



# 2017–2018 Minerals Yearbook

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## SWITZERLAND

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# THE MINERAL INDUSTRY OF SWITZERLAND

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**Note:** In this chapter, information for 2017 is followed by information for 2018

Switzerland was globally significant in the production, export, and import of refined precious metals as well as the trading of commodities, including such metals as aluminum, copper, and zinc, and such mineral fuels as petroleum and petroleum products. The country's mineral production consisted of precious metals, such as refined gold, platinum-group metals (PGMs), and silver; processed metals, such as steel; industrial minerals, such as cement, nitrogen (ammonia), and salt; and mineral fuels, such as refined petroleum products (table 1; Swiss Trading & Shipping Association, 2018).

## Minerals in the National Economy

Switzerland's real gross domestic product (GDP) increased by 1.8% in 2017 compared with growth of 1.7% (revised) in 2016. The country's nominal GDP was \$653.8 billion.<sup>1</sup> Manufacturing, of which secondary metallurgical production (such as aluminum, PGMs, and steel) was an important segment, made up 18.9% of the GDP. Mining and quarrying accounted for about 0.1% of the GDP. Commodity trading, of which mineral commodity trading was an important component, made up about 3.8% of Switzerland's GDP and employed about 35,000 people. In 2017, the gross value added of manufacturing increased by 4.2%, and that of mining and quarrying increased by 7% (Swiss Trading & Shipping Association, 2018; Federal Statistical Office, 2019, 2020; Swiss Federal Department of Foreign Affairs, 2019).

Precious metals and gemstones remained Switzerland's leading export and import products. In 2017, gold exports decreased by 21.7% to 1,558 metric tons (t) valued at \$60.4 billion, and gold imports decreased by 13.4% to 2,392 t valued at \$67.6 billion. Switzerland was estimated to have refined about 75% of world gold mine production, which totaled 3,173 t in 2017. Silver exports decreased by 9.4% to 1,276 t valued at \$720 million, whereas silver imports decreased by 46.4% to 466 t valued at \$289 million in 2017. PGMs were also important export and import products for Switzerland, although exports and imports both remained substantially lower than that of the 100 metric tons per year (t/yr) achieved in 2014. In 2017, exports of PGMs (iridium, osmium, palladium, platinum, rhodium, and ruthenium; unwrought, semimanufactured, or powder forms) increased by 17.7% to 41.2 t valued at \$1.07 billion. Imports of PGMs increased by 18.4% to 47 t valued at \$1.06 billion (World Gold Council, 2018; Federal Customs Administration, 2020a, b).

<sup>1</sup>Where necessary, values have been converted from Swiss francs (CHF) to U.S. dollars (US\$) at an annual average exchange rate of CHF1.024=US\$1.00 for 2017 and CHF 0.979=US\$1.00 for 2018.

## Production

In 2017, significant increases in production included that of refined palladium (primary and secondary), by 77%; and salt, 29%. Significant decreases in production included that of kerosene, by 84%; and refined platinum, 18% (table 1).

## Structure of the Mineral Industry

Switzerland's mineral producers were either owned privately or by the Cantons. The four leading gold refiners—Argor-Heraeus S.A., Metalor Technologies International S.A., Produits Artistiques Metaux Precieux S.A., and Valcambi S.A.—were privately owned. Table 2 is a list of major mineral producers in Switzerland and their facilities (table 2).

## Commodity Review

### Metals

**Gold.**—Four of the world's nine largest gold refineries, by production capacity, were based in Switzerland and had a total capacity to refine about 3,100 t/yr of gold and other precious metals. The four gold refineries, in order of capacity, were Valcambi, Metalor Technologies International, Produits Artistiques Métaux Précieux, and Argor-Heraeus. These four refineries formed an important link in the flow of precious metals globally. The refineries produced gold from both metal concentrate and scrap and sold their output to watchmakers and as bullion bars. There were also two other relatively small gold refineries in the country—Cendres+Métaux S.A. and PX Precinox S.A. (Gold Bars Worldwide, 2014a–d; 2017; Letzing, 2016).

