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MARKET STUDY ON THE MINING INDUSTRY IN MEXICO

Dept. of External Affairs
Min. des Affaires extérieures

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This market guide booklet has been prepared with the problems inherent to the initiating exporter in mind. However it is not exhaustive; individual circumstances, interest and needs will dictate how companies should tailor their approach and strategy to the Mexican market. While every attempt has been made to ensure accuracy in this study, no responsibility can be accepted for errors or omissions.

Further assistance can be obtained by addressing requests directly to the Commercial Division of the Canadian Embassy in Mexico City located at Calle Schiller No. 529, Colonia Polanco, 11560 Mexico, D.F. Telephone: 254-32-88, Telex: 177 1191 and Fax (sending from Canada): 011-(525)-545-1769; or the South America and Mexico Trade Division, External Affairs and International Trade Canada, 125 Sussex Drive, Ottawa, Ontario K1A 0G2, Phone: (613) 996-8625; Fax: (613) 996-0677.

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**MARKET STUDY ON THE MINING INDUSTRY
IN MEXICO**

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1. BACKGROUND

Mining has historically been one of Mexico's most important economic activities. The use of certain minerals was known since the prehispanic era. During the colonial times, gold and silver were much sought after and Mexico became a large producer of both minerals. Between 1521 and 1540 total silver production was 68.3 tons and gold production 4.2 tons. By 1781-1800, silver produced was 11,249 tons and gold 24.6 tons. During the 18th century, there were approximately 3000 mines divided into 37 districts exploiting silver, lead, copper, mercury, alum, gold, tin, iron and sulphur.

During the Mexican Independence war period (1810-1821), many mines were either abandoned, due mostly to lack of raw materials, or were working below capacity. Foreign capitals started flowing into mining after the turmoils and the activity picked up again. All mines that lay inactive were expropriated in 1826 and were declared property of each state. By 1880 silver production was at pre-war levels and gold had increased 40%. Nine states accounted for over 90% of total production, mostly of silver: Zacatecas 20%, Guanajuato 18%, Hidalgo 16%, San Luis Potosí 11%, Jalisco 6%, Sonora 5%, Michoacán 5%, Chihuahua 5% and Durango 4%.

After 1880, mining grew and became the industry with the fastest expansion rate fostered by the consolidation of peace, the development of rail and marine communications, the legal privileges granted to miners, the large scale foreign investments (mostly U.S., French and British), the use of new and more modern exploitation methods, the introduction of electricity, the establishment of connected industries, the reduction in raw material costs, the decrease in taxes payable and increased demand. New minerals started to be exploited and 32,000 mining titles were issued covering 444 thousand hectares.

During the revolutionary period (1910-1925), the production of industrial metals decreased 65% as a result of the upheavals and major changes in the laws governing mining. In particular, the 1917 Constitution determined that the direct ownership of all minerals corresponded to the nation and that the federal government could grant concessions to exploit them.

After 1950, production of copper, lead, zinc, iron and coal increased significantly and other minerals began to be extracted in considerable amounts, such as antimony, fluorite, graphite, arsenic, manganese, bismuth, cadmium, tin, molybdenum, sulphur and barite. There were approximately 2,000 mines operating throughout the country. New regulations came into effect with the 1961 modifications to the Constitution and the new Mining Law, whereby 51% of all mining companies' capital had to be held by Mexican citizen and 66% in the case of national mining reserves. This process was finalized only in 1986.

At present Mexico is the number one world producer of silver, bismuth and celestite; the second largest producer of barite, fluorite, sodium sulphate and graphite; the third producer of antimony; the fourth producer of arsenic and mercury; and the fifth leading producer of cadmium, lead, molybdenum and zinc; in addition to gold, copper, coal, iron and other minerals. The potential for growth in the exploitation of these resources is great since it is estimated that only one percent is presently exploited.

2. ECONOMIC ENVIRONMENT

With the objective of reducing the inflation rate, the Mexican authorities implemented a stabilization program, called the Economic Solidarity Pact, which features traditional austerity measures, entailing tight fiscal and monetary policies and other unorthodox measures, such as price, wage and exchange rate controls. This program has been the cornerstone of Mexico's economic policy over the past three years and has resulted in a drastic reduction of the inflation rate, from an annual rate of 159% in 1987 to 52% in 1988 and 19.7% in 1989. An 18% inflation rate was projected in 1990, but it is likely that up to 25% inflation will be experienced. Along with the objective of consolidating the progress made in price stabilization, Mexico's macroeconomic policy in 1990 aims to reaffirm gradual and sustained economic recuperation, basically by establishing the necessary conditions to encourage national and foreign investment. In 1991, the Mexican authorities plan to reach an inflation rate equivalent to international levels and to relax price controls.

Mexico's gross domestic product (GDP), after increasing 3.7% and 2.7% during 1984 and 1985 respectively, diminished by 3.5% in 1986. In 1987, it increased a moderate 1.5% and an additional 1.1% in 1988. The Gross Domestic Product continued to grow for the third consecutive year in 1989 recording a growth rate of 2.9% to reach \$200 billion (1). With an 84.5 million population, per capita GDP is estimated at Cdn\$2,550. During the 1990-1994 period GDP is expected to maintain an average annual growth rate of 2%-3%. In disaggregated terms, this represents an annual growth rate of 5.3% in the manufacturing sector, 2.3% in the services sector and only 0.6% in the agricultural sector. After several years of stagnation, public investment will grow 5% and private investment will also rise 5%.

In an effort to revitalize and open the Mexican economy, the Mexican Government undertook a series of structural changes, including the accession to the General Agreement on Tariffs and Trade (GATT) on August 24, 1986 leading to an extensive trade

1. Note: All values in this report, unless otherwise stated (Mexican pesos, Mex\$, Canadian dollars, Cdn\$, etc) are quoted in United States dollar equivalents.

liberalization process: import permits were eliminated on all but 325 of the total 11,950 tariff items based on the recently adopted Harmonized System. Official import prices are no longer applicable, nor is the 5% export development tax. Import duties were lowered from a maximum of 100% in 1982 to 20% in January 1988. The automotive and computer industries are also being opened up, through the elimination of prior import permits, to allow free entry of products in these industries.

According to official data from the Mexican Secretariat of Commerce and Industrial Development (SECOFI), Mexico's trade balance in 1989 dropped to a \$644.8 million deficit, down from a surplus of \$1.75 billion in 1988 and \$8.4 billion in 1987. Total exports increased 10.7% in 1989, from \$20.6 billion in 1988 to \$22.8 billion. Imports increased 23.9% from \$18.9 billion to \$23.4 billion, having already increased 48% from \$12.2 billion in 1988. During 1989, imports of consumer products grew 82%, while those of intermediate goods increased by 17% and capital goods by 18%.

Total Mexican imports from Canada increased 24% in 1989 and amounted to Cdn\$603 million, while total Mexican exports to Canada were valued at Cdn\$1,698 million. Mexico and Canada have traditionally been strong trading partners. According to Mexican figures, in 1989, 1.9% of Mexico's imports came from Canada, while 1.2% of its exports were to Canada. This makes Canada Mexico's fifth largest exporter and sixth largest importer.

3. MARKET ASSESSMENT

The total Mexican market for mining machinery and equipment totalled \$104.9 million in 1989, reflecting a 5% increase over the \$100.3 million of 1988 and 14% over 1987 levels. Despite unfavorable world prices for silver and other precious metals, which could not be offset by increases in industrial mineral prices, the Mexican mining industry maintained a high level of investment during 1989 in exploration, new projects, modernization and increased installations and equipment and increased capacity. As a result of major investments valued at \$2.1 billion to be undertaken by the mining sector during the 1990-1994 period, total apparent consumption of mining equipment is expected to reach \$164.8 million by 1994, reflecting a 10% annual growth rate. The total market for mining equipment and machinery can be divided into three major categories: Mining, excavating, earthmoving and exploration machinery; mineral preparation and processing equipment; and materials handling equipment, including trucks and tractors.

