

Message

From: Legal security [legal.servicios@gmail.com]
Sent: 11/29/2017 8:03:36 PM
To: anwilling@mmm.com; brumbel@mmm.com; byazigi@mmm.com; cjnolden@mmm.com; epaskach@mmm.com; eschiralli@mmm.com; Fhaile-selassie@3m.com; haconejeros@mmm.com; investorrelations@3m.com; jmbogdan@mmm.com; jwkieffer@mmm.com; lsanderson@3m.com; lxsaldivia@mmm.com; mgperezpanades@mmm.com; milenaoliveira@mmm.com; msbosway@mmm.com; npulecio@mmm.com; patwood@mmm.com; pkfoss@mmm.com; pvguerreiro@mmm.com; Bryson, James M.
 [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=9ec10e4ffb654b9ca090585e803dcf4e-Bryson, James M.]; Pane, Vickie
 [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=4ef94cde4e864993a359d0d4cfef8473-Pane, Vickie]; Chelius, Kyle
 [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=9547e2583f374ffbbcd6886d998ec7db-Kcheliu]; Pennamon, Shanieka
 [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=f2497a000fda4fdea550e0691438f23e-Pennamon, Shanieka]; Turpin, David
 [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=7d883e7c96f44e22b8b5a6eb750c1c5a-DTurpin]; Adams, Mikeal
 [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=284fb5fb0f744f25a46fbba90af3e817-Adams, Mikeal]; McIntyre, Crystal
 [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=3b12cb737c464cc0bef89e4cd0c04417-MCINTYRE, CRYSTAL]; Reichmuth, Michelle
 [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=f07b256ec13448ef8cfb2ed6ef2cbc60-Reichmuth, Michelle]; Kain, Nancy (AKA Oien)
 [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=afeab98123aa4a26acf0700746e1f1ef-NKAIN]; Farnham, Kim
 [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=39ed87c8419841daa40e597037557bc6-Farnham, Kim]; Tartaglia, Maria
 [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=fb90b47189db4e95a4794230b5bc5119-Tartaglia, Maria]
CC: BORIS PEROVIC REYES [bperovich@hotmail.com]; Legal security [legal.servicios@gmail.com]; Rodrigo Augusto Ramirez Alvarado [rrabogado@gmail.com]
Subject: Invitation to be our investor partners in a unique technology in the world - (Energy saving and, total elimination of acid mist and lead in copper production)
Attachments: Carta a la Señora Milena Oliveira, Gerente General 3M Chile - 29.11.2017.doc

Señora Milena Oliveira

Gerente General 3M Chile

Nuestro sistema es un sistema magnetolítico que no necesita la presencia del electrodo Ánodo, para depositar electrolíticamente Cobre.

La eliminación del Ánodo de Plomo, el proceso actual de depositación de cobre tiene como resultado principal, el ahorro de Energía Eléctrica y el Aumento de Producción, al permitir ocupar los espacios vacíos en la Celda, por otros sesenta cátodos adicionales.

De acuerdo con las pruebas y cálculos efectuados podemos asegurar lo siguiente:

En el Sistema actual, una cosecha de 60 cátodos y 120 horas consume aproximadamente 12,6 MW. En cambio, con nuestro sistema, se pueden instalar 120 cátodos en la celda, y deposita de igual tiempo (120 horas), con igual cantidad de cobre depositado, se habrá consumido solamente 7,8 MW, ahorrando 4,8MW por una doble cosecha.

Esto da como resultado un 69% de economía eléctrica aproximada. Queda por decir, que la eliminación del Ánodo se plomo, elimina a la vez, la Neblina Acida y muchas de sus externalidades negativas.

En lo referente al Ácido Sulfúrico, para nuestra solución actual, es solamente el elemento de transporte iónico, que los sitúa en la cercanía catódica, con el mismo flujo usado actualmente.

El flujo, la temperatura, y la cantidad de Cobre por litro, es posible que en el futuro sean cambiados sus valores, de acuerdo a pruebas realizadas en procura de una optimación del sistema.

Consumo de energía eléctrica.

De acuerdo con las pruebas y cálculos efectuados podemos asegurar lo siguiente:

En el Sistema actual, una cosecha de 60 cátodos y 120 horas consume aproximadamente 12,6MW.

Calculo:

Corriente/Dm² 3,5 AC
Tensión Eléctrica 2.5VAC
Consumo $3,5 \times 2,5 = 8,75\text{W/Dm}^2$
 $8,75\text{W} \times 200\text{Dm}^2 \times 120\text{hrs} \times 60\text{Cátodos} = 12.600.000\text{W}$

El precio actual por MW/hr es de US\$70

Por lo tanto.

