



2005 Minerals Yearbook

IRELAND

THE MINERAL INDUSTRY OF IRELAND

By Harold R. Newman

Ireland remained a major European Union (EU) producer of lead and zinc and an important producer of alumina and peat in 2004 (table 1). Zinc production was centered on Anglo American plc's Lisheen lead-zinc mine, Arcon International Resources plc's Galmoy lead-zinc mine, and New Boliden AB's Tara lead-zinc mine; these were three of Europe's most modern mines. Ireland was also one of the leading exporters of lead and zinc. The country's mineral-processing industry was small as was the demand for and consumption of mineral products (table 2).

Ireland has a land area of 70,280 square kilometers (km²). It is bounded by Northern Ireland to the northeast, the Irish Sea to the east, and the Atlantic Ocean to the west. In 2005, the gross domestic product (GDP) based on purchasing power parity was \$168 billion, and the per capita GDP based on purchasing power parity was \$40,610, which was the second highest in the EU behind Luxembourg. The unemployment rate was estimated to be 4.3%, and the annual rate of inflation was about 2.2% (International Monetary Fund, 2006§¹).

Ireland was a small, modern, trade-dependent economy. Industry accounted for about 80% of exports, 46% of the GDP, and 29% of the work force. Although exports were the primary engine for Ireland's growth, the economy also benefited from a rise in business investment, construction, and consumer spending (U.S. Central Intelligence Agency, 2006§).

Environmental issues included water pollution, especially of lakes, from fertilizer runoff from agricultural activities. Ireland's greenhouse gas emissions were still the highest per capita in the EU (U.S. Central Intelligence Agency, 2006§).

Ireland's geology includes several lithological units and tectonic features that are favorable for the occurrence of several types of mineral resources from base metals to industrial minerals. The main focus for exploration and development of Ireland's lead-zinc deposits was the Carboniferous rock of the Midlands region. The mineralization is hosted in strata-bound carbonate units.

The Department of Communications, Marine and Natural Resources provided technical assistance to exploration and mining companies. The Geological Survey of Ireland (GSI) was the national earth science agency and was responsible for providing geologic advice and information and for acquiring data for this purpose. The GSI has conducted many projects of interest to the mineral industry. The GSI produced a range of products that included databases, maps, and reports. It functions as a line division of the Department of Communications, Marine and Natural Resources.

Ireland asked the United Nations to extend its economic control over the continental shelf that borders its coastline beyond the usual 200 nautical miles. It has asked the Secretary

General to the Commission on the Limits of the Continental Shelf for mineral and other rights over the Atlantic seabed abutting the Porcupine Abyssal Plain (Mining Journal, 2005a).

Aughinish Alumina plc's (a subsidiary of the Swiss-based Glencore Group) alumina refinery was situated on Aughinish Island on the south side of the Shannon estuary near Limerick City. Aughinish produced about 1.5 million metric tons per year (Mt/yr) of alumina by treating bauxite ore using the Bayer process. Most of the bauxite came from the Republic of Guinea, although some came from Australia and Brazil (Aughinish Alumina Ltd., 2005a§).

The Bayer process is very energy intensive and uses significant amounts of fuel oil and electricity to convert bauxite into alumina. Because energy is a significant cost, Aughinish has sought ways to improve efficiency. In December 2005, Aughinish started using natural gas in its new 150-megawatt combined heat and power (CHP) plant. CHP is the combined generation of usable heat and power in a single process. It is a highly efficient energy system for industry. It saves about 25% of the energy that would have been required to generate electricity in a conventional power station and heat in separate heat-only boilers (Aughinish Alumina Ltd., 2005b§).

Asarco Exploration Company Inc. was undertaking an extensive technical review of its ground holding in Ireland. The holding covered an area of 555 km² and was divided into five license blocks located in Counties Kildare, Laois, Limerick, Offaly, and Tipperary. These blocks host dolomitized Waulsortian Limestone Complex lithologies similar to those of the Gamoy and the Lisheen lead-zinc ore bodies. Asarco was seeking joint-venture partners for exploration and possible development of the blocks (Geological Survey of Ireland, 2005§).