The total Mexican market for mining, excavating, earthmoving and extraction machinery and equipment increased from \$31.2 million in 1988 to \$31.9 million in 1989 as a result of favorable domestic and international economic conditions. The market is

expected to increase again to \$34.4 million in 1990 and further to \$51.4 million by 1994, as a result of the ambitious investment program for the mining industry announced in March 1990 (see Section 6).

The total market for mineral preparation and processing equipment, including sorting, screening, separating, washing, crushing, grinding, mixing and kneading machinery, increased from \$28.7 million in 1988 to \$42.2 million in 1989, after having decreased 13% in 1988 as compared to 1987. This was mostly due to fluctuations in imports of crushing and grinding equipment. This market segment is expected to increase 10% annually and reach \$65.5 million by 1994.

Materials handling and transportation equipment used in the mining industry represented total sales of \$30.8 million in 1989, down from \$40.4 million in 1988. This was mostly due to a temporary surge in imports of dump trucks as their importation was liberalized in 1988, followed by a reduction to more stable levels in 1989. By 1994, this segment is expected to amount to \$48 million after increasing at an annual average rate of 9%.

TABLE 1
THE MEXICAN MARKET FOR MINING MACHINERY
(\$000 U.D. dollars)

	1987	1988	1989	1994p
1. MINING, EXCAVATING, EARTHMOVING AND EXTRACTION MACHINERY AND EQUIPMENT				
Production	9,168	11,647	13,477	18,201
+ Imports	22,410	26,414	25,836	44,191
- Exports	3,819	6,849	8,229	11,042
TOTAL	27,759	31,212	31,084	51,350
2. MINERAL PREPARATION AND PROCESSING EQUIPMENT				
Production	6,289	6,445	6,863	8,759
+ Imports	28,764	24,417	38,375	61,268
- Exports	2,093	2,132	3,026	4,544
TOTAL	32,960	28,730	42,212	65,483

	1987	1988	1989	1994p
3. MATERIALS HANDLING EQUIPMENT				
Production	7,694	8,516	9,512	13,976
+ Imports	24,154	32,622	21,562	34,726
- Exports	479	760	277	688
TOTAL	31,369	40,378	30,797	48,014

GRAND TOTAL

Production	23,151	26,608	29,852	40,936
+ Imports	75,328	83,453	86,573	140,185
- Exports	6,390	9,740	11,532	16,274
TOTAL	92,089	100,321	104,093	164,847

There are about 17 manufacturers of mining machinery and equipment in Mexico, which supply approximately 16% of drilling and extraction equipment, nine percent of mineral preparation and processing machinery and close to 30% of materials handling and transportation equipment, amounting to a total of \$29.9 million in 1989, of which \$11.5 million were exported.

Imports have traditionally played a very important role in this industry, representing approximately 82.5% of total apparent consumption. Total imports of mining machinery and equipment were \$85.8 million in 1989, having increased 3% over the previous year's levels and 11% in 1988. Mining, excavating, earthmoving and extraction machinery and equipment imports represented \$26.6 million, mineral preparation and processing equipment and accessories \$38.4 million, and materials handling equipment \$21.6 million. The near and medium-term outlook for imports is very good, since domestic production is almost non-existent and limited to light and technologically less sophisticated equipment and parts. Total imports of the above three categories are expected to increase at an average annual rate of 10% during the 1989-1994 period and reach \$140 million in 1994.

TABLE 2
MEXICAN IMPORTS OF MINING EQUIPMENT
(\$000 U.S. dollars)

	1987	1988	1989
Pile extractors	202	354	135
Coal or rock cutters	2,570	1,154	1,231
Rotary/impact drilling eqmt.	1,448	2,159	641
Boring or sinking machinery	3,228	4,495	7,335
Other drilling eqmt.	704	1,942	1,299
Parts	14,258	16,310	15,195
Total drilling & excavating	22,410	26,414	25,836
Sorting, screening, separating & washing eqmt.	4,021	2,845	3,641
Crushing & grinding eqmt.	6,638	3,906	19,697
Furnaces	2,872	5,327	2,852
Parts	15,233	12,339	12,185
Total mineral processing & preparation eqmt.	28,764	24,417	38,375
Materials handling eqmt.	4,161	6,144	12,638
Ore loaders & dump trucks	19,993	26,478	8,924
TOTAL	75,328	83,453	85,773

Source: Import data by SECOFI

The U.S. is the most important supplier of mining and materials handling machinery to Mexico, enjoying a global import market share of 60.3% in 1989. U.S. exports of mining, excavating, earthmoving and extraction machinery represented 76.6% of imports. In the mineral preparation and processing area, the U.S. had a 50% share of imports and in materials handling, conveying and transportation equipment it was 61%.

Principal third country suppliers of mining machinery to Mexico were West Germany (13%), France (8%), Canada (4%), Italy (2%), Switzerland (1%) and Japan (1%). West Germany's position is particularly strong in the area of mineral preparation and processing equipment, where it holds a market share of 20%, followed by France (9%). Canada supplies 11% of mining, extraction and excavation machinery, followed by France (6%). In materials handling equipment, West Germany is the strongest competitor after the U.S., with a 9% share, and France (8%).

TABLE 3
CANADIAN TRADE WITH MEXICO OF MINING EQUIPMENT
 (Cdn\$000)

	1988 IMPORTS FROM MEX	1988 EXPORTS TO MEX	1989 IMPORTS FROM MEX	1989 EXPORTS TO MEX
Coal or rock cutters				265
Boring or sinking eqmt.		1,293		798
Parts of boring mach.	15	257		349
Other parts	72	393	142	787
Mineral preparation eqmt.				700
Parts of mineral prep.	423	100	711	106
Conveyors		27		301
Dump trucks		411		348
TOTAL	510	2,481	853	3,654

Source: Statistics Canada - International Trade Division.

Canadian exports to Mexico have increased 47%, from Cdn\$2.5 million in 1988 to Cdn\$3.7 million in 1989, in particular those of coal or rock cutters, mineral preparation equipment, parts and conveyors. As can be seen from the preceding table, Mexico's exports to Canada are minimal and restricted to parts.

4. END USERS

Mexico's 1917 Constitution declares subsoil wealth to be the property of the nation, and government policies since then have consistently promoted increased Mexican participation in mining activities. Today, some minerals are reserved exclusively for government exploitation, such as petroleum and uranium. Majority state participation is concentrated in strategic industrial minerals, such as gold, silver, cadmium, copper, steel, manganese, lead, zinc, sulphur, coal and feldspar. The larger private mining corporations concentrate in mining of precious metals or those with high industrial value, such as those mentioned above, antimony, arsenic, bismuth, graphite, silica, selenium, dolomite, fluorite and gypsum. Small and medium private mining companies mine several minerals, such as antimony, tin, mercury, molybdenum, tungsten, barite, kaolin, dolomite, graphite, fluorite, gypsum and those produced by state companies. Most mining ventures require at least a 51% ownership by Mexican nationals, while in the case of national reserve minerals, most of which are for the iron and steel industry, a minimum national ownership of 64% is required. Over ninety percent of the mines in Mexico are Mexican owned or controlled, the rest are under foreign majority control. New legislation is currently being

prepared which is expected to liberalize the ownership rules significantly in order to stimulate investment.

