

# Mining powerhouse Grupo Mexico to enter the rare earth race

Grupo Mexico is strongly considering the possibility of producing rare earths in Mexico, having recognized their strategic value and indispensability in the electronics, automotive and energy industries. This is not a last minute, 'join the bandwagon', plan because Grupo Mexico SA de CV (MX: GMEXICOB), happens to be Mexico's largest mining company and the third largest producer of copper. Ferrocarril Mexicano (Ferromex) rail division of the company operates Mexico's largest rail fleet. Results from research conducted by universities in Mexico have shown that there exist economically viable rare earths deposits in the States of Sonora and Chihuahua as well as further south in Oaxaca and Chiapas.



Grupo Mexico is also encouraged that the scientists have discovered rocks with high concentrations of interesting rare earths mining in Oaxaquia. The research also considered the extractive metallurgy processes needed to obtain rare earths from the host rocks. In Oaxacam they found concentrations of 10 to 15 percent; in Hidalgo four to five percent. In Coahuila, Sonora, Sinaloa and Durango the concentrations were about four percent, which are suitable numbers to justify mining investments. More exploration studies are planned in the States of Baja California and northern Chihuahua.

The Oaxaca sites, meanwhile, have shown exceptionally high concentrations of rare earth as cerium, lanthanum, neodymium, praseodymium, samarium, europium, gadolinium, terbium and yttrium. In Hidalgo there were discoveries of interesting

mineral concentrations of europium, terbium and lutetium, which is very important for medical applications. In Coahuila, there were sites presenting commercially relevant concentrations of samarium, holmium and thulium while in the States of Durango, Sinaloa and Sonora there are terbium, thulium, ytterbium and praseodymium. To accelerate development it might be necessary for the Mexican Company to explore and develop rare earths in cooperation with experienced foreign parties to make their operations profitable.

Mexico, it is often forgotten, is quite an industrial power and produces television sets, computers, cell phones and automotive components that feature high rare earth content. Rare earth alloys require advanced metallurgical processes to give them products that have made the exceptional electronic and magnetic properties that characterize them. Grupo Mexico is large enough to consider building its own processing plant. Mining, adaptive mining and metallurgy and manufacturing of rare earth devices represent a great economic opportunity for Mexico, and a healthy step in the direction of providing Mexico a high technology sector, enabling the whole country to participate in the revolution of transportations, communications and electronics in a more meaningful way.

In order to achieve this, Grupo Mexico could work with other Mexican companies and research institutes in a public-private partnership to benefit from a more centralized national science and technology support to create a high technology materials industry based on rare earths for the use of sustainable energy efforts, communications, medical instrumentation, automotive parts and manufacturing in general. Interestingly, South Korean has backed Mexico's recent research into the commercial viability of its rare earths deposits. The National Korean Metals and Rare Earth Materials has worked with the Universities, National Autonomous University of Mexico (UNAM) and Autonomous State Morelos (UAEM) and other institutes in order for Mexico to combine its academic research capacity to

support science and technology development with an emerging national high-tech materials industry based on rare earths. An actual 'Research and Innovation in Rare Earths Korea-Mexico' workshop was held last week involving the Mexican Government's Committee on Science and Technology, consolidating bi-lateral cooperation to establish a full rare earths industry chain in Mexico, from exploration and extraction to processing and manufacturing. The Mexican-Korean talks focused on such topics such as technology and innovation in rare metals and research initiatives, innovation in rare earth mineralogy, extraction of minerals and waste processing as well as electronic and magnetic properties of gadolinium groups.

South Korean companies have been investing heavily in Latin and South America in the past decade. Hyundai Heavy Industries is making construction heavy machinery in Brazil. More importantly, where rare earths are concerned, SAMEX is Samsung Electronics' unit in Tijuana, which is no longer just a haven for drug cartels and human trafficking; indeed, it produces some 20% of the company's total output of TV sets. LG Electronics. South Korea is also interested in Mexico's oil resources to diversify dependence on Middle Eastern ones and for the past decade it has intensified ties to Mexico and Brazil, among others. The next frontier for South Korea in the region is 'green technology' and renewable energy in particular, which relies on rare earths.