Valcambi was the world's largest gold refinery, and it had a production capacity of 1,600 t/yr. Global Gold Refineries AG acquired Valcambi on July 26 after it absorbed the refinery's previous owner, European Gold Refineries Holding S.A. Global Gold Refineries was owned by REL Singapore PTE Ltd. of Singapore (95%) and Rajesh Exports Ltd. (REL) (5%) of India. REL was reportedly the world's largest gold-refining company; it had a company-wide capacity of more than 2,400 t/yr, and a second refinery located in India. In 2016 (the latest year for which data were available), Valcambi's refining throughput was 4.1 metric tons per day (t/d) and its product output was 2.4 t/d of gold coins and 1 t/d of gold bars (Gold Bars Worldwide, 2014d; Rajesh Exports Ltd., 2018; Valcambi S.A., 2018a–c).

Metalor Technologies International, which had a worldwide gold-refining capacity of 800 t/yr, including refineries in China, the Hong Kong Special Administrative Region of China, Singapore, and the United States. Metalor had been 100% owned by Tanaka Holdings Co. Ltd. of Japan since 2016. The company's Marin refinery in Switzerland was its

largest refinery, with an estimated gold-refining capacity of 650 t/yr (Gold Bars Worldwide, 2014b; Metalor Technologies International S.A., 2016).

In March, Metalor Technologies International announced that it had always imported gold dore from Colombia in full compliance with applicable Colombian regulations, with regard to mining, tax, and customs requirements. This announcement followed an investigation that tied C.I. S&JIL S.A.S., a former Colombian-based customer of Metalor Technologies International, to illegal gold trading in 2010–2012. Metalor Technologies International said that it had done business with C.I. S&JIL S.A.S. between 2012 and 2015 but had stopped doing business with the company in August 2015 (Metalor Technologies International S.A., 2016, 2017).

### **Industrial Minerals**

**Salt.**—Schweizer Salinen AG, which held a salt monopoly in Switzerland, had a total production capacity of 600,000 t/yr of salt at its Bex, Riburg, and Schweizerhalle locations, in Vaud, Aargau and Basel-Landschaft Cantons, respectively. The company employed 200 people. In May, the company announced that it would be able to produce enough salt to meet the country's domestic demand for the entire 21st century through solution mining. Based on a geological study initiated by the company in 2015, Schweizer Salinen reported that there were sufficient salt resources in the Fricktal region, which includes the Laufenburg and Rheinfelden districts in Aargau Canton and the Liestal district in Basel-Landschaft Canton, to ensure the long-term continuation of local production. A new concession would be necessary starting in 2025 for the Riburg and Schweizerhalle salt mines to continue long-term production. The company applied for the requisite concession in the Cantons of Aargau and Basel-Landschaft (Schweizer Salinen AG, 2017).

### **MINERAL INDUSTRY HIGHLIGHTS IN 2018**

In 2018, Switzerland's real GDP increased by 2.8% and the country's nominal GDP was \$704.3 billion. Manufacturing accounted for 18.7% of the GDP, whereas mining and quarrying accounted for about 0.1%. The gross value added of manufacturing decreased by 5.4% and that of mining and quarrying increased by 2.5% (Federal Statistical Office, 2019, 2020).

In 2018, the volume of gold exports and imports continued to decrease, by 13% and 6%, respectively. Switzerland exported 1,360 t of gold valued at \$55.6 billion and imported 2,243 t of gold valued at \$63.0 billion. Silver exports increased by 24% to 1,588 t valued at \$800 million, and silver imports decreased by 2.3% to 454 t valued at \$308 million. PGM exports decreased by 6.6% to 38.5 t valued at \$1.09 billion, and PGM imports increased by 18% to 55.2 t valued at \$1.3 billion (Federal Customs Administration, 2020a, b).

Significant increases in production included that of gypsum, by 38%; diesel fuel, 13%; and refined platinum (primary and secondary), 11%. Significant decreases in production included that of kerosene, by 29%; refined palladium (primary and secondary), 26%; salt, 17%; and refined silver (primary), 11%. Owing to a change in surveying methods, liquefied petroleum

gas production was reported in the "other refined petroleum" category in 2018. The apparent 105% increase in other refined petroleum production was due to this change (table 1).

