USGS
science for a changing world

2005 Minerals Yearbook

SWITZERLAND

U.S. Department of the Interior
U.S. Geological Survey

December 2007

The Mineral Industry of Switzerland

By Harold R. Newman

The mineral assets of Switzerland are limited. The reserves of the small deposits of metalliferous ores that once existed in Switzerland have mostly been depleted. Metal processing in 2005 was confined mainly to the production of primary and secondary aluminum, copper, pig iron, secondary lead, and steel. Mining was mostly related to industrial mineral commodities required for construction. Commodities produced by mining and processing included cement, clays, gravel, gypsum, and lime (table 1).

Despite a dearth of natural resources, the Swiss economy was among the world's most advanced and prosperous. Trade has been the key to prosperity in Switzerland. The country was dependent upon export markets to generate income and upon imports for raw materials. Swiss companies are extremely competitive in world markets. Switzerland's main trading partners were European Union members; the leading partner was Germany, followed by France, Italy, and the United Kingdom (Swissworld, 2006§[1])

In 2005, the United States and Switzerland signed the U.S.-Switzerland Trade and Investment Cooperation Forum Agreement. This agreement establishes a forum for the United States and Switzerland to discuss bilateral trade and related issues and to examine ways to strengthen their economic relationship. Two-way trade between the United States and Switzerland was $23.7 billion in 2005, of which about 1% was mineral related (Office of the U.S. Trade Representative, 2006§).

The Swiss mineral industry was largely controlled by the Government and was owned privately or by regional governments (table 2). The 26 regional cantons, or communal governments, grant mining and processing licenses and directly operate electricity-generating facilities, gas utilities, local transportation facilities, and water resources. The cantons enjoy a high degree of administrative authority and have their own constitutions and laws. In many areas, the Federal Government simply legislates and supervises while the 26 cantons implement the legislation (U.S. Department of State, 2005§).

Switzerland has a land area of 41,290 square kilometers (15,945 square miles) and had a population of 7.5 million and a workforce of about 4 million in 2005. It is bordered by Austria, France, Germany, Italy, and Liechtenstein (U.S. Central Intelligence Agency, 2006§).

In 2005, the gross domestic product (GDP) based on purchasing power parity was $241 billion, and the per capita income was $33,168. The annual growth rate of the GDP was 1.3% in real terms, and unemployment was 3.7% (International Monetary Fund, 2005§).

During the year, Alcan Aluminium Valais S.A. (part of the Alcan Group of companies) continued production at its aluminum smelter at Steg and its plant at Sierre. Although the plant at Sierre rolled sheets for a variety of applications, its main customer was the automotive market. Alcan announced that, after discussions with a Valais-based consortium, the proposed potential sale transaction for the smelter and plant was uneconomic and would not ensure the facility's future sustainability. Alcan's power contract expired in December 2005, and the company was expected to make a decision in early 2006 on the smelter's future. Regardless of the outcome, the expiration of the contract was expected to have no adverse effect on Alcan's other production activities in the region (Alcan Inc., 2005§).

Schmelzmetall AG continued to produce special forms of hard copper alloys in its vacuum-melting refinery. Schmelzmetall specialized in high-performance beryllium copper alloys. The alloys' special characteristics were their hardness and high thermal and electrical conductivity. Schmelzmetall sold these products under the trademark HOVADUR® (Schmelzmetall AG, 2005§).

Produits Artistiques de Métaux Précieux S.A. (PAMP) operated one of the world's leading and most modern gold refineries at Castel San Pietro. PAMP produced a selection of shapes and sizes of gold bars that ranged from 1 gram to 12.5 kilograms in weight and handled more than 400 metric tons per year (t/yr) of gold material. All the gold material produced could be treated and refined up to the highest grade of 999.9% purity (Produits Artistiques de Métaux Précieux S.A., 2005§).

In 2005, Stahl Gerlafingen AG operated an electric arc furnace at its plant at Gerlafingen. Gerlafingen was a leading supplier of reinforced and industrial steel products in Switzerland. von Moos Stahl AG continued to operate an electric arc furnace at its plant at Emmenbrucke. von Moos was among the leading suppliers of engineering and free-machining steel for the automobile industry and machinery and equipment manufacturers in Switzerland and Western Europe. Both companies based their steel production on recycled scrap metal (Swiss Steel AG, 2005§).

In 2005, salt was produced by one company, Saline de Bex S.A., from its mine at Bex. The company produced salt for the canton of Vaud and, since 2000, for export to Europe and North America (Saline de Bex SA, 2005§).

