

THE MINERAL INDUSTRY OF IRELAND

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Ireland remained a major European Union producer of zinc and an important producer of alumina, lead, and peat in 1996. Although the range of minerals exploited in the country has been limited, exploration activity for new mineral resources continued to increase, mainly emphasizing gold, lead, and zinc. The country's mineral processing industry was relatively small, as was the demand and consumption of mineral resources.

Base metal exploration continued to be the main mineral activity; however, gold exploration was continuing. The upswing in activity in the lead and zinc sector has resulted in the development of new mines and investigation of several other potential projects. The Department of Transportation, Energy, and Communication reported that 100 new licenses had been issued for 1996 and stated that the top 10 major license holders at yearend were as follows: BHP Minerals International Exploration Inc., 57; Navan Resources/CEC (Ireland) Pty. Ltd., 55; Tara Mines Ltd., 33; Ivernia West Plc., 26; Rio Tinto Finance & Exploration Plc., 24; Westland Exploration Ltd./Getty Mining Ltd., 18; Prospect Ireland Ltd., 16; Minco Ireland Ltd., 12; Westland Exploration Ltd., 12; and Ivernia West Plc./Minorco Lisheen Ltd., 11 (Department of Transport, Energy, and Communication, 1997a).

Ireland's base-metals production, centered mainly on Outokumpu Oy's Tara zinc-lead mine near Navan, County Meath, remained relatively constant as did industrial mineral production, including barite and gypsum. Several metals and industrial minerals projects were awaiting the granting of planning permission and mining leases before moving into development and production. Natural gas production continued off the southern coast of Ireland, near Cork. Reserves were not disclosed, and the production from the fields was being carefully managed to extend the life of the area. (See table 1.)

The Geological Survey of Ireland (GSI) was responsible for the development of mineral information and for technical management of the state mineral licensing and leasing system. GSI also provided technical assistance to the exploration and mining industry.

Ireland's geology includes several lithological units and tectonic features that are favorable for the occurrence of several types of mineral resources. Interest in gold exploration was ongoing, thus providing the impetus for the revitalization of the exploration sector within the past few years. (See table 2.)

Aughinish Alumina Ltd.'s (AAL) production of alumina was based on imports of bauxite from the Republic of Guinea. A secondary source is Brazil. The major markets for AAL's alumina are primary aluminum smelters. British Alcan Aluminium Plc. has been purchasing 65% of the refinery's

output for its smelter in the United Kingdom. The remaining 35% was purchased by Billiton Aluminium Ireland Ltd. for its smelter in Norway.

The former Irish Steel was acquired by Ispat International Group in December 1995 and started operating as Irish Ispat in May 1996. Irish Ispat planned to invest \$31 million¹ over 6 years and has spent \$6 million so far. The current interest is improving the infrastructure, environmental items, and upgrading the melt-shop and the rolling mill. Around 70% of expenditure is going for infrastructure and 30% on development in 1997. This is expected to shift to a 50:50 ratio in 1998 and 30:70 in 1999 (Metal Bulletin Monthly, 1997a).

Tara Mines Ltd. was one of the largest lead-zinc producers in Europe. The Tara Mine, brought into production in 1977, is the largest zinc producer in Europe. The mine produced 292,000 metric tons (t) of zinc concentrate (56% zinc) and 67,000 t of lead concentrate (68% lead) in 1996.

Exploration of the U Lens reportedly was continuing successfully and should add significantly to the resource base. Mining of this new zone, first discovered in 1993, was expected to commence in early 1997 (Department of Transport, Energy, and Communications, 1997b).

Arcon International Resources Plc was proceeding with development of its Galmoy deposit in County Kilkenny. Underground mining from the CW ore body was expected to commence the first part of 1997. Drilling in the G-East Zone adjacent to the G ore body was continuing. One hole in the G-East zone was reported to have intersected 5.6 meters (m) grading 51.1% zinc equivalent (42.8% zinc and 17.5% lead). Eight holes in the G-West Zone averaged 15.5% zinc equivalent (Engineering & Mining Journal, 1996).