Between 1976 and 1979 state majority owned companies controlled approximately 30% of total mining production. In 1986 it reached 49% and has been diminishing as a result of major sales of government owned firms. According to official plans, most of the companies owned by the government which are mining "non-critical" minerals will be either closed, merged or sold. From controlling 38 minerals, which were considered strategic in 1982, the government will retain control of only five: iron, coal, sulphur, phosphorous and potassium. The federal government will only retain five mining companies: Minera Carbonífera Río Escondido (coal), Azufrera Panamericana (sulphur), Cía. Exploradora del Istmo (sulphur), Roca Fosfórica (phosphate rock) and Cía. Exportadora de Sal (salt). The government's stated reason for selling most of the parastatal mining companies is its budget deficit, the critical economic situation of the mining sector, particularly between 1983 and 1986, the reduction in world prices of most minerals and the substitution of minerals by other materials, which are expected to create a surplus supply, and its desire to avoid financial drain, since in some cases losses had been heavy.

During 1987 and 1988, ten state companies were closed: Cía. Metalúrgica de Atotonilco el Chico, Cía. Minera la Unión, Minera Santa Rosalía, Comercial Carbonera, Fosforitas Mexicanas, Minera Corzo, Sales y Alcalis, Sales de Tancamichapa, Sociedad de Desarrollo Minero e Industrial and Sociedad de Desarrollo y Explotación Minero Mexicana. Azufres Nacionales Mexicanos was merged with Azufrera Limonta and Minerales Mexicanos Mayaqui. Finally, some companies were transferred to state ownership: Impulsora Minera e Industrial de Baja California, Mármoles del Valle del Mezquital and Minerales no Metálicos de Guerrero. Other companies have were put up for sale between 1987 and 1988 were: Cía. Real del Monte y Pachuca, La Noria Real de los Angeles, Macocozac and El Barqueño. Mexicana de Cobre and Mexicana de Acido Sulfúrico were sold to Fomento Industrial del Norte de México (a subsidiary of Grupo Industrial Minera México) and the union of mining workers in 1988. Grupo Frisco bought Minera Lampazos, Minera Real de Angeles and Química Fluor in 1988. Cía. Minera de Cananea was finally auctioned in August 1990 to Mr. Jorge Larrea of Mexicana de Cobre.

The Mexican mining industry consists of 6,133 mining enterprises within the Republic, of which 144 are rated as large and account for 82% of Mexico's mining exports. The remaining 5,989 are classified as small and medium sized and are primarily dedicated to supplying national demand. Total employment in the industry was of 242,000 workers. By far the four largest industrial groups in the mining industry, which together have assets of over \$4.5 billion, are Peñoles (Cía. Minera Cedros, Fluorita Río Verde, Minera Las Torres, Minera la Negra, Campana de Plata, Cía. Fresnillo, Zimapán, Metales Peñoles, Metmex Peñoles, Refractarios

Mexicanos, Refractorios Green, Dolorey, Química Magna, Minera Capela, Peñoles do Brasil, Peñoles Metals and Chemical, Química del Rey, La Encantada and Minera Santa Lucía); Grupo Industrial Minera México (Mexicana de Cobre, Mexicana de Acido Sulfúrico, Minerales Metálicos del Norte, Carbonífera de México, Zinc de México, Minera Normex, Reactivos Mexicanos, Aerominerales, Minera Picachos, Minera San Isidro, Minera Selene, Industrial Minera México and Minera Pilares); Corporación Industrial San Luis (Industrias Luismin, Minas San Luis, La Domincia and a participation in Minera Autlán); and Empresas Frisco (Minera Lampazos, Minera Real de los Angeles, Química Flúor, Cobre de Sonora, Minera Cumobabi, Molydex, San Francisco del Oro, Aerofrisco, Minera Promet and Cerro de Plata). The most important mining companies in Mexico, listed among the country's 500 largest corporations are: Industrias Peñoles (gold, silver, zinc, lead, copper, fluorite, barite, sodium sulphate), Industrial Minera México (silver, lead, zinc, copper, fluorite), Minera Carbonífera Río Escondido (coal), Exportadora de Sal (salt), Cía. Fresnillo (lead, zinc, copper), Minerales Metálicos del Norte (zinc, lead, copper), Minas de San Luis, Cía. Minera las Torres, Cía. Minera las Cuevas, Negociación Minera Santa Lucía (lead), Dialmecon, Zinc de México (zinc, lead), Minera Capela (zinc), Zimapán (zinc, lead), Cía. Minera Cedros (lead), Cía. Minera la Negra y Anexas, Fluorita de México (fluorite), Carbonífera de San Patricio (coal), Campana de Plata (silver), Minera Mexicana Peñoles, Minas de San Pedro y Anexas (zinc), Empresas Frisco (silver, lead, zinc, copper, molybdenum), Cía. Minera MSL (gold, silver, fluorite), Cía. Minera Autlán (manganese, ferro-alloys), Mexicana de Cobre (copper), Minera Real de Angeles (silver, lead, zinc, cadmium) and La Domincia (fluorite).

Investments in mining fell in real terms 1.7% annually during the 1983-1988 period. Investment in new projects fell 58% during that period, investment in industrialization fell by 98% and the overall decline is calculated at 65%. Many small and medium sized concerns disappeared as a result of this situation, while large mining concerns increased their participation from 49% to 60%. After 1988, investments in the industry have increased again and major new projects are underway. Investments in the mining industry reported by a representative group of companies in 1989 were Mexican pesos \$455.4 billion, equivalent Cdn\$250 million, reflecting a 16.4% increase in peso terms and 8% in dollar terms. Investments were assigned to increasing capacity and efficiency of existing operations (54%), to new projects (20%), to exploration (17%), to metal industrialization (2%), and to other areas (7%).

The most important agencies related to mining in Mexico are: The Ministry of Energy, Mines and Parastate Industry (Secretaría de Minas e Industria Paraestatal - SEMIP) which is responsible for mining in general. It sets policy, regulates agencies that oversee mineral development and exploration and establishes mining law and taxes along with other ministries. The Commission

for Mining Development (Comisión de Fomento Minero - CFM) is a federal government agency which acquires direct interests in mining concerns and provides technical assistance and financing to small and medium sized mining companies. The Mineral Resources Council (Consejo de Recursos Minerales - CRM) is charged with exploring and establishing an inventory of Mexico's mineral resources. Chambers and associations in the mining industry are the Mexican Mining Chamber, which acts as communication and consulting channel with the federal government, and the Mexican Copper Association.

5. THE MEXICAN MINING INDUSTRY

The mining industry is very important to the Mexican economy. It is a major earner of foreign exchange, a source of raw materials for the domestic industry and an important source of employment, particularly in rural areas. Mining, excluding petroleum and gas, accounts for 1.6% of Mexico's total GDP and \$1.7 billion in exports of silver, copper, manganese, sulphur, zinc and salt, among the most significant in 1989. The Mexican Government has supported this industry through production incentives based on reduced taxes, increased financing and increased flexibility regarding mineral reserves, which permits private exploitation of mineral reserves. In 1986 mining taxes were reduced between 80% and 20% according to the size of the mining company; dividends and distributed profits in this industry are tax deductible; beginning in 1987, pre-operational investments and expenses are immediately deducted for depreciation purposes; fiscal incentives are granted to mining companies. All of the above measures are contributing to promote investment in the mining industry. SEMIP is also preparing new legislation to further enhance growth in this sector.

The production of the Mexican mining industry grew 22% between 1983 and 1988 in terms of volume and 15% in terms of real value. After experiencing a 5.2% decline in 1986, it grew again 6.2% as a whole in 1987, mostly as a result of increased exports. Petroleum extraction led the recovery, but silver and copper prices boosted non-petroleum mining output sharply. Mining production further increased 4.1% in 1988 and 0.2% in 1989. The mining industry has undergone a critical situation in the past few years, mostly as a result of low international prices of traditional metals and minerals. Mexican producers have been forced to implement ambitious programs to increase productivity, improve recovery in their plants and up-grade their final products, mostly through improved technology rather than through additional labor. This effort will translate into new opportunities for foreign suppliers of mining machinery and equipment.