Conroy Diamonds and Gold plc announced the discovery of 10 new gold targets in its latest sampling program. These more than doubled the number of gold targets in Conroy's exploration licenses, which covered 1,500 km² of the Longford-Down Massif. The individual anomalies were reported to be extensive and range up to 500 meters (m) in length (Conroy Diamonds and Gold plc, 2005§).

Galántas Gold Corp. announced that it would put its Omagh gold property into production. Bulk sampling produced ore with an average grade of 54.4 grams gold per metric ton of ore. Plant capacity would be 150 metric tons per day. The project was expected to provide certified Irish gold feedstock for Galántas's jewelry business. Galántas had full planning consent for an open pit mine and a conventional crush, grind, float-cyanide extraction plant. It did not intend to build a cyanide circuit at this stage, however (Galántas Gold Corp., 2005§).

Ireland was the leading producer of zinc in Europe and had three major producing mines within the Midland Orefield. These operations included the world-class ore bodies at Galmoy, Lisheen, and Navan.

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

Lundin Mining Corp. of Canada agreed to buy Arcon International Resources plc for \$63 million and 5.6 million shares after receiving acceptances that represented 84% of Arcon's outstanding shares. Arcon owned the Galmoy Mine in County Kilkenny, which produced 69,000 metric tons (t) of zinc and 15,000 t of lead in 2004. Lundin Mining already owned the Storliden and the Zingruvan Mines in Sweden (Mining Journal, 2005b).

Minco plc continued a joint-venture diamond drilling project with Falconbridge Ltd. on the Pallas Green zinc-lead project in County Limerick. The Pallas Green Alteration Trend lies 45 km west of the Lisheen Mine and is located in the southern part of the Midland Orefield. The geology of the Pallas Green license block was dominated by the Pallas Green Alteration Trend, which is a zone of structural and hydrothermal complexity that extends for more than 20 kilometers between Castlegarde and Limerick and is believed to be analogous to the Rathdowney Trend with which both the Galmoy and the Lisheen deposits are associated. All the modern Irish carbonate-hosted zinc mines discovered since 1961 were located within the Midland Orefield (London Stock Exchange, 2005§).

New Boliden AB reported that its Tara zinc-lead mine was back in full production following repairs to an electric motor in one of the grinding mills. The breakdown caused New Boliden to declare force majeure at the mine. The motor's breakdown caused the operation's zinc and lead production to fall by about 40% (Mining Engineering, 2005).

Historically, Ireland has not been a very successful location for natural gas and petroleum exploration. Activity has been hindered by the lack of success and by high cost.

Ramco Energy plc reported significant losses following water ingress in its Seven Hills field natural gas wells off the southern coast of Ireland. The intrusion brought production to a halt. The company was reported to be seeking a buyer for its 86.5% interest in the natural gas field (Offshore, 2005).

Outlook

GSI will continue to be responsible for the development of minerals information and for the technical management of the state mineral licensing and leasing system. Ireland will remain a major EU producer of zinc and an important producer

of alumina and lead. Exploration activity for additional new mineral resources, with the main emphasis on gold, lead, and zinc, will continue to increase.

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U.S. Central Intelligence Agency, 2006 (August 22), Ireland, World Factbook 2006, accessed September 7, 2006, at URL <http://www.cia.gov/cia/publications/factbook.html>.