On November 14, the Swiss Federal Council presented a report on an investigation of the country's gold industry and its potential risks and challenges related to illegal mining and human rights violations in other countries. The report noted that gold produced in violation of human rights might still be imported by Switzerland despite current laws and company guidelines. The investigation found that most of the gold imported by Switzerland was sourced from large industrial mines; however, some imported gold was produced by artisanal mines that posed a considerable risk of human rights violations. The Federal Council made multiple recommendations, including increasing transparency by improving the quality of information provided on customs declarations and supporting the development and sharing of best practices established by private sector industry professionals and professional associations (Federal Council, 2018, p. 4–6, 10–12; SWI swissinfo.ch, 2018).

### **Outlook**

Gold and silver refining, as well as trading in metals and mineral fuels, are likely to continue to be the dominant activities in Switzerland's mineral industry. The country's refined gold and silver production may return to 2012–13 levels with the recovery of global demand for precious metals. Although the Federal Council's report on the gold trading industry provided recommendations to be taken by the private sector, no legislation was put in place to improve the transparency of the industry. Switzerland's production of cement, salt, and steel are expected to remain stable in the coming years.

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TABLE 1  
SWITZERLAND: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons, gross weight, unless otherwise specified)

Commodity <sup>2</sup>	2014	2015	2016	2017	2018
<b>METALS</b>					
Gold, refinery <sup>3</sup>	2,240	2,570	2,760 <sup>r</sup>	2,390	2,240
Iron and steel, steel:					
Raw steel thousand metric tons	1,475	1,475	1,500	1,450	1,500 <sup>e</sup>
Products, semimanufactured do.	1,070 <sup>r</sup>	1,140 <sup>r</sup>	1,110 <sup>r</sup>	1,180	1,160
Platinum-group metals, refinery:					
Palladium <sup>e,3</sup> kilograms	42,000	13,000	13,000	23,000	17,000
Platinum <sup>e,3</sup> do.	31,000	17,000	22,000	18,000	20,000
Silver, refinery <sup>e,3</sup>	2,600	2,500	1,900	1,800	1,600
<b>INDUSTRIAL MINERALS</b>					
Cement, hydraulic thousand metric tons	4,790	4,390	4,710 <sup>r</sup>	4,580 <sup>e</sup>	4,560 <sup>e</sup>
Gypsum, mine do.	340	320	340 <sup>r</sup>	330 <sup>e</sup>	456 <sup>e</sup>
Lime do.	120 <sup>r</sup>	107	96 <sup>r</sup>	90 <sup>e</sup>	90 <sup>e</sup>
Nitrogen, ammonia, N content <sup>e</sup>	20,000	30,000	30,000	30,000	30,000
Salt thousand metric tons	388	550	458	590	492 <sup>e</sup>
<b>MINERAL FUELS AND RELATED MATERIALS</b>					
Petroleum, refinery:					
Diesel fuel thousand 42-gallon barrels	10,899	5,483	6,498	5,975	6,729
Distillate fuel oil do.	8,639	5,998	6,132	6,453	6,520
Gasoline do.	12,121	6,338	5,886	5,527	5,527
Kerosene do.	127	301	341	56	40
Liquefied petroleum gas <sup>4</sup> do.	2,007	882	1,206	1,241	NA
Residual fuel oil do.	2,624	2,098	2,125	1,931	2,105
Other <sup>4</sup> do.	2,197	1,016	1,254 <sup>r</sup>	1,270	2,605
Refinery fuel and losses do.	2,557	1,214	1,029	1,013	1,061
Total do.	41,200	23,300	24,500 <sup>r</sup>	23,500	24,600

<sup>e</sup>Estimated. <sup>r</sup>Revised. do. Ditto. NA Not available.

<sup>1</sup>Table includes data available through January 13, 2020. All data are reported unless otherwise noted. Totals and estimated data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>In addition to the commodities listed, aluminum (secondary), common clay, copper alloy, sand and gravel, sulfur, and stone may have been produced, but available information was inadequate to make reliable estimates of output.

<sup>3</sup>Produced from both primary concentrate and secondary scrap.

