliminated with the receipt of this down payment.

***Q. Could you elaborate?***

**A.** Sure.

This zinc demonstration was opportunistic. As I said we are currently targeting aluminum dross and leveraging off our experience and results in that sector. However, we are not oblivious to the opportunities zinc and copper dross present.

Our strategy has been to target companies with multiple facilities, and thus multiple needs for aluminum dross processing. Our demonstration system is currently booked in India with paid-for-demonstrations with aluminum smelter clients. One of these clients also has a need to process zinc dross. This particular client has asked us to process their zinc dross and that is what we announced today. This is an important development as a successful zinc demonstration will provide us with data, and a reference plant, from which we could leverage future sales.

***Q. You are currently targeting the aluminum dross opportunities and now you are addressing the zinc dross need. Could you put into context the size of these markets?***

**A.** We do not have quotable statistics with respect to zinc dross, but with respect to aluminum dross there are over 3,000,000<sup>1</sup> tons of aluminum dross produced every year. We currently offer 500 and 5,000 tonnes per year (tpy) DROSRITE™ systems. The 5,000 tpy system sells for over \$1,000,000. If all the world's dross supply were to be addressed with our 5,000 tpy system, then this would equate to a \$600 million business. Obviously, this would never be the case, but I use it as a basis for demonstrating the size of the marketplace... assuming we can only address 40% of the market then it is a \$240 million business etc. etc.

***Q. You seem to be addressing, and increasing your addressable, target markets quite well. You recently press released that you are now embracing a tolling strategy. Could you discuss how tolling fits within the strategy of selling systems? Maybe you could first remind us how the tolling model works?***

**A.** Absolutely.

A tolling service arrangement is one in which a smelter provides dross to a third party to process either on or off-site. In our case, PyroGenesis would provide a tolling service using its proprietary DROSRITE™ System to process the dross and recover valuable metals for a fee. The benefits would be shared with the smelter.

Our tolling service offerings would be in addition to our selling systems. We have found that, although many smelters like the idea of operating their own systems, there are quite a few who would prefer not to. As such, tolling targets another type of customer: one that doesn't want to own/process dross on their own. These customers would prefer to have a third party process the dross either off, or on-site. We are positioning ourselves to be that third party.

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<sup>1</sup> AICircle « Aluminum Dross Processing: A global review », 2017

***Q. How important do you think tolling will become in your overall DROSRITE™ strategy?***

**A.** It is the most important element in our overall strategy. It provides for recurring revenues over a long period of time. With long term contacts in hand, it de-risks the technology from the customary threats a strategy of selling systems would be challenged with.

More importantly, the business potential from tolling is significantly greater than selling systems. Assuming each 5,000 tpy system saves at least \$1,000,000 then this represents a market of \$600 million/yr in revenues.

You can see why tolling is our primary focus these days.

***Q. Could you elaborate on the difference between on-site and off-site tolling?***

**A.** The industry standard dross recovery technology, Rotary Salt Furnace (RSF), cannot be operated on-site. As a result, a comprehensive network of large off-site dross processing plants has formed around the world, tolling aluminum dross for multiple primary aluminum smelters at singular, central plants. This has become the global standard practice for aluminum dross processing.

DROSRITE™ tolling is an impending catalyst for disruption in this long-established industry of off-site aluminum dross processing. Remember that with DROSRITE™, we can process an aluminum smelter's dross inside their plant, or on-site, which comes with significant financial benefits and allows us to maximize aluminum recovery rates. With DROSRITE™ tolling, PyroGenesis is offering to build, install, and operate smaller, localized, dross recovery plants inside a primary aluminum smelters plant. Think of it as a dross recovery plant which is owned and staffed by PyroGenesis, operating 24/7 inside the smelter's premises as a third-party contractor.

Due to the highly profitable nature of operating DROSRITE™, which is further enhanced when operating on-site, we have lower operational costs, recover significantly more aluminum from the dross, and eliminate the logistical issues that smelters currently face in transporting dross hundreds or thousands of kilometres away to off-site tolling plants. Today's network of off-site tollers will have a great deal of difficulty competing.

What is noteworthy is that, in the steel industry, on-site tolling of steel dross has been the foundation on which several blue-chip industrial companies were built. A quick Google search for "Steel Slag Recycling" reveals this. On-site tolling of steel dross has arguably become internationally recognized as the steel industries 'best practice' for managing their slags.

PyroGenesis is holding the key to offering on-site dross tolling services to the primary aluminum industry with DROSRITE™. It is an understatement to say that we are confident that the model of on-site DROSRITE™ tolling will become the primary aluminum industries standardized 'best practice' for managing their aluminum dross.

***Q. What do you need to do to execute on this tolling strategy? What can investors expect to see with respect to this?***

A. We are fully capable of tolling in North America and in unique one-off projects where we are invited to do so. In fact, we are pursuing some as we speak. However, we would be fooling ourselves if we thought we had the administrative depth to address 99.9% of the tolling opportunities outside of North America. We do not have the knowledge or experience in the many local cultures where tolling would be attractive. We do not know, or understand, the local customs, labor laws etc.

In order to address these opportunities, we would need to team up with many local players or, preferably, one larger global player.

Until we find the right partner, tolling will move forward, but at a fraction of its potential with the right global player.

***Q. Are you currently in discussions with any global players in this regard?***

A. We are actively pursuing tolling and as such we are actively pursuing such a relationship.

***Q. When might a tolling partner be identified?***

A. We have targeted no later than Q2 2019, hopefully before Christmas, but then again it could be any day now. We would prefer to team up with one global partner. We are very particular about who we would partner with. It is going to be a long-term relationship, wherein we are managing many facilities together, in far-flung locations, so choosing the right partner is critical. We are not in a rush.

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

PyroGenesis Canada Inc., a TSX Venture 50<sup>®</sup> high-tech company, 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 9001:2015 certified, and have been since 1997. PyroGenesis is a publicly-traded Canadian Corporation on the TSX Venture Exchange (Ticker Symbol: PYR) and on the OTCQB Marketplace. For more information, please visit [www.pyrogenesis.com](http://www.pyrogenesis.com)

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