Major Sources of Information

Department of Communication, Marine and Natural Resources
29-31 Adelaide Road
Dublin 2, Ireland
Geological Survey of Ireland
Beggars Bush, Haddington Rd.
Dublin 4, Ireland

TABLE 1
IRELAND: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

Commodity	2001	2002	2003	2004	2005 ^c	
METALS						
Alumina ^c	1,400	1,200	1,200	1,400 ^r	1,500	
Iron and steel, steel, crude	110	--	--	--	--	
Lead:						
Mine output, Pb content	metric tons	44,518	32,486	50,339	65,915	63,810 ²
Metal, refined, secondary ^c	do.	9,800	6,600	6,600	19,600 ^r	19,992 ²
Silver, mine output, Ag content	kilograms	19,300	5,000	6,500 ^r	6,300 ^r	6,000
Zinc, mine output, Zn content	metric tons	225,135	252,700	419,041	444,127	428,596 ²
INDUSTRIAL MINERALS³						
Cement, hydraulic ^c		3,450 ^r	3,320 ^r	3,830 ^r	4,000 ^r	4,000
Gypsum ^c		500	500	500	500	500
Lime ^c	metric tons	100,000	300,000	300,000	300,000	300,000
Nitrogen, N content of ammonia		443	300	--	--	--
Sand and gravel ^{c,4}		12,000	12,000	12,000	12,000	12,000
Stone and other quarry products: ^c						
Limestone	million metric tons	1	1	1	1	1
Other ⁵	metric tons	36,000	36,000	36,000	36,000	36,000
MINERAL FUELS AND RELATED MATERIALS						
Gas, natural, marketed ^c	million cubic meters	2,500	2,500	2,500	2,500	2,500
Peat: ⁶						
For horticultural use		300	350	451	400 ^c	450
For fuel use, milled peat ⁷		4,599	4,138	2,739	5,200 ^c	5,000
Total		4,899	4,488	3,190	5,600 ^c	5,450
Briquets		248	268	269	284	275
Petroleum refinery products:⁸						
Liquefied petroleum gas	thousand 42-gallon barrels	657 ^r	694 ^r	657 ^r	500 ^c	500 ^c
Naphtha ^c	do.	900	900	900	900	900
Gasoline, motor	do.	5,329 ^r	5,585 ^r	5,402 ^r	4,500 ^c	4,500 ^c
Distillate fuel oil	do.	8,176 ^r	7,191 ^r	7,373 ^r	8,000 ^c	8,000 ^c
Residual fuel oil	do.	7,410 ^r	6,899 ^r	6,497 ^r	7,000 ^c	7,000 ^c
Refinery fuel and losses	do.	767 ^r	912 ^r	913 ^r	75 ^c	75 ^c
Total	do.	23,239 ^r	22,181 ^r	21,742 ^r	21,000 ^c	21,000 ^c

^cEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^rRevised. -- Zero.

¹Table includes data available through September 2006.

²Reported figure.

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

⁴Excludes output by local authorities and road contractors.

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

⁶Includes production by farmers and by the Bord Na Mona (Government Peat Board).

⁷Includes milled peat used for briquet production.

⁸From imported crude oil.

TABLE 2
IRELAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2005

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facility	Annual capacity
Alumina		Aughinish Alumina plc (Glencore International AG)	Aughinish Island, County Limerick	1,500
Cement		Irish Cement Ltd.	Plants in Limerick and Platin	2,000
Lead-zinc, concentrate		Anglo American plc	Lisheen Mine, County Kilkenny	160
Do.		Arcon International Resources plc (Lundin Mining Corp., 84%)	Galmoy Mine, County Kilkenny	135
Do.		New Boliden AB	Tara Mine, Navan, County Meath	215
Natural gas	million cubic feet	Marathon Oil Corp.	Kinsale Head Field, Celtic Sea	75,000
Do.	do.	Ramco Energy plc.	Seven Hills field	50,000
Nitrogen, N content of ammonia		Irish Fertilizer Industries	Plant at Marino Point	450
Peat		Bord Na Mona (Government Peat Board)	Production mainly in the Midlands	4,200
Petroleum, refined	42-gallon barrels per day	Irish National Petroleum Corp. Ltd. (Tosco Corp., 100%)	Whitegate, near Cork	75,000
Steel		Irish Ispat (Ispat International NV)	Haulbowline, near Cork (closed)	500