ABSTRACTS

SMELTING AND TIN REFINEMENT IN MEXICO

Juán Joffré Encinas

The facts presented by the author were the most outstanding ones during the twelve years he worked in Metales Potosí, S. A. from C. V.

While I was a head of the Metallurgical Division from the Mining – Metallurgical Research Institute of Bolivia, whose main office is in Oruro, I attended, as a member of the representatives of my country, to the First Technical Meeting of the Pan-American Committee of the Tin Normalization (COPANT C 33) sponsored by the Industry, Commerce and Tourism Ministry of Bolivia en June 1977. In such event, I had the opportunity to put in contact with Mexicans who were also attending the meeting, as many other representatives from different countries.

After a few months, I had an invitation from Mexico to work there in a tin foundry in San Luis Potosi. So after having visited the city and the plant, I had decided to work in Mexico since 1979.

At the time, there were three small tin foundries:

1. "Estaño Electro" in Mexico State. It seemed to have more capacity than the others. It melted tin concentrates in a reverberatory furnace which had a centrifugal machine and a vacuum refinement plant, both made in Russia. Its production was about 1200 tons of refined tin and allows per year.
2. "Estañera de Potosí", located in San Luis Potosí, melted concentrates in reverberatory furnace and refined tin thermically in small pots whose production seemingly did not reach 1000 tons of refined tin and alloys per year.
3. "Metales Potosí" is also located in San Luis Potosí. It melted tin concentrates in electric furnaces and refined tin pyrometallurgically in small pots, its average output was 900 tons of refined tin and alloys per year.

The competency with each other was very strong. Each one wanted to keep in secret its operations, processes (not mentioned as technologies) and commercial contacts and practically there was no communication among them.

A strong competency for these three foundries in the Central y North America market was the tin foundry that belonged to the Gulf Chemical company in Texas City, U.S.A.

I began Working in Metales Potosí, as a manager of the Metallurgical Developments, on Mayth, 1979.

ENVIRONMENTAL IMPACT OF THE GOLD MINING

Germán Cáceres Arenas

The gold mining generates a great variety of residuals, which have to be managed according to the environmental legislation in force and in the most possible economic way.

The growing environmental awareness of our society that is reflected in more and more strong environmental regulations, has made necessary to put emphasis in the control and treatment of the mining effluents.

In some cases, there are some metallurgical incentives for the effluent treatment such as economic benefits that are obtained when recycling chemical reagents and/or the recovery of valuable metals, or the necessity to remove components that have and adverse effect in the main processes when a fraction of the effluent is re-circulated.

So, we can say that the treatment of effluents is justified or require a treatment of effluents as much for the recovering as for the recycling. It can represent and economic option within a mining project or to be also part of an environmental

politics to fulfill the normative environmental regulations in force. The treatment can also be demonstrated through the detoxify as such that becomes necessary when it is out of the allowed range by the law or in cases where it is necessary to recycle flows to the process.

A general overview of the treatment of gold minerals is presented, identifying the currents of residuals, putting emphasis on the currents of residuals and on the environment aspects of the cyaniding process. At first, it is analyzed the chemistry of the cyanide and its compound, toxicity, the degradation mechanisms and its applications in wells solutions, tailing tanks, leaching piles, soils and underground waters.

IMPORTANCE OF THE ATMOSFHERIC CORROSION STUDY

Jaime A. Rocha

The present article points out the importance to characterize the atmospheres by means of stations that gives a lot of useful information at the moment one makes a selection or the developments materials.

On the other hand, the obtained results in the characterization of the Station La Paz are reported, and the objetives that are pursued with the installation of the Stations La Paz II and Santa Cruz in a combined form between the IIMETMAT from the UMSA, and the PAINTINGS MONOPOL'S Factory-Ltda. are briefly described in this work.

RADON IN UNDERGROUND EXPLOITATIONS

Jürgen Weyer
Gerardo Zamora E.

In the underground mine workings, it is important to have a planned supply of fresh air, dilution and drainage of dangerous gases and powders, besides an outlet of the airflow. All these factors lead up to generate a more suitable atmosphere of work inside the mine.

The air of the mining varies in its composition due to the generation of powders and gases that come from explosions that take place inside the mine, oxygen consumptions and finally the natural radioactivity, especially radon, emanated from the crystal structure of the minerals through pores and fissures.

The present work has stressed the radioactive emanations of radon in underground exploitations, and gives some theoretical aspects about them, permissible limits, measuring methods and then conclude with measurements in situ in some mines. Finally, it was given the respective recommendations for their control and prevention.

ADVANTAGES AND LIMITATIONS IN THE NIOBIO AND TANTALIO ANALYSIS BY THE INDUCTIVELY LINKAGE PLASMA (ICP – OES)

Nélida Vilaseca de Knaudt
Oswald Eppers

The ICP – OES method has several advantages for the niobium and tantalum analysis in comparison with the atomic absorption method or the classic methods (e. g. precipitation with tannin). Anyway, in spite of the high temperature of the atomization in the plasma, it faces a variety of interferences in this analysis which can only be reduced by using methods as the adaptation of the standard matrix or the addition method of standard. In cases where the mineral contains large quantities of tin, titanium or tungsten, the only possibility to achieve reliable results is in a preliminary separation of niobium and tantalum of these interferences through the selective precipitation with sodium hydroxide.