$12,6\text{MW} \times 70\text{dolares} = \text{US\$}882$, es el costo total por una cosecha.

En cambio, con este nuevo sistema, se pueden instalar 120 cátodos en la celda, y deposita de igual tiempo (120 horas), con igual cantidad de cobre depositado, se habrá consumido solamente 3,9MW por una cosecha, ahorrando 8,7MW, y al sumarle 60 cátodos más, se consumen por tina 7,8MW, ahorrando 4,8MW por una doble cosecha.

Calculo:

Cátodo Corriente/ Dm² 0,5 DC
Cátodo Tensión Eléctrico 3VDC
Bobina Corriente 0,1 AC
Bobina Tensión Eléctrica 12VAC
Cátodo consumo $0,5 \times 3 = 1,5\text{W/Dm}^2$
Bobina consumo $0,1 \times 12 = 1,2\text{W}$
 $(1,5\text{W} + 1,2\text{W}) \times 200\text{Dm}^2 \times 120\text{Hrs} \times 60\text{Cátodos} = 3.888.000\text{W}$
 $3,9\text{MW} \times 2 = 7,8\text{MW}$

Ya que se trata del doble de producción en la misma tina esto da un consumo de 7.776.000W (7,8MW)

El precio actual por MW/hr es de US\$70

Por lo tanto, $3,9\text{MW} * 70\text{Dolares} = \text{US\$273}$, es el coste total por cosecha.

Esto da como resultado un 69% de economía eléctrica aproximada por cosecha, así por una cosecha ahorrando US\$609, Queda por decir, que la eliminación del Ánodo de plomo, elimina a la vez, la Neblina Acida y muchas de sus externalidades negativas.

En una tina al año se producen 70 cosechas, si existen 5.500 piscinas de Electrowinning, por ende, al año se producen 385.000 cosechas de cobre al año en Chile, así ahorrando US\$234.465.000 al año con nuestro sistema.

Eliminación del Ánodo de plomo

En Chile existen aproximadamente 5.500 piscinas de electrowinning, cada una de ellas consta con 61 ánodos, que estos son sustituidos cada tres años, con un costo cada ánodo de US\$450. Si eliminamos el total de los ánodos de plomo en este proceso, ahorraremos US\$50.325.000 dólares al año en la compra de ánodos de plomo.

Calculo.

$$5.500 \text{ piscinas} * 61 \text{ ánodos} = 335.500 * \text{US\$450} = \text{US\$150.975.000}$$

$$\text{US\$150.975.000} / 3 \text{ años} = \text{US\$ 50.325.000 al año.}$$

Contamos con más externalidades negativas en el proceso actual, las cuales podemos solucionar con nuestro sistema, como la corrosión de las naves, extractores, corto circuito entre Ánodo y Cátodo. Entre otras, las cuales no podemos cuantificar su valor monetario.

Externalidades negativas ambientales.

Producción de Neblina Acida como subproducto del proceso de Electro-Obtención:

- Se generan concentraciones de ácido en el ambiente, que rodea los 10 a 20 mg/m³.
- Norma indica 1mg/m³.
- Externalidades negativas a nivel ambiental y hacia el ser humano.
 - Daño a la flora y fauna.
 - Erosión de la tierra.
 - Alta producción de dióxido de carbono (efecto invernadero).
 - El uso de ánodos de plomo, produce monóxido de carbono CO₂.
 - En la extracción de los desechos generados por el plomo, generan costos altos y contaminación del medio ambiente.

- Afecta la salud de los operadores y la de la población circundante.
- Los ánodos base plomo utilizados en el proceso de producción, generan los llamados barros anódicos (sobre 60% de plomo), producción altamente contaminante, perjudicial para la salud y con efectos nocivos para el medio ambiente y la salud de los trabajadores, Etc.

En resumen, los costos que nuestro sistema de (electro obtención) puede reducir en estas 5500 piscinas que existen en Chile, es de aproximadamente 350 millones de dólares, sin considerar las que puedan existir en Perú y resto del mundo. Considerar que las minas de cobre de baja ley y muy poco rentables, con esta nueva tecnología se vuelven rentables.

Nuestro único afán, es agregar conocimiento y tecnología a un producto que hace más de medio siglo solo ha vendido materia prima al extranjero (cobre en cátodos o lingotes) y en cambio, con este sistema aparte de vender materia prima, se puede agregar tecnología aplicada a este producto, y aún más, si esta tecnología es más económica, más limpia y lo más importante, protege al medio ambiente y la salud de miles de personas. Por tanto, existiendo actualmente la tecnología para proteger la salud de miles y miles de trabajadores del sector minero, es éticamente impropio que pase un solo día más en continuar con la tecnología actual en Chile, Estados Unidos y resto del mundo.