The production of the 28 basic minerals mined in Mexico reached 28.2 million metric tons in 1989, reflecting a 0.2% global

increase over 1988. The non-metallic minerals group registered the only increase of 2.1%. Non-ferrous metals decreased by 0.8%, ferrous metals by 2% and precious metals by 3.4%. At the product level, the only ones experiencing growth in 1989 were zinc, arsenic, selenium, coal, dolomite, fluorite, kaolin, silica and gypsum. Of the ten principal products accounting for 94% of total production, only two grew (zinc and fluorite) while eight declined: gold, silver, lead, copper, iron, sulphur, salt and coke. The production volume of parastate companies represents 4% of precious metals production, 9% of non-ferrous metals, 58% of iron and steel related minerals and 78% of non metal minerals. During the first trimester of 1990, production has continued increasing, reflecting a 2.1% growth as compared to March 1989.

TABLE 4
MEXICAN PRODUCTION OF BASIC MINERALS-VOLUME
(metric tons)

	1986	1987	1988	1989	88-89 % CHANGE
1. PRECIOUS METALS (1)					
Gold (kilograms)	7,795	7,980	9,098	8,613	- 5.3
Silver (tons)	2,303	2,415	2,359	2,306	- 2.2
2. NON-FERROUS INDUSTRIAL METALS (1)					
Lead	182,682	177,172	171,337	163,017	- 4.9
Copper	174,558	230,573	268,359	249,328	- 7.1
Zinc	271,351	270,054	262,228	284,058	8.3
Antimony	3,337	2,839	2,185	1,906	-12.8
Arsenic	5,315	5,304	5,164	5,551	7.5
Bismuth	749	1,012	958	883	- 7.8
Tin	585	372	274	159	-42.0
Cadmium	1,183	1,249	1,726	1,439	-16.6
Selenium	23	29	13	20	53.8
Tungsten	294	213	206	170	-17.5
Molybdenum	3,350	4,400	4,456	4,189	- 6.0
TOTAL	643,417	693,217	716,906	710,720	- 0.8
3. IRON AND STEEL INDUSTRY RELATED METALS AND MINERALS (000 tons)					
Coal (2)	3,678	4,242	4,211	4,244	0.8
Coke (2)	2,050	2,322	2,332	2,260	- 3.1
Iron (1)	4,817	4,965	5,564	5,373	- 3.4
Manganese (1)	174	146	169	150	-11.1
TOTAL	10,719	11,676	12,276	12,027	- 2.0

	1986	1987	1988	1989	88-89 % CHANGE
4. NON-METALLIC MINERALS (000 tons) (2)					
Sulfur	2,051	2,304	2,138	2,086	- 2.4
Graphite	38	36	44	40	- 8.2
Barite	321	404	535	325	-39.3
Dolomite	376	363	341	470	37.8
Fluorite	757	723	756	779	3.1
Kaolin	10	15	12	16	34.9
Silica (3)	894	978	1,081	1,216	12.5
Gypsum	2,625	2,457	2,649	2,899	9.4
Phosphorite	660	633	557	625	- 6.2
Salt			6,965	6,942	- 0.3
Celestite			39	38	- 2.5
TOTAL (4)	7,732	7,912	15,117	15,436	2.1
GRAND TOTAL (4)	19,097	20,284	28,113	28,177	0.2

(1) metal contents

(2) mineral volume

(3) includes glass sand, quartz, siliceous materials and feldspar

(4) 1986 and 1987 do not include salt and celestite

Source: Cámara Minera de México - 1990 annual report

The production value of the 28 basic mineral commodities increased 14.4% in 1989 in nominal terms, to reach Mex\$6,148 billion pesos or \$2.4 billion. In real terms, however, income decreased 3% due to both price and volume decreases. In real terms, the precious metals group (gold and silver), which represents 26% of total production value, decreased 2.9% as a result of volume and price decreases of both metals. The non-ferrous industrial metals group, which represents 56% of total production, decreased by 3% led by reductions in tin, tungstene and cadmium. The iron and steel related metals and minerals group decreased 3.7%. Production of the non-metallic minerals group, which accounts for 16% of the total, decreased 2.6% in value.

TABLE 5
MEXICAN PRODUCTION OF BASIC MINERALS
VALUE OF PRODUCTION (1)
(million dollars)

	1986	1987	1988	1989
1. PRECIOUS METALS				
Gold	95.9	118.9	123.9	103.6
Silver	405.9	555.7	478.9	401.2
TOTAL	501.8	674.6	602.8	504.8

	1986	1987	1988	1989
2. NON-FERROUS INDUSTRIAL METALS				
Lead	70.3	112.1	124.5	126.1
Copper	213.2	334.0	622.3	693.3
Zinc	185.5	218.3	290.2	483.4
Antimony	8.4	6.9	5.3	4.2
Arsenic	4.3	4.5	4.5	4.3
Bismuth	4.5	6.0	10.1	10.8
Tin	4.6	3.1	2.4	1.8
Cadmium	2.3	3.5	21.8	19.7
Selenium	0.2	0.3	0.3	0.3
Tungsten	1.3	0.9	1.2	0.9
Molybdenum	18.9	23.3	24.7	25.1
TOTAL	513.5	712.9	1,107.3	1,369.9

3. METALS AND MINERALS RELATED TO THE IRON AND STEEL INDUSTRY

Coal	1.0	0.5	27.1	25.5
Coke	1.9	1.0	53.0	47.9
Iron	88.6	68.6	67.7	87.3
Manganese	20.6	17.0	23.1	26.6
TOTAL	112.1	87.1	170.9	187.3

4. NON-METALLIC MINERALS

Sulfur	243.5	259.8	243.1	215.4
Graphite	3.6	3.6	4.5	4.1
Barite	11.0	13.7	18.4	11.2
Dolomite	0	0.1	0.7	0.9
Fluorite	56.3	57.0	62.1	64.7
Silica	0.2	0.4	2.3	2.4
Gypsum	0.2	0.5	3.4	3.5
Phosphorite	0.6	0.4	1.4	1.3
Salt			89.7	93.1
Celestite			0.8	0.1
TOTAL	315.4	335.5	426.4	396.7

GRAND TOTAL **1,442.8** **1,810.1** **2,307.4** **2,458.7**

(1) Notes applicable as in previous table

Source: Cámara Minera de México - 1990 annual report

Mexico has traditionally been a major exporter of minerals. Initially, precious metals were the largest export category. With the evolution of industry, industrial metals were in highest demand. In the last few decades, exports of non metal minerals have grown significantly, bringing about a significant change in Mexico's mineral export structure. The value of mineral exports from Mexico was \$1.7 billion in 1989, registering a 14.4% increase compared to 1988 and 86% compared to 1985. This

represents 7.4% of total exports, 12.9% of manufacturing exports and 11% of non-oil exports.

6. RECENT DEVELOPMENTS IN THE MINING INDUSTRY

Within the general economic modernization program undertaken by president Salinas de Gortari, the mining industry is gradually being privatized and deregulated. During 1989 and 1990, several substantial changes have been made affecting the mining industry. All companies were exempted of the payment of mining rights on the extraction of gold and silver during the last semester of 1989. This translated into a 20% to 60% reduction in the fiscal charges of mining companies in the sector. At the same time, in December 1989 the mining rights tariffs were reduced 25% to a general rate of 3.8%, and special rates of 4.2% on gold and silver, 5.3% on sulphur and 1.5% on iron, coal and manganese. Small and medium sized companies were granted an even greater reduction (3%, 3.7%, 4.2% and 1.2% respectively for medium sized companies and 1.8%, 2.7%, and 0.5% for small companies). This tax on production is expected to be totally eliminated in 1993, thereby setting the basis for increased profits, competitiveness and growth in the industry. At the same time, new promotion and financing programs have been established and mining reserves are being liberalized, thereby allowing private mining companies to explore new areas.