Galmoy's ore bodies are hosted by Lower Carboniferous limestones and lie at the base of the Waulsortian limestone formation. Areas of the mineralization footwall extend several meters down into the underlying Upper Ballysteen limestone formation. The CW ore body, which is the first to be mined, has estimated reserves of 4.1 million tons and an estimated mine life of 6 years. The ore body can be envisaged as a 450-m by 750-m oval saucer tilted at an angle of around 10°. The seam thickness ranges from 4 m to 12 m, with an average of 6 m, at an average depth of 70 m from the surface. Its shape and orientation mean that minimal waste rock is generated, contributing significantly to a lower cost of production (Metal Bulletin Monthly, 1997b).

¹Where necessary, values have been converted from Irish punts (£) to U.S. Dollars at the rate of £1.00=\$1.56.

The joint-venture Lisheen lead-zinc project, involving Ivernia West Plc and Minorco Lisheen Ltd., was continuing. Lisheen is on the same mineralised trend as Arcon's Galmoy project, 8 kilometers (km) away in County Kilkinney. Minorco Lisheen holds a 50% interest in the project and is the manager of the project. Construction of the \$193 million project was scheduled to start the first part of 1997 and was expected to take 2 years. The Lisheen Mine has a projected life of 14 years (Engineering & Mining Journal, 1996).

Ireland produces more than 3% of world zinc mine production and more than 2% of world lead production, a situation that is expected to increase when the Galmoy and Lisheen Mines both come into production.

Ireland produced significant quantities of synthetic diamond. Output was not quantitatively reported, and information was not available to make reliable estimates of production. The two companies that manufacture industrial diamonds and super abrasives are De Beers Industrial Diamonds Div. (Ireland), a subsidiary of De Beers Consolidated Mines (Pty.) Ltd. of South Africa, and GE Superabrasives Ireland, a subsidiary of General Electric Co. of the United States.

A range of abrasives was produced from synthetic diamond, cubic boron nitride, and polycrystalline diamond (PCD). Trade names for the PCD products are Syndie™ for wire drawing blanks, Syndrill™ for rock cutting blanks, and Syndite™ for cutting tools and wear-resistant parts. All production was for the export market.

A hydrocarbon licensing round requesting bids covering acreage in the Erri and Slyne Troughs off the northwest Irish coast was completed. New incentives included abolition of royalties, the tax on profits reduced to 25%, and a 25-year retroactive exploration incentive, allowing all exploration costs

incurred in Ireland during the last 25 years to be offset against future production.

Ireland has a good network of roads supplemented by a Government-owned railroad. Two deepwater ports at Cork and Dublin are supplemented by 10 secondary ports. Most mine sites are easily accessible and no more than 600 kilometers from either deepwater port.

The mineral industry is expected to utilize the opportunities created by the boom in gold and lead-zinc exploration and by renewed interest from multinational companies to continue mineral developments. GSI has an active data collection program through mapping and resource-related studies and offers technical assistance. This should continue to be a significant benefit and encouragement to companies engaged in mineral-resource activities.

References Cited

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- 1997b, State Mining and Prospecting Areas, Department of Transport, Energy, and Communications, June, 4 p.
- Engineering & Mining Journal, 1996, Ireland: Engineering & Mining Journal v. 197, no. 11, November, p. 19.
- Metal Bulletin Monthly, 1997a, Electric Steel making: Metal Bulletin Monthly, no. 316, April, p. 68.
- 1997b, Galmoy Mine: Metal Bulletin Monthly, no. 316, April, p. 8.

Major Sources of Information

- Department of Transport, Energy and Communications
Begars Bush, Haddington Road, Dublin 4, Ireland.
- Geological Survey of Ireland
Beggars Bush, Haddington Road, Dublin 4, Ireland.

