

THE MINERAL INDUSTRY OF ICELAND

By Harold R. Newman

Owing to abundant hydroelectric and geothermal energy and the lack of domestic metal resources, the mineral industry of Iceland was largely composed of metal production from imported materials. Nearly all production of aluminum and ferrosilicon was exported. Iceland has few proven mineral resources, although deposits of diatomite were being developed. All production of industrial minerals, with the exception of diatomite, was used by local industries.

While the production of commodities for domestic consumption remained about the same, export-oriented production benefited from the improved economic situation of European countries. Because of geographic proximity to the European Union and existing trade agreements, most of Iceland's trade was with Europe. (*See table 1.*)

Most of the shares in the major mineral industry enterprises were held by the Government. The remaining enterprises were either foreign-owned and locally operated or, for smaller businesses, locally owned and operated. (*See table 2.*)

Aluisse-Lonza Holding Ltd. was Iceland's only manufacturer of aluminum metal from alumina imported mainly from Australia. The Swiss company announced it had decided to expand its smelter at Straumsvik in southwestern Iceland from a 100,000-ton-per-year (t/yr) capacity to 160,000 t/yr.

Iselska Jarnblendifelagid hf (Icelandic Alloys Ltd.) had two 30-megawatt semiclosed three-phase-submerged-arc furnaces designed for the production of 75% grade ferrosilicon. Fumes

from the operation were cooled and filtered. The resulting byproduct, microsilica, was used as an additive by a nearby cement plant.

The entire production of diatomite was supplied by Kisildjan hf (Diatomite Plant Ltd.) near Lake Myvatn. During the summer months when the lake is not frozen, the diatomaceous earth was pumped from the bottom of the lake and dried in kilns, using geothermal energy, to a 99% solid matter. Production was limited to certain specific areas of the lake because of adverse effects on sediment displacement.

All production of pumice was concentrated around Mount Hekla. The largest quarry was operated by Eldber hf. The pumice is 4 meters (m) to 6 m thick, covered by an overburden of 1 m. The density of the dry, loose pumice was 320 kilograms per cubic meter, suitable for light concrete and building blocks.

Iceland's future industrial development depended on utilizing its abundant hydroelectric and geothermal power. The potential for electrical energy production from hydro and geothermal power combined was estimated at 50,000 gigawatt hours per year. Since only about 10% of the potential power was being utilized, the Government continued to encourage foreign investment in energy intensive industries. Future plans included constructing a 210,000 t/yr aluminum smelter, exporting hydroelectric energy via submarine cable to Western Europe, and developing perlite deposits.

TABLE 1
ICELAND: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1992	1993	1994	1995	1996 e/
Aluminum metal, primary 2/	89,478	94,480	99,294	100,101	103,800
Cement, hydraulic 3/	99,803	85,531	80,856	81,514	80,000
Diatomite	19,946	19,000 e/	24,566	28,142	28,000
Ferrosilicon	51,413	67,400	66,003	71,410	72,000
Nitrogen, N content of ammonia	8,710	8,700 e/	8,966	8,800	8,700
Pumice and related volcanic material: e/					
Pumice	33,500 4/	45,000	23,000	30,000	25,000
Scoria	462 4/	500	500	500	500
Salt e/	4,210 4/	4,500	4,500	4,000	4,000
Sand:					
Basaltic cubic meters	--	--	300	1,300	1,200
Calcareous, shell do.	85,800	81,300	81,451	83,651	82,000
Sand and gravel e/ thousand cubic meters	3,660	3,600	3,600	3,600	3,600
Silica dust 5/	10,200	10,000 e/	13,871	14,443	14,000
Stone, crushed:					
Basaltic e/	109,000 4/	100,000	114,000	91,000	90,000
Rhyolite cubic meters	18,200	16,500	19,355	16,552	16,500

e/ Estimated.

1/ Table includes data available through March 1997.

2/ Ingot and rolling billet production.

3/ Sales.

4/ Reported figure.

5/ Byproduct of ferrosilicon.

TABLE 2
ICELAND: STRUCTURE OF THE MINERAL INDUSTRY FOR 1996

(Thousand metric tons)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Aluminum	ISAL (Alusuisse-Lonza Holding Ltd 100%)	Straumsvik	100
Cement	Sementsverksmidja Rikisins (Government 100%)	Akranes	115
Diatomite	Kisilidjan hf (Government 98%)	Myvatnssveit	27
Fertilizer	Aburdarverksmidja Rikisins (Government 100%)	Gufunes	60
Ferrosilicon	Islenska jarnblendifelagid hf (Government 55% and Elkem A/S 30%)	Plant at Grundartangi	72
Pumice	Eldber hf (Jardenfnaidnadur hf 51%)	Mount Hekla	210
Do .	Pumice Products Ltd (BM Valla Ltd 100%)	do.	32
Salt	Icelandic Salt Co. (Akzo NV of Netherlands 58%)	Plant at Svartsengi	5