<sup>4</sup>The volume of liquefied petroleum gas produced in 2018 was included in "refinery, other."

TABLE 2  
SWITZERLAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2018

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Aluminum, secondary		Novelis Switzerland S.A. (Hindalco Industries Ltd., 100%)	Plant at Sierre	130
Do.		Constellium Valais SA	Plant at Steg	110
Do.		do.	Plant at Chippis	70
Do.		do.	Plant at Liesberg	26
Do.		Alu Menziken Extrusions AG (Montana Tech Components AG, 100%)	Plant at Reinach	15
Do.		do.	Plant at Sierre	NA
Cement		Holcim (Schweiz) AG (LafargeHolcim Ltd., 100%)	Plants at Eclepens, Siggenthal, and Untervaz	3,300
Do.		Jura Cement Fabriken AG (CRH plc., 100%)	Plants at Comeaux and Wildegg	1,000
Do.		Ciments Vigier AG (Vicat Group, 100%)	Plant at Reuchenette	910
Copper, alloy	metric tons	Schmelzmetall AG	Refinery at Gurtellen	2,400
Gold, refined	do.	Valcambi S.A. (Global Gold Refineries AG, 100%)	Refinery at Balerna	1,600
Do.	do.	Metalor Technologies International S.A. (Tanaka Holdings Co. Ltd., 100%)	Refinery at Marin	650 <sup>c</sup>
Do.	do.	Produits Artistiques Métaux Précieux S.A. (MKS S.A., 100%)	Refinery at Castel San Pietro	450
Do.	do.	Argor-Heraeus S.A. (Heraeus Holding GmbH, 100%)	Refinery at Mendrisio	400
Do.	do.	PX Precinox S.A.	Refinery at La Chaux-de-Fonds	60
Do.	do.	Cendres+Métaux S.A.	Refinery at Biel-Bienne	NA
Petroleum, refinery	barrels per day	Varo Energy B.V. (Carlyle International Energy Partners, 50%, and Vitol Group, 50%)	Refinery at Cressier in the Canton of Neuchatel	68,000
Do.	do.	Tamoil (Suisse) S.A. (Oilinvest Group, 100%)	Refinery at Collombey in the Canton of Valais	54,000 <sup>1</sup>
Platinum-group metals	kilograms	Produits Artistiques de Métaux Précieux S.A. (MKS S.A., 100%)	Refinery at Castel San Pietro	30,000
Do.	do.	Argor-Heraeus S.A. (Heraeus Holding GmbH, 33.3%; Commerzbank International S.A., 33.3%; Münze Österreich, 33.3%)	Refinery at Mendrisio	NA
Do.	do.	Metalor Technologies International S.A. (Tanaka Holdings Co. Ltd., 100%)	Refinery at Marin	NA
Do.	do.	Valcambi S.A. (Global Gold Refineries AG, 100%)	Refinery at Balerna	NA
Salt		Schweizer Salinen AG (26 Cantons of Switzerland and the Principality of Liechtenstein, 100%)	Saline mines and plants at Riburg, Canton of Aargau and Pratteln, Canton of Basel-Landschaft	550
Do.		do.	Saline mine and plant at Bex	50
Silver, refined	metric tons	Produits Artistiques Métaux Précieux S.A. (MKS S.A., 100%)	Refinery at Castel San Pietro	600
Do.	do.	Valcambi S.A. (Global Gold Refineries AG, 100%)	Refinery at Balerna	400
Do.	do.	Argor-Heraeus S.A. (Heraeus Holding GmbH, 100%)	Refinery at Mendrisio	NA
Do.	do.	Metalor Technologies International S.A. (Tanaka Holdings Co. Ltd., 100%)	Refinery at Marin	NA
Steel, raw		Swiss Steel AG (Schmolz and Bickenbach AG, 100%)	Plant at Emmenbrücke	800
Do.		Stahl Gerlafingen AG (AFV Gruppo Beltrame S.p.A., 100%)	Plant at Gerlafingen	720

<sup>c</sup>Estimated. Do., do. Ditto. NA Not available.

<sup>1</sup>Operations suspended since 2015.