Almost 80% of Switzerland's energy supply was dependent on imported resources. All fossil and engine fuels were imported, as was nuclear fuel. The electricity industry depends on imports of energy during the winter months, but Switzerland is a net exporter over the full course of the year (Swiss Federal Office of Energy, 2005§).

Petroplus Refining Cressier S.A. was one of Europe's leading midstream oil companies and a major independent tank operator. Midstream is the term used to cover the area of the oil production chain that is focused on refining and storing crude oil and the wholesale marketing of oil products. The refinery is a hydro-skimming visbreaking plant. In the refining process, crude oil is first distilled in a crude distillation unit (CDU). The

[1]References that include a section mark (§) are found in the Internet References Cited section.

CDU produces a number of basic products: liquefied petroleum gas (LPG), naphtha, kerosene, gas oil, and fuel oil. These basic products are then further processed in upgrading units. The refinery has a reformer unit and an isom unit to turn naphtha into gasoline, a desulfuring unit to process gas oil into low sulfur diesel, and a thermal cracking unit to produce additional gasoline and gas oil from fuel oil. Petroplus supplies 25% of the total Swiss demand for petroleum products (Petroplus Corp., 2005§).

Ascent Resources plc reported that it was awarded two natural gas exploration permits in the canton of Bern. Each of the two permit areas contains gas in wells originally drilled by Elf Aquitaine in 1972 and 1982. At that time, the pipeline network and gas market were both underdeveloped, so Elf did not carry out further exploration. Ascent stated that it would reprocess and interpret seismic data from the area (AFX News Ltd., 2005§).

Switzerland's infrastructure was modern and well developed. The country had a substantial and efficient rail network, an extensive road system (honeycombed with tunnels to cope with the mountainous terrain), two major airports (Geneva and Zurich), and a few smaller airports with international connections. Although landlocked, Switzerland had a state-of-the-art maritime transport network with some 30 ocean-going vessels and river-borne cargo services with connections to the North Sea via barges and tugs on the Rhine River (U.S. Central Intelligence Agency, 2006§).

Outlook

Switzerland's mineral-related assets are limited mainly to basic construction materials, and that is not expected to change. The aluminum smelter at Steg is expected to close. The country serves as a major diamond exchange; it is actively involved in the cutting and polishing of diamond and plays a significant role in international diamond trade activities, although it has no diamond mines. This situation is expected to continue.

Internet References Cited

AFX News Ltd., 2005 (August 23), Ascent Resources wins Swiss exploration permits, accessed August 24, 2005, at URL http://www.rigzone.com/news/article.asp.

Alcan Inc., 2005 (December 13), Alcan and Valais-based consortium end discussions over potential sale of Steg aluminum smelter, accessed February 28, 2006, via URL http://www.alcan.com/web/publishing.nsf.

International Monetary Fund, 2005 (September), Switzerland, World Economic Outlook Database, accessed February 28, 2006, via URL http://www.imf.org/external/pubs/ft/weo/2005/02/data/dbcoutm.cfm.

Office of the U. S. Trade Representative, 2006 (March 25), United States and Switzerland sign "Trade and Investment Cooperation Forum" agreement, accessed June 7, 2006, at URL http://www.ustr.gov.gov/Document_Library/Press_Releases/2006.

Petroplus Corp., 2005, Petroplus refineries, accessed February 28, 2006, at URL http://www.petroplus-international.com/view.do?UID=5f81720f5410ed7150158ad.

Produits Artistiques de Métaux Précieux S.A., 2005, PAMP refining, accessed February 28, 2006, at URL http://www.pamp.com/FA-Refine.html.

Saline de Bex SA, 2005, The company, accessed February 28, 2006, at URL http://www.selbex.com/main.php?id_menu=18id_rubrique=17173&id_object=2642595.

Schmelzmetall AG, 2005, Engineering, accessed June 7, 2006, at URL http://www.schmelzmetall.ch/english/engineering/engineering.html.

Swiss Federal Office of Energy, 2005, International affairs, accessed March 1, 2006, at URL http://www.energie-schweiz.ch/internet/02011/index.html.

Swiss Steel AG, 2005 (March 24), Swiss Steel—A globally active steel group, accessed March 1, 2006, at URL http://www.swiss-steel.com/html/mm_24_03_05_e.htm.

Swissworld, 2006, Economy—Trade, accessed June 7, 2006, at URL http://www.swissworld.org/eng/swissworld.html.