The National Program for the Modernization of the Mining Industry for 1990-1994 announced in June 1990 set a goal to increase production by 2.2%-2.6% during 1990-1991, and by 4.5%-5% during 1992-1994, is based on a strategy of intensified exploration and exploitation programs by both the private and public sectors; a reduction in regulatory measures regarding the granting of concessions and assignments of mining reserves; and the exploitation of areas presently unexploited; at the same time reducing taxes. Its target is to consolidate existing markets and open new ones internationally; promote increased foreign investments in mining; create employment; and favor small and medium sized miners.

The measures proposed are to reclassify 500,000 hectares from the existing five million in federal mining reserve lands in order to open up new opportunities for fresh mining investments; publishing a new regulatory system through the Regulations to the Mining Law in order to eliminate redundant formalities and obsolete practices, simplify administrative matters and to incorporate technological change (the Regulations were published in September 1990); decentralizing existing support agencies; creating the Trusteeship for Mining Promotion to help finance and service small and medium sized companies; reducing taxes on extraction until their total elimination in 1993. At the same time, the rights payable for mining concessions (in order to foster their exploitation and reduce speculation) will be

increased to Mex\$5,000 per hectare explored and Mex\$22,000 per hectare on the exploitation of non-metal minerals and Mex\$30,000 per hectare on the exploitation of metal minerals. The Ministry of Energy and State Industries (SEMIP) announced that in 1990 it would make credits available totalling \$178.3 million dollars to small and medium sized enterprises. This represents \$119.5 million (203%) more than those made available in 1989.

In response to these changes in official policy, the private mining sector, through the Mexican Mining Chamber, announced on February 19, 1990 that it would undertake investments in the amount of \$2,103 million dollars between 1990 and 1994, which is more than twice the amount invested during the 1985-1989 period. This amount is to be geared towards new exploration projects and the purchase of installations and equipment to exploit and process minerals as follows:

TABLE 6
1990-1994 INVESTMENT PROGRAM
(million U.S. dollars)

ITEM	1990	1991	1992	1993	1994	TOTAL
Exploration	42.1	39.0	39.1	37.5	39.7	197.3
New Projects	157.6	159.0	150.2	173.6	217.4	857.9
Capacity and efficiency increase	190.6	165.4	148.4	117.1	97.2	718.7
Industrialization of metals	1.4	2.7	14.1	12.0	0.2	30.5
Other	24.0	28.1	28.1	21.9	18.8	120.8
Sidermex raw materials	44.6	52.9	50.5	18.3	12.0	178.4
TOTAL	460.3	447.1	430.4	380.4	385.3	2,103.5

Source: Minería Camimex - VOL. VII, NO.1, January-March 1990

The most significant investment projects of the public sector in accordance with the 1990 federal expense budget are: the Carbón II coal plant for the thermoelectric plant II of the Federal Electricity Commission (Comisión Federal de Electricidad - CFE) to be finished by 1992; the expansion of the Coahuila plant in Veracruz during 1990 and 1991; and the rehabilitation of government owned mining units between 1989 and 1994.

7. MARKET ACCESS

Sales in Mexico are usually made through local agents and distributors, normally operating on a commission basis. Decisions should be taken on whether to use an agent, joint venturing or licensing with a Mexican company. Mexico's market is

highly competitive and companies which maintain an active presence in the market and establish a good track record by virtue of product performance, competitive price and service will do well.

All suppliers of equipment or services, whether local or foreign, to a Mexican Government entity must be registered with the Secretariat of Programming and Budget (SPP) and with the Purchasing Department of the agency itself. All purchases over a specified minimum are subject to bidding.

As a result of Mexico's accession to GATT, the Mexican Government has gradually opened the economy to international suppliers. Import duties have been lowered from a maximum 100% to 20%. The official import price system has been totally eliminated and import permits are required on only 325 of the total 11,950 items in the Mexican Tariff Act, none of which correspond to this industry. Mexico adopted the Harmonized System of Tariff Nomenclature on July 1, 1988.

The import conditions for mining machinery and equipment have improved significantly as a result of this commercial liberalization. Imports are subject to a 0% to 20% ad valorem duty assessed on the F.O.B. invoice value. In addition, a 0.8% customs processing fee is assessed on the invoice value. A 15% value added tax is then assessed on the cumulative value of invoice plus the above taxes.

There are no official metric requirements applicable to imports into Mexico, However, since the metric system of units is, by law, the official standard of weights and measures in Mexico, importers will usually require metric labeling for packaged goods, although the English system is also used. Dual labeling is acceptable. Imported products should be labeled in Spanish containing the following information: name of the product, trade name and address of the manufacturer, net contents, serial number of equipment, date of manufacture, electrical specifications, precautionary information on dangerous products, instructions for use, handling and/or product conservation and mandatory standards. Mexico adheres to the International System of Units (SI). Electrical standards are the same as in Canada. Electric power is 60 cycles with normal voltage being 110, 220 and 400. Three phase and single phase 230 volt current is also available.

Prepared by:
Caroline Verut
for the Canadian Embassy
Mexico City
September 1990

WHEN SELLING TO THE MEXICAN GOVERNMENT AND ITS AGENCIES, IT IS
REQUIRED TO HAVE REGISTRY NUMBER AS FOREIGN SUPPLIER.
FOLLOWING IS RELATED INFORMATION.

REGISTRATION WITH SECRETARIA DE PROGRMACION Y PRESUPUESTO

(SPP)

Following is a summary of Registration Procedures for Canadian Companies wishing to sell to the Mexican Government and its decentralized agencies.

Note: Registration procedures now cannot be done by the foreign (Canadian) supplier, and must be done by the company's official local agent/representative in Mexico.

To obtain registry, the following documents should be submitted to the Registro de Proveedores Office of the Secretaría de Progrmación y Presupuesto (SPP) (Ministry of Planning and Budgeting) located at the following address:

Registro de Contratistas y
Proveedores de la Administración
Pública Federal S.P.P.
Av. San Antonio Abad No. 124 - Piso 1
Col. Tránsito
06380 México, D.F.

- a) Applications for registration of foreign supplier forms SPP in original and 3 copies, all signed separately.
- b) A copy of the company's balance sheet and profit and loss statement with data not older than two months with respect to the date of application entry into the Foreign suppliers registry, also translated into Spanish and legalized by the Mexican Consulate.
- c) Copy of power of company's legal representatives in Canada notarized, and certified by Mexican Consul (documents mentioning full name of person or persons, legally authorized to sign documents on behalf of company showing his (their) signature.
- d) Copy of agency/representative contract in Mexico notarized and then certified by Mexican Consul.
- e) Copy of a document that proves and guarantees legal existence of company in Canada.
A certificate of incorporation from a Canadian -

Chamber of Commerce or Industry Chamber. This letter must be presented in its original form and must state that interested company has been legally incorporated in accordance to the laws of the country and must include the date of incorporation. The letter cannot be more than six months old from the date it was issued. In addition it must be translated into Spanish and legalized by the Mexican Consulate.

- f) Limited power to local agent to act on behalf of foreign firm on disputes and collection matters.
 - g) A photocopy of sample past invoices for each product to be supplied duly translated and legalized by the Mexican Consulate with the date and the names of the buyer and the seller underlined and highlighted.
2. Once application forms and supporting documents are approved, registration number is issued in two to four weeks time. To claim registration number, foreign firm's representative will have to present original and copy of HD-1 form "Declaración General de Pago de Derechos" duly paid.
3. To obtain HD-1 forms.
As first step, payment of \$366,000 Mexican Pesos (as of April 1990 and rate subject to changes) should be made at any office of the Secretaría de Hacienda y Crédito Público (SHCP) in cash, or with Mex. Peso bank draft in favor of the "TESORERIA DE LA FEDERACION" payable through a Mexican bank located in Mexico City and should be accompanied by four (4) payment forms DH1. Each form should be signed separately. Forms can be obtained at any SHCP's offices.