En espera de su respuesta, en relación a ser nuestros socios inversores estratégicos y nos conceda una reunión, se despide

Boris Perovich

Teléfono Red Fija: 22-6325572

Teléfono Móvil: 954089280

Correos Electrónicos

legal.servicios@gmail.com

bperovich@hotmail.com

Dirección

Huérfanos 757, Oficina 201, Santiago de Chile

C.C.

Mr. Inge G. Thulin, Chairman of the Board, President and Chief Executive Officer of 3M Company

Ms. Sondra L. Barbour, Board od Director of 3M Company

Mr. Thomas K. Brown, Board od Director of 3M Company

Mr. Vance D. Coffman, Board od Director of 3M Company

Mr. David B. Dillon, Board od Director of 3M Company

Mr. Michael L. Eskew, Board od Director of 3M Company

Mr. Herbert L. Henkel, Board od Director of 3M Company

Ms. Amy E. Hood, Board od Director of 3M Company

Mr. Muhtar Kent, Board od Director of 3M Company

Mr. Edward M. Liddy, Board od Director of 3M Company

Mr. Gregory R. Page, Board od Director of 3M Company

Ms. Patricia A. Woertz, Board od Director of 3M Company

Ms. Barbara Yazigi - Brand Manager Seguridad. Industrial 3M Chile

Mr. Hernan Conejeros, Gerente Tecnico y de Innovación 3M Chile

Document translated into English

-

Mrs. Milena Oliveira

General Manager 3M Chile

INTRODUCTION

Given the rapid advance of technology in the mining area, it is necessary to develop new and revolutionary energy-saving technologies and ideas to meet the challenges of the mining sector. Considering the problems existing in the current productive process of copper cathodes, the idea arises of looking for a solution for the reduction of the acid mist, a highly polluting entity in the production of copper cathodes and their environment.

Given the above and responding to this problem, we have developed a system of the Copper Deposit Hydroponic, which delivers a cleaner, cheaper and less aggressive product with the medium environment. In this way, Chile would be in a position to standardize the production of copper cathodes with the international environmental standard and export technological innovation.

For more than five years, our company has been dedicated to carrying out an innovation project, which solves multiple contamination problems in the mining of copper, and, in addition, its use, among other benefits considerable energy savings.

Our system bases its operation on the paramagnetic behavior of the copper particles dissolved in the electrolyte, before a magnetic field to which they are exposed, aligning with it, and thus, in this action, they acquire from the source generating the field, an additional energy, excluding the traditional electric power source. We are now 100% committed to developing this innovative solution. Project that we present below, with the conviction that it will change the paradigm of the electro-obtaining of the copper.

EXECUTIVE SUMMARY

Mining companies have been singled out as major waste producers. One of the major problems is the emissions of pollutants from this sector, which indirectly affect productivity levels. It is for this reason that seeking a solution not only involves the immediate environment of the tasks, but is seen as a global solution.

An important example is lead, the main element responsible for the production of bubbles in the Electro-Obtaining processes (E-W), which finally explodes on the surface of the cells generating Acid Haze. In other words, the reaction that takes place in the electrolytic cells generates bubbles that carry micro-drops of sulfuric acid to the surface and burst, forming this mist. These emanations are highly harmful to people's health, generating high costs in industrial safety, but also, they have effects on the costs of the companies due to the high level of corrosion that they produce, which forces to maintain a constant monitoring of the state of electrodes, electrical cables and equipment in general. The problems and opportunities that give rise to the realization of this project are mainly, as problems, the emanation of Acid Haze and all its harmful consequences, the contamination of the water by lead and the high costs of production. As for the opportunities, we identify mainly the opportunity to eliminate lead in the process of electro-obtaining with our system, and at the same time, generate a great saving of electrical energy.

HOW DOES IT WORK?

Our system bases its operation on the paramagnetic behavior shown by the copper particles dissolved in the electrolyte, before the magnetic field to which they are exposed, aligning with it, and thus, in this action, they acquire from the field generating source, an energy additional. This effect results in the possibility of eliminating the conventional energy source, replacing it with this new system, based on the projection of its energy directly to the field of action, where each molecule instantaneously captures the precise amount of energy needed that added to the energy of each copper ion (Cu^{++}) is sufficient to be deposited without the presence of the lead anode. (Migration of the ions is performed by the hydraulic flow of the electrolyte in the same direction as the magnetic field).

WHAT IS THE PROBLEM THAT HELPS RESOLVE OUR SYSTEM?

The generation of negative externalities, such as, Acid Haze, Contamination of water by lead, contamination of the ground by anodic mud (molten lead Chloride), all of them generators of health problems and a production of high cost.

