

For Release 9:00am EST  
January 2, 2020

## Bio-Mine takes Cue from Living systems to Enhance one of Mining's Oldest Chemistries

### *Advanced Oxidation*

*Sudbury— January 2, 2020* — One of mining's oldest chemistries is Oxidation. The movement of electrons to change the state of ores, or metals, or toxins in order to accomplish typical mine processes like pre-treating, leaching, and remediation. For hundreds of years mining has used conventional means to oxidize like extreme heat, pressure and toxic chemicals. Unfortunately, these historic methods for electron movement have horrible consequences to our world and the environment, and thus mining companies are becoming more and more pressured to find cleaner ways to move these electrons.

Bio-Mine Ltd. has opened a division of research around REDOX, and again taken its cues from living systems, where the most powerful oxidants known to man are; **ROS / RNS (Reactive Oxygen Species / Reactive Nitrogen Species)**. These are clean "*super oxidants*" produced inside all living systems, using highly reactive versions of very common elements like Oxygen, Nitrogen, Hydroxide, peroxide...etc. They form what's called "Radicals" and are highly energetic which means they participate in the movement of electrons better than any known chemical oxidant, and then revert back into their harmless, more stable versions... oxygen, hydroxides and water.

These Super oxidants are being produced inside living systems constantly as part of our sophisticated biochemistry, and now Bio-Mine Ltd. has launched a division to try and synthesize

these REDOX reactions using manufactured starting salts that can be added to any stirred leach tank.

The problem with ROS/RNS is their lifespan. It is very short, as they tend to quickly degrade back into their more stable versions upon contact with water. Bio-Mine Ltd is researching the manufacturing and potential polymerization of a more “*slow release*” system that can create these radicals on the fly triggered by oxidative environments inside the tank or heap.

*“If we can harness this oxidative power into stable salts that can slower release these oxidants and be easily manufactured and shipped to mine sites, the power of oxidation inside typical mine applications could exponentially increase. Imagine oxidizing those nasty organic carbons on double refractory ore for gold or eliminating chalcopyrite passivation through rapid Sulfur oxidation or speeding up pre-treatment through increased oxidation of all sulfides. It’s a highly reactive REDOX world that exists inside all living systems, and Bio-Mine is determined to find a way to harness that oxidation power for mining”*

said Kurtis Vanwallegham, CEO at Bio-Mine Ltd..

## **Company**

Founded in 2016, Bio-Mine Ltd. is an advanced research incubator for cleaner mine processes and remediation using biochemistry and advanced molecular science as its foundation. Bio-Mine believes the answers to cleaner mining will not come from metallurgy or conventional thinking, so the company approaches “*clean mining*” from a completely different, and highly molecular direction.

###

**For more information, press only:**

Kurtis Vanwallegham  
1-705-222-2847 Ext 101  
info@biomine.ca

**For more information on Bio-Mine Ltd.:**

<http://www.biomine.ca>