IMPORTANT

TO AVOID REFUSAL OF APPLICATIONS

- I Copies of documents b, c, d, e, f, g, must be translated into Spanish by certified local translator if done in Mexico. However if documents b, c, d, e, f, g and respective translations are done into Spanish in Canada, these do not have to be done by certified translator, as above, but documents and translations must be duly notarized, and then certified by nearest Mexican Consul in your area.
- II Original and copies of application forms must be signed separately by company's legal representative.

III Corporate name should appear exactly the same in all documents: (i.e.: spelling, company names which have changed over the years).

Legal representative's signature should be signed separately on following documents:

- . DH-1 Payment forms
- . Registry application forms (both pages)
- . Power of legal representative of company in Canada.
- . Copy of agency/representative contract in Mexico.
- . Limited power to local agent.

While every effort has been made to provide the above information accurately, the Canadian Embassy cannot assume responsibility for errors, omissions or subsequent changes in procedure which may occur.

Information
updated April/90
Canadian Embassy
Mexico City

ASSOCIATIONS AND INDUSTRIAL CHAMBERS

**CONFEDERACION DE CAMARAS
NACIONALES DE COMERCIO
(CONCANACO)
-COMMERCE CHAMBERS
CONFEDERATION-
Balderas No. 144, 3er. Piso
Centro
06079 México, D.F.
MEXICO
☎ (5) 709-1559 Fax (5) 709-1152
Telex 1777318**

**CONFEDERACION DE CAMARAS
INDUSTRIALES (CONCAMIN)
-INDUSTRY CHAMBERS CONFEDERATION-
Manuel María Contreras No. 133, 2o. Piso
Cuauhtémoc
06597 México, D.F.
MEXICO
☎ (5) 546-9053 Fax (5) 535-6871
Telex 1773798**

**CAMARA NACIONAL DE LA INDUSTRIA
DEL HIERRO Y DEL ACERO
-IRON AND STEEL INDUSTRY-
Amores No. 338
Del Valle
03199 México, D.F.
MEXICO
☎ (5) 543-4443 Fax (5) 687-0517
Telex 1764195**

**CAMARA NACIONAL DE LA INDUSTRIA
DE LA TRANSFORMACION
(CANACINTRA)
-TRANSFORMATION INDUSTRY-
Av. San Antonio No. 256
Nápoles
03849 México, D.F.
MEXICO
☎ (5) 563-3400 Fax (5) 598-9467
Telex 1777466**

**CAMARA MINERA DE MEXICO
-MINING-
Sierra Verzientes No. 369
Lomas de Chapultepec
11000 México, D.F.
MEXICO
☎ (5) 540-6061 Fax (5) 540-6788**

**ASOC. MEXICANA DEL COBRE, A.C.
-COOPER PRODUCERS-
Av. Sonora No. 166, 1er. Piso
Hipódromo Condesa
06100 México, D.F.
MEXICO
☎ (5) 207-2254 Fax (5) 286-7723
Telex 1771673**

**ASOC. NACIONAL DE IMPORTADORES Y
EXPORTADORES DE LA REPUBLICA
MEXICANA
-IMPORTERS AND EXPORTERS-
Monterrey No. 130
Roma
06700 México, D.F.
MEXICO
☎ (5) 564-9379 Fax (5) 584-5317
Telex 1772443**

CAMARA MINERA DE MEXICO

LISTA DE LAS PRINCIPALES EMPRESAS MINERO-METALURGICAS
(PRINCIPAL MINING COMPANIES IN MEXICO)

EMPRESA	FUNCIONARIOS
(COMPANY)	(CONTACT)
ALUMINIO, S.A. DE C.V. Bosques de Ciruelos No. 130 Col. Bosques de las Lomas 11700 México, D.F. Tels.: 596-31-69 y 596-70-22 Fax: 596-56-27	ING. EVERARDO SOUSA LANDA Vicepresidente Ejecutivo
AZUFRERA PANAMERICANA, S.A. Blvd. M. Avila Camacho No. 37 Col. Polanco 11000 México, D.F. Tels.; 540-78-41 y 520-60-84 Fax: 520-35-43	LIC. JAVIER CASTILLO AYALA Director General
BARAMIN, S.A. DE C.V. Emilio Carranza Sur 732 Desps. 602 y 603 64000 Monterrey, N.L. Tels.: 91(83)45-51-18 y 45-52-38 Fax: 91(83)43-55-13	ING. LUIS A. JAUREGUI Director General
BARITA DE SONORA, S.A. DE C.V. Emerson No. 304 10° piso Col. Chapultepec Morales 11570 México, D.F. Tels.: 254-39-12 y 545-94-87 Fax: 531-92-75	ING. MARIO EULALIO GUTIERREZ.- Presidente
BENTONITA DE MEXICO, S.A. Paseo de la Reforma No. 51 5° piso Col. Revolución 06030 México, D.F. Tel.: 546-38-86 Fax: 566-77-80	ING. VICENTE CISNEROS Director General
CARBONIFERA DE SAN PATRICIO, S.A. DE C.V. 5 de Mayo Nte. 120 26700 Sabinas, Coah. Tels.: 91(861)207-34 y 206-38 Fax: 207-34	SR. TOMAS MILMO ZAMBRANO
CIA. DE REAL DEL MONTE Y PACHUCA, S.A. Venustiano Carranza No. 106 Col. Centro 42000 Pachuca, Hgo. Tels.: 269-10 u 11 y 252-62 Fax: 253-63	LIC. ALONSO ANCIRA E. Vicepresidente del Consejo de Admón.

CIA. EXPLORADORA DEL ISTMO, S.A.
Blvd. M. Avila Camacho No. 37
Col. Polanco
11000 México, D.F.
Tel.: 540-78-41 y 520-60-84
Fax: 520-35-43

LIC. JAVIER CASTILLO AYALA
Director General

CIA. MRA. AUTLAN, S.A. DE C.V.
Mariano Escobedo No. 510 5° piso
Col. Anzures
11590 México, D.F.
Tels.: 250-19-77 y 545-85-96
Fax: 531-39-00

LIC. ALFREDO LELO DE
LARREA.-
Director General

CIA. MRA. DE CANANEA, S.A.
Av. Insurgentes Sur No. 1377 12° piso
Col. Insurgentes Mixcoac
03920 México, D.F.
Tels.: 598-14-00 y 563-50-33
Fax: 563-05-73

ING. RAFAEL VILLAGOMEZ
Director General

CIA. MRA. DEL CUBO, S.A. DE C.V.
Apartado Postal No. 49
36000 Guanajuato, Gto.
Tel.: 91(473) 210-76
Fax: 91(473)263-01

LIC. ALONSO ANCIRA E.
Director General

CIA. MRA. EL BAZTAN, S.A. DE C.V.
Sofocles No. 112
Col. Polanco
11560 México, D.F.
Tels.: 531-29-91 y 255-56-22
Fax: 254-73-20

ING. JORGE A. CANO
Director General

CIA. MRA. LAS CUEVAS, S.A.
Ejercito Nacional No. 373
Col. Granada
11520 México, D.F.
Tel: 250-59-88
Fax: 250-90-81

ING. ERNESTO AHNERT
Director General

CIA. MRA. SABINAS, S.A. DE C.V.
Av. Morelos Pte. No. 1320-802
27000 Torreón, Coah.
Tels.: 91(17)12-88-99 y 12-39-44
91(493)503-37 minas Zac.
Fax: 91(493)503-37

ING. JOSE ANTONIO ITURRIAGA
Director General

CIA. OCCIDENTAL MEXICANA, S.A. DE C.V.
Newton No. 186-701
Col. Chapultepec Morales
11570 México, D.F.
Tels: 254-22-44 y 254-24-45
Fax: 254-64-28