U.S. Central Intelligence Agency, 2006 (January 10), Switzerland, World Factbook 2005, accessed February 28, 2006, at URL http://www.odci.gov/cia/publications/factbook/print.sz.html.

U.S. Department of State, 2005 (July), Switzerland, Background Note, accessed at URL http://www.state.gov/r/pa/ei/bgn/3431.htm.

Major Source of Information

Office Fédéral de la Statistics
INFO
2010 Neuchâtel, Switzerland

TABLE 1
SWITZERLAND: ESTIMATED PRODUCTION OF MINERAL COMMODITIES[1,2]

(Thousand metric tons unless otherwise specified)

Commodity[3]		2001	2002	2003	2004	2005
METALS						
Aluminum:						
Primary	metric tons	36,228 [4]	40,007 [4]	43,538 [4]	44,538 [4]	45,000
Secondary	do.	181,700 [4]	181,400 [4]	186,930 [4]	-- [r]	--
Iron and steel, metal:						
Pig iron		100	100	100	100	100
Crude steel		1,048 [4]	1,100	1,100	1,200	1,200
Semimanufactures		700	700	700	700	700
Lead, refined, secondary	metric tons	8,000 [4]	8,000	8,000	9,000	8,000
INDUSTRIAL MINERALS						
Cement, hydraulic		3,920	3,771 [4]	3,700	3,800	3,900
Gypsum		300	300	300	300	300
Lime		60	60	75	75	75
Nitrogen, N content of ammonia		31	33 [4]	29 [4]	32 [4]	30
Salt		400 [r, 4]	434 [r, 4]	562 [r, 4]	569 [r, 4]	560
Sulfur, from petroleum refining	metric tons	3,000	3,000	3,000	3,000	3,000
MINERAL FUELS AND RELATED MATERIALS						
Petroleum refinery products:						
Liquefied petroleum gas	thousand 42-gallon barrels	2,117 [r, 2]	2,446 [r, 4]	3,640 [r, 4]	3,500 [r]	3,500 [r]
Gasoline	do.	9,816 [r,4]	9,928 [r, 4]	9,089 [r, 4]	10,000 [r]	10,000 [r]
Distillate fuel oil	do.	15,111 [r, 4]	15,002 [r, 4]	14,126 [r, 4]	14,000 [r]	14,000 [r]
Residual fuel oil	do.	3,397 [4]	4,782 [r, 4]	4,891 [r, 4]	5,000 [r]	5,000 [r]
Bitumen	do.	800	800	800	800	800
Refinery fuel and losses	do.	1,786 [r, 4]	1,862 [r, 4]	1,716 [r, 4]	1,800 [r]	1,800 [r]
Total[5]	do.	33,000	34,820	34,262	35,100 [r]	35,100 [r]

[r]Revised. -- Zero.

[1]Estimated data are rounded to no more than three significant digits.

[2]Table includes data available through March 2006.

[3]In addition to the commodities listed, a variety of crude construction materials (common clay, sand and gravel, and stone) were produced, but output was not reported, and available general information was inadequate to make reliable estimates of output.

[4]Reported figure.

[5]Total of listed products only.

TABLE 2
SWITZERLAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2005

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Aluminum		Alcan Aluminium Valais SA (Alcan Group, 100%)	Smelter at Stag, rolling mill at Sierre	168
Cement		Holcim (Schweitz) AG (Holcim Group, 100%)	Plants (7) at various locations	4,300
Do.		Cementfabrik Holcim AG (Holcim Group, 100%)	Plant at Rekingen	700
Copper	metric tons	Schmelzmetall AG	Refinery at Gurtnellen	2,400
Gold	do.	Produits Artistiques de Métaux Précieux S.A. (MKS Finance SA, 100%)	Refinery at Castel San Pietro	425
Lead, secondary		Metallum AG	Smelter at Pratteln	13
Petroleum, refinery	barrels per day	Tamoil (Suisse) S.A.	Refinery at Collombey	47,000
Do.	do.	Petroplus Refining Cressier S.A. (The Carlyle Group)	Refinery at Cressier	68,000
Salt		Saline de Bex S.A. (Canton of Vaud, 100%)	Saline plant at Bex	50
Steel		Stahl Gerlafingen AG (Swiss Steel AG, 100%)	Plant at Gerlafingen	650
Do.		von Moss Stahl AG (Swiss Steel AG, 100%)	Plant at Emmenbrucke	300