TABLE 1
IRELAND: PRODUCTION OF MINERAL COMMODITIES 1/

(Thousand metric tons unless otherwise specified)

Commodity	1992	1993	1994	1995	1996 e/
METALS					
Alumina	973	1,103 r/	1,786 r/	1,186 r/	1,234 2/
Iron and steel, steel, crude	257	326	316 r/	310 e/	340 2/
Lead:					
Mine output, Pb content	42,900	48,400	53,700	69,067 r/	67,000 2/
Metal, refined, secondary e/	12,000	12,000	11,000	11,000	10,400
Silver, mine output, Ag content kilograms	13,100	13,000	17,400	13,700 r/	14,700 2/
Zinc, mine output, Zn content	195,000	194,000	195,000	327,487 r/	292,000 2/
INDUSTRIAL MINERALS 3/					
Barite	70	53	--	--	--
Cement, hydraulic e/	1,600	1,600	1,550	2,100 r/	2,100
Gypsum	343	318	325	406 r/	422 2/
Lime e/	110,000	100,000	100,000	110,000	100,000
Nitrogen, N content of ammonia	384	367	380	375 e/	375
Sand and gravel e/ 4/	7,000	7,500	7,800	10,000	12,000
Stone and other quarry products: e/					
Limestone million tons	1	1	1	1	1
Other e/ 5/	25,000	25,000	30,000	30,000	40,000
MINERAL FUELS AND RELATED MATERIALS					
Coal, anthracite and bituminous	500 r/	500 r/	200 r/	100 r/	100
Gas, natural: Marketed million cubic meters	56	58	55	60 e/	60
Peat:					
For horticultural use	300	300 e/	250	300 e/	300
For fuel use: e/					
Sod peat 6/	1,200	1,000	1,200 r/	1,142 r/ 2/	1,702 2/
Milled peat 7/	5,000	5,500	5,000	5,000	5,000
Total	6,200	6,500	6,200 r/	6,142 r/	6,702
Peat briquets e/	400	400	400	365 r/ 2/	344 2/
Petroleum refinery products: 8/					
Liquefied petroleum gas thousand 42-gallon barrels	417	325	360	350 e/	350
Naphtha e/ do.	349 2/	350	350	350	350
Gasoline, motor do.	3,070	3,120	3,000	3,000 e/	3,000
Distillate fuel oil e/ do.	5,000	5,000	5,000	5,000	5,000
Residual fuel oil do.	4,580 e/	4,540	5,470	5,500 e/	5,000
Refinery fuel and losses e/ do.	375 e/	400	400	400	400
Total e/ do.	13,791	13,735	14,580	14,600	14,100

e/ Estimated. r/ Revised.

1/ Table includes data available through May 1997.

2/ Reported figure.

3/ Ireland also produces significant quantities of synthetic diamond and is the major supplier to the United States. However, output is not quantitatively reported and general information is inadequate to make reliable estimates of output levels.

4/ Excludes output by local authorities and road contractors.

5/ Includes clays for cement production, fire clay, granite, marble, rock sand, silica rock, and slate.

6/ Includes production by farmers and by Bord Na Mona.

7/ Includes milled peat used for briquet production.

8/ From imported crude oil.

TABLE 2
IRELAND: STRUCTURE OF THE MINERAL INDUSTRY FOR 1996

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facility	Annual capacity
Alumina	Aughinish Alumina Ltd. (Alcan Aluminium Ltd.)	Aughinish Island, County Limerick	800
Barite	Magobar Ireland Ltd.	Silvermines, County Tipperary	240
Cement	Irish Cement Ltd.	Plants in Limerick and Platin	2,000
Lead-zinc	Outokumpu Oy	Tara Mine, Navan, County Meath	215
Natural gas million cubic feet	Marathon Oil Co.	Kinsale Head Field, Celtic Sea	75,000
Peat	Bord Na Mona (Government Peat Board)	Production mainly in midlands	4,200
Petroleum, refined barrels per day	Irish Refining Co.	Whitegate, near Cork	56,000
Steel	Irish Ispat (Ispat International Group)	Haulbowline, near Cork	500