CONSORCIO MRO. BENITO JUAREZ PEÑA
COLORADA, S.A.
Río Pánuco No. 38 1er piso
Col. Cuauhtémoc
06500 México, D.F.
Tels: 535-20-93 y 535-60-52
Fax: 535-80-28

CORPORACION ALFIL
Calero No. 76
Col. San Angelín
01060 México, D.F.
Tels: 550-97-93 y 550-87-50
Fax: 660-33-82

EXPORTADORA DE SAL, S.A. DE C.V.
Paseo de la Reforma No. 287-8º piso
Col. Cuauhtémoc
06500 México, D.F.
Tels: 208-30-22 y 208-31-56
Fax:

FLUORITA DE MEXICO, S.A.
Av. Parque No. 245
26340 Melchor Múzquiz, Coah.
Tels: 91(861) 611-11 y 614-12 y 13
Fax: 91(861) 611-12

INDUSTRIAL MINERA MEXICO, S.A. DE C.V.
Av. Baja California No. 200
Col. Roma Sur
06760 México, D.F.
Tels: 564-70-66 y 574-86-03
Fax: 564-37-78

INDUSTRIAS PEÑOLES, S.A. DE C.V.
Río de la Plata No. 48
Col. Cuauhtémoc
06500 México, D.F.
Tels: 286-81-33 y 286-35-55
Fax: 286-71-47

LA DOMINCIA, S.A. DE C.V.
Homero 206 15º piso
Col. Polanco
México, D.F.
Tel: 250-80-00
Fax: 250-38-45

LAS ENCINAS, S.A.
Munich y Guerrero
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 Director General

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 Planta Mezanine
 64000 Monterrey, N.L.

ING. HUGO GARCIA DE ANDA
 Director General

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 26340 Villa Las Esperanzas, Coah.

Ing. Miguel A. Ayala C.

Carbón y Cok, S.A.
 Carretera Palau El Sauz Km. 23
 26340 Villa Las Esperanzas, Coah.

Carbón y Minerales, Coah., S.A.
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 25770 Monclova, Coah.

Ing. Eugenio Lavis

Cía. Mra. de Guadalupe, S.A.
 Prolong. Calle Juárez S.N.int. pta. (AHMSA)
 25770 Monclova, Coah.

Ing. Eugenio Lavis

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Blvd. Independencia 2443 Oriente 16-1848
27100 Torreón, Coah.
Apdo. Postal 753
27000 Torreón, Coah.
Ing. J. Ricardo Moreno T., General Manager; C.P. José A. Vázquez Chávez, Administrative Manager; C.P. Antonio López Picazos, Finance Manager; Enrique Iribien Méndez, Sales Manager; L.A.E. Eduardo Romo M., Purchasing Manager; J. Alfonso Rivera, Technical Manager.
Manufacture, sales and repair of underground mining equipment.
Established 1975 • Personnel 43 • Telex 32521

EQUIPOS MECANICOS, S.A. 527-2060
Marina Nacional 60
Col. Anáhuac
Del. M. Hidalgo
11320 México, D.F.
Guillermo Gutiérrez Saldivar, General Director; Lic. Miguel Robledo Landero, Administrative Director.
Distributors of construction equipment, tractors, cranes, material handling equipment, industrial machinery, drilling equipment, scaffolding.
Established 1941 • Personnel 130 • Telex 1772594

EQUIPOS DE MANEJO Y PROCESO, S.A. DE C.V. 760-6111
H. Congreso de la Unión 5625
Col. Bordoño
Del. G.A. Madero
07850 México, D.F.
Ing. Patricio J. Aguilar, Director; Ricardo Sobrino, Export Manager; Manuel Panero Martín, Sales Manager.
Sales and service of industrial equipment.
Established 1984 • Personnel 45 • Telex 1762313

EQUIPOS DE PROCESO, S.A. 531-3275
Ejército Nacional 752
Col. Polanco
Del. M. Hidalgo
11550 México, D.F.
Octavio Carreto, General Director; Julio Senderos, Sales Manager; Arturo O. de Ora, Purchasing Manager.
Evaporators, crystallizers, grinding ball mills, hammer mill pulverizers, rotary dryers, fluid bed dryers, dust bag collectors, scrubbers, distillation towers, tower trays and internals, compressed air dryers, inert gas generators, nitrogen generators, reactors, ribbon mixers, heat exchangers.
Established 1959 • Personnel 410 • Telex 1772501

F.L. SMIDTH Y COMPAÑIA, S.A. DE C.V. 540-0706
Campos Eliseos 385, Torre B, 5o. Piso
Col. Polanco Chapultepec
Del. M. Hidalgo
11560 México, D.F.
Ing. Peter G. Westring, General Manager; Svend Christoffersen, Purchasing Manager.
Manufacturers of cement industry machinery, mining equipment.
Established 1963 • Personnel 35 • Telex 1771202

FAGERSTA SECOROC DE MEXICO, S.A. DE C.V. 576-4766
Plásticos 22
Apdo. Postal 235
Col. San Francisco Cuautlalpan
53560 Naucalpan, Méx.
Malcolm Herlenios, Director; Oscar Martínez, General Manager; Ramón Iglesias, Sales Manager.
Mining equipment.
Established 1953 • Personnel 87 • Telex 1776328

HARNISCHFEGER INTERNATIONAL CORPORATION 525-6331
Hamburgo 108-5
Col. Juárez
Del. Cuauhtémoc
06600 México, D.F.
Mario del Rincón, General Manager.
Mobile construction cranes, electric and hydraulic mining shovels, overhead cranes and hoists.
Established 1884 • Telex 1774533

HERCULES, S.A. DE C.V. 582-1700
Antiguo Camino a Culhuacán 239
Apdo. Postal 422
Col. Santa Isabel
Del. Iztapalapa
09820 México, D.F.
C.P. Noé García Mendoza, General Director; Ing. Ignacio Rubio, Sales Manager; Guadalupe Castillo, Purchasing Manager; C.P. Efraín Avila M., Administrative Manager.
Manufacturers of cranes, electronic hoists, material handling equipment.
Established 1959 • Personnel 178 • Telex 1771968

HERRAMIENTAS DE CORTE, S.A. DE C.V. 5-5646
Calle 18-E, Esq. 16-N
Ciudad Industrial
20000 Aguascalientes, Aga.
Apdo. Postal 1190
20290 Aguascalientes, Aga.
Ing. Carlos González de Cossío, General Manager; Ing. Herón Rodríguez Giacinti, Sales Manager; C.P. José A. Bautista Sánchez, Administrative Manager.
Manufacturers of cutting tools.
Established 1959 • Personnel 250 • Telex 125636

HERRAMIENTAS EXCLUSIVAS Y MAQUINARIA, S.A. DE C.V. 547-0448
Mariano Azuela 194
Col. Santa María la Ribera
Del. Cuauhtémoc
06400 México, D.F.
Lic. Graciela Nuño Fernández, General Manager.
Tools and machinery.
Established 1979 • Telex 17622151

HERRAMIENTAS THOR DE MEXICO, S.A. DE C.V. 72-6512
Tapla 836 Oriente
64000 Monterrey, N.L.
James E. McGuire, General Manager; José J. Sánchez González, Administrative Manager.
Pneumatic tools for industry, construction and mining, general lubrication equipment.
Established 1952

HERRAMIENTAS Y TRICONOS, S.A. DE C.V. 254-0524
Av. Ejército Nacional 505, 14o. Piso 545-5909
Col. Granada
Del. M. Hidalgo
11520 México, D.F.
Teófilo M. Ramírez, General Director; Maximino Gavito, Finance and Administrative Director; Fernando Calatayud, Sales Director; Eduardo Talavera, Purchasing Manager; Gilberto Bonilla, Industrial Relations Manager.
Manufacturers of oil well drill bits, rock drilling bits, drilling pipe handling equipment.
Established 1981 • Personnel 187 • Telex 1763035

Col. Granjas Modernas
Del. G. A. Madero
07460 México, D.F.