BENEFITS ENVIRONMENTAL DIFFERENTIALS

- Copper cathodes free of lead contamination.
- Eliminating the use of lead anodes eliminates the main cause of the generation of acid fog.
- Wastewater without lead contamination.
- Elimination of anodic mud, its handling and contaminating collection.
- Eliminates CO_2 in the anode manufacturing process.
- It eliminates the affections to the health of the people by acid haze.

- Minor waste and waste.

ECONOMIC DIFFERENTIATION BENEFITS

- Eliminates the use of lead anodes, thus eliminating the manufacture or purchase of anodes.
- Replaces conventional power source with new system.
- Non-invasive, this because of the fact that acts from outside the tub, therefore does not modify in any way the structure.
- Elimination of short circuits between anode and cathode.
- Removal of anodic mud and its extraction from the tub.
- Minimizes the evaporation of the electrolyte, thereby favoring the maintenance of the electrolyte temperature.
- Reduced structural maintenance costs due to corrosion.
- Increase in production as a result of the higher number of cathodes per tub.

VALUE PROPOSAL

He value proposition of our system focuses on providing a technological solution that greatly reduces the costs of electrical energization, the emission of acid mist, with the consequent benefits, such as increasing productivity, reducing maintenance and safety costs, in addition to reducing the negative environmental externalities produced by the emission of Acid Smog and others.

The main differentiation in the solution is in terms of productivity and costs, because it attacks a current problem of mining, such as the sustained increase in operating costs, as well as the decline in productivity due to the fall in the law of minerals, particularly copper.

Publicly and in front of the media, will help the positioning of the company, using a cleaner technology for the production of copper.

As for the environmental problem, it will also make an important difference. As is well known, the current technology does not conform to the international standard of environmental protection. Our technology, in turn, will make it possible to comply with international standards.

VALUE ADDED

One of the keys to our system, and that determines the added value that is intended to be delivered is the relationship between a cleaner production process at a lower cost and the corporate social responsibility that is intended to achieve, this is obtained with a closer relationship with the environment, both the environment and the community, as it does not affect its environment with waste and pollutants from the production process.

FINAL COMMENTS

The existing equipment armed at the laboratory level, had as main purpose, demonstrate with its operation that the project is viable.

The certification of "Zero Acid Haze" executed by SGS Chile Ltda. Shows that it is possible to achieve contamination rates at levels accepted by International Regulations.

We demonstrate that it is possible to eliminate the lead anodes in the Electro-Obtaining (E-W) process, and with this, the elimination of lead contamination in water and of course in copper cathodes.

Also consider the decrease of CO2 sent to the atmosphere in the process of casting lead to manufacture these anodes, although this is not a direct, has to do with the carbon footprint in Chilean and worldwide mining.

As noted, the project will lead to a large reduction of negative externalities, together with a significant reduction in operational costs, environmental and economic benefits.

We believe that the time has come to approach you and invite you to participate in this great project.

In summary

With our system, the copper production costs in the 5500 swimming pools of (electro obtaining) that exist in Chile, are reduced in 350 million dollars. (without regard to the rest of the world). Consider that low grade and very unprofitable copper mines, with this new technology become profitable.

Pending your response, in relation to being our strategic investor partners, sincerely

Boris Perovich

Teléfono Red Fija: 22-6325572

Teléfono Móvil: 954089280

Correos Electrónicos

legal.servicios@gmail.com

bperovich@hotmail.com

Dirección: Huérfanos 757, Oficina 201, Santiago de Chile

C.C.

Mr. Inge G. Thulin, Chairman of the Board, President and Chief Executive Officer of 3M Company

Ms. Sondra L. Barbour, Board od Director of 3M Company

Mr. Thomas K. Brown, Board od Director of 3M Company

Mr. Vance D. Coffman, Board od Director of 3M Company

Mr. David B. Dillon, Board od Director of 3M Company

Mr. Michael L. Eskew, Board od Director of 3M Company

Mr. Herbert L. Henkel, Board od Director of 3M Company

Ms. Amy E. Hood, Board od Director of 3M Company

Mr. Muhtar Kent, Board od Director of 3M Company

Mr. Edward M. Liddy, Board od Director of 3M Company

Mr. Gregory R. Page, Board od Director of 3M Company

Ms. Patricia A. Woertz, Board od Director of 3M Company

Ms. Barbara Yazigi - Brand Manager Seguridad. Industrial 3M Chile

Mr. Hernan Conejeros, Gerente Tecnico y de Innovación 3M Chile

Mr. Scott Pruitt, Administrator of the U.S. Environmental Protection Agency.

Mr. Arthur A. Elkins, Jr., Inspector General of the U.S. Environmental Protection Agency (EPA) and the U.S. Chemical Safety

Reserved Information