Lic. Miguel Cerezo Rodríguez, General Manager; Lic. José S. Gómez, Administrative Manager; Angel Urdin V., Sales Manager.
Cutting, precision, measuring, hand and electric tools.
Established 1965 • Personnel 36 • Telex 1762371

INDUSTRIAS INGERSOLL-RAND, S.A. DE C.V. 565-3300
Dr. Gustavo Baz 401

Fracc. Industrial Tlaxcolpan
54030 Tlalnepantla, Méx.

Guillermo Pérez Maldonado, General Director; Ing. Manlio Valdés Espinosa, Sales Manager.

Mining equipment, air compressors, pneumatic tools and paper industry machinery.

Established 1935 • Telex 1772502

MSA DE MEXICO, S.A. DE C.V. 576-4066

Francisco I. Madero 84 576-6444

Fracc. San Andrés Atoto

53510 Naucalpan, Méx.

Apdo. Postal 168

53500 Naucalpan, Méx.

John E. Hogan, General Manager; Martha L. de Galindo, Assistant to the General Manager; Ing. Pablo Núñez, Sales Manager, Safety Equipment; León Huerta, Finance Manager; Martha Rivera, Purchasing and Traffic Manager; Stephen Blaise, Sales Manager, Heavy Equipment; Ing. Pablo Núñez, Sales Manager, Safety Equipment.

Manufacturers and distributors of safety equipment for mining and general industry, mine lighting equipment, underground locomotives, underground load and hauling dump equipment.

Established 1957 • Personnel 125 • Telex 1772176

POLIURETANOS JOYMA, S.A. DE C.V. 341-0178

Poniente 48 No. 3371 341-0520

Col. Xochimanco

Del. Azcapotzalco

02870 México, D.F.

Joaquín Avila B., General Director; Joaquín Avila G., General Manager; Carlos Monterrubio, Technical Sales Manager.

Hydraulic presses from 5 to 1,000 tons, hydraulic industrial equipment, urethane mining sieves, hydraulic packings, wheels and casters.

Established 1971 • Personnel 52 • Telex 1762439

PORCELANAS PINCO, S.A. DE C.V. 875-3249

Av. López Portillo 498

55540 Ecatepec, Méx.

Isidoro Peyrón R., Manager.

Electrical insulators and ceramics for industrial applications.

PROVEEDORA MINERA MEXICANA, S.A. 395-5555

Av. Homero 1425, Desp. 1005

Col. Los Morales

Del. M. Hidalgo

11510 México, D.F.

Jack McGrath, General Director; Pat McGrath, Sales Manager; Virginia Suárez, Purchasing Manager.

Manufacturers of mining equipment, mills.

Established 1971 • Personnel 15 • Telex 1776583

ALMAQ, S.A. 576-2003
Blvd. Manuel Avila Camacho 370
Apdo. Postal 299
53370 Naucalpan, Méx.
Alan MacKenzie, Managing Director; Adolfo Avellaneda, Accountant.
Distributors of air compressors; construction, drilling and mining equipment.
Established 1978 • Personnel 10

DISTRIBUIDORA INDUSTRIAL MINERA AUTOMOTRIZ, S.A. 533-2335
Río Guadalquivir 66, Desp. 901
Col. Cuauhtémoc
Del. Cuauhtémoc
06500 México, D.F.
Silvio Salamaño, General Director.
Distributors of mining equipment.
Established 1975 • Personnel 50 • Telex 1774349

MAQUINARIA INTERCONTINENTAL, S.A. DE C.V. 571-8166
Economía 165
Apdo. Postal 33-085
Col. Cuatro Arboles
Del. V. Carranza
25730 México, D.F.
Pedro R. Arrechea, President; Víctor Loizaga, General Manager; Ramón Brambila, Sales Manager.
Distribution, rental and imports of agricultural, construction, industrial, mining and fishing machinery, cranes, hoists, mixers, truck loaders, tractors and marine engines.
Established 1951 • Personnel 165 • Telex 1773192

MAQUINARIA LER, S.A. 584-4566
Aguascalientes 175, Desp. 103 y 104
Col. Hipódromo Condasa
Del. Cuauhtémoc
06100 México, D.F.
Luis Estrada Rodríguez, General Manager; Ing. Luis Estrada Capmany, Sales Manager; Diana Estrada Rodríguez, Purchasing Manager.
Distributors of industrial machinery, electrical equipment, marine equipment and supplies, diesel fuel injection equipment, diesel engines, electric motors, marine engines, motor parts.
Established 1977 • Personnel 12 • Telex 1771300

MAQUINARIA LYU, S.A. 567-0324
Calz. Vallejo 724
Col. Industrial Vallejo
Del. Azcapotzalco
02300 México, D.F.
Raymond H. Amador, General Director.
Distributors of construction and mining equipment.
Established 1967 • Personnel 15 • Telex 1776274

MAQUINARIA UCHA, S.A. DE C.V. 254-4032
Av. Homero 538-404 531-7528
Col. Polanco
Del. M. Hidalgo
11570 México, D.F.
Jacques Tapie, General Manager; Lic. Carlos Merlo, Sales Manager.
Distributors of material handling equipment, cranes, lift trucks and attachments, pneumatic grain conveyors, hydraulic cranes, front loaders, yard tractors, clamshells.
Established 1970 • Personnel 25 • Telex 1771579

MAQUINARIA Y ACCESORIOS, S.A. DE C.V. 563-8188
Cincinnati 81, 4o. Piso
Col. Nochebuena
Del. B. Juárez
03720 México, D.F.
Gerhard Hoffmann, Manager, Ing. Imants Turss, Manager, Ernst Konrad, Manager.
Commission agents and manufacturers' representatives.
Established 1946 • Personnel 28 • Telex 1774217

OUTOKUMPU MEXICANA, S.A. DE C.V. Tel. 254-4208
Homero 229, 6o. Piso
Apdo. Postal 105-211
Col. Polanco
Del. M. Hidalgo
11560 México, D.F.
Risto Heiskanen, General Director; Markku Isohanni, Regional Manager; Antonio Santibáñez, Administrative Manager; Alejandro Zarco, Automation Manager; John Speissegger, Concentrators Sales Manager; Alejandro Lira, Mining Sales Manager.
X-ray analyzers, metal detectors, level controllers, computer process control systems, flotation cells, pressure filters, drifters, rigs, auto-loaders, conveyors, spare parts.
Established 1979 • Personnel 11 • Telex 177-3235

OXO, S.A. Tel. 510-1068
Eje Central Lázaro Cárdenas 2, Desp. 1204
Col. Centro
Del. Cuauhtémoc
06007 México, D.F.
José A. Remecz, President.
Machinery imports
Established 1976 • Personnel 3 • Telex 177-6450

REPRESENTACIONES HAMILTON, S.A. 529-2341
Degollado 202
Col. Buenavista
Del. Cuauhtémoc
06300 México, D.F.
Clyde M. Hamilton F., General Director; Lic. Sergio Aguilar J., Manager.
Distributors of industrial and mining equipment.
Established 1969 • Personnel 14

REPRESENTACIONES INDUSTRIALES Y QUIMICAS, S.A. DE C.V. 577-4357
Insurgentes Norte 2219
Col. Santa Isabel Tola
Del. G.A. Madero
07010 México, D.F.
Ing. José Tapia A., General Manager; Lic. Juan Gallardo, Administrative Manager; Juan M. Ramos P., Purchasing Manager.
Manufacturers of conveyor and transmission belts, hoses, gasket joints, vulcanizing services.
Established 1974 • Personnel 30



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Verut, Caroline

Market study on the mining industry
in Mexico

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