

7. World Review

Barytes is a widely distributed mineral found in many countries and produced by about 40 countries of the world. The world production of Barytes in 1980 was about 8.0 million tonnes. It increased to 8.3 million tonnes in 1981 which is the highest production during the period 1980-1991. Since 1982 the production has been decreasing and declined to 5.3 million tonnes in 1992. The decline in production was due to widespread reduction in individual output and the worldwide economic recession which resulted in weakening demand from the smaller but important sector like barium chemicals manufacturing industry¹. The countrywise world production for the year 1991 and 1992 is given in Table 7.1.

China is the largest producing country which contributed 34 percent of the total world production in 1992. Other major producers in order of production are India, USA, CIS (erstwhile USSR) Morocco, Turkey, Mexico and Germany.

7.1 COUNTRYWISE REVIEW

Countrywise review of barytes production, producers and utilisation is as follows :

(1) China

China is the world's largest producer of barytes since 1983. The production in 1983 was one million tonnes which rose to 1.81 million tonnes in 1992.

Barytes production in China mostly comes from Tangshan, in Hebei province, Shandong province, Linchuan in Jiangxi province, and Huiyuan in Kwangsi autonomous region².

The mines in Kwangsi region account for about two thirds of the total output of China. A massive barytes deposit is located which borders Kwangsi, Guizhou and Hunan. The deposit believed to be the largest in the world, has an

estimated reserve of 400 million tonnes. The deposit occurs just below the surface and is suitable for strip mining³.

China occupies a premier position in World trade also. It exported 1.44 million tonnes in 1990. Besides, barytes mineral, wide variety of barium chemicals are also exported. Out of the total exports major quantity goes to USA⁴.

(2) USA

USA is the third largest producer of barytes in the world, with a production of 410,000 tonnes in 1992. The USA imports ground barytes for filler applications because the domestic supply of this grade is insufficient to meet the requirement of the consuming industries. In 1989 and 1990 it imported 47,000 tonnes and 57,000 tonnes of filler grade barytes respectively⁵.

The important barytes producing companies of the country are as below :

American Minerals Montgomery : The company has fluorspar mines at Rosiclare, which produces 18,140 tpa of barytes as a by-product. The barytes so produced is off-white grade (92 to 94 percent BaSO₄), with specific gravity 4.2 to 4.3. It is used in paints, plastics, fillers and friction products.

Minmet KN (USA) : The company is a subsidiary of China National Metals. It imports barytes from China and meets about 90 percent requirement of USA's premium filler grade material which is used in paints, filler, plastics and chemicals.

New Riverside Ochre Co. (NRO) : NRO produces barytes from its mines at Emerson in Georgia and supply to its 90,700 tpa capacity plant at Cartersville. The production is 31,700 tpa grading 99 percent of BaSO₄. The barytes is used for

radiation shielding concrete and other heavy aggregate applications.

Chemical Products Corp. (CPC) : CPC produces barium chemicals like barium carbonate and barium chloride, using the barytes supplied by the New Riverside Ochre Co. It produces annually 20,000 tonnes of barium carbonate and 6000 to 7000 tonnes of barium chloride.

Mountain Mineral Co. : The company operates an underground mine at Missouri in Montana. The crude barytes from the mine is processed at company's plant in Lethbridge.

(3) CIS (erstwhile USSR)

USSR was fourth largest producer of barytes in 1992 with a production of 400,000 tonnes. The production is not sufficient to meet its internal requirement therefore importing about 400,000 tonnes of barytes every year from other countries. The principal producing mines in USSR were in Georgia, Western Siberia and Kazakhstan^{2,4}.

(4) Morocco⁵

Morocco ranked fifth in world production of barytes with a production of 350,000 in 1992. The important producing companies are given below:

Cie Maroaine des Barytes (Comabar) : The company is the largest producer of barytes in Morocco and has mines at Zelmo and Ighoud with a grinding plant at Safi.

Morocco Minerals Co. : The company operates underground mines at Chemaia in Safi, and Benitadjite in Errachidia. Annual production from Chemaia is about 8,000 to 10,000 tonnes drilling and chemical grade barytes and from Errachidia about 1,000 tonnes of extra white grade. Barytes from Benitadjite is very white in colour and used for paint manufacture,

The Chemaia ore grades more than 97 percent BaSO₄ and is low in silica (less than one percent). Being low in silica, it is suitable for the manufacture of brake linings.

In 1991, Morocco Minerals Co. has developed a new deposit in Midelt region. The deposit is initially planned for opencast mining. The barytes

produced has a specific gravity of 4.25 to 4.30, is suitable for drilling applications.

SA Cherifiene d' Etudes Minerres (Sacem) : The company possesses huge barytes deposit at Taza with reserves more than one million tonnes. The deposit is being developed to produce barytes to American Petroleum Institutes (API) specifications for use in drilling muds and chemical industry.

(5) Thailand

Thailand is one of the largest producer of barytes ranking fifth in the world. Depending upon the export prospects Thailand's production is very much fluctuating. The production is mainly exported to South East Asia, the Pacific areas and the USA. There are about 30 producing mines. The major producing provinces are Chiang Mai, Nakhon si, Thammara, Loei Songkhta and Tak 2.

(6) Mexico⁵

The seventh place in the world production of barytes goes to Mexico with a production of 200,000 tonnes in 1992.

Cia Minera La Valen Ciana is an important barytes producing company of Mexico. The company is operating underground mines near Muzquiz in Coahuila and at Parad in Chihuahua. After beneficiation by gravity separation at mine site, the ore is transported to the plant for processing. The barytes is utilised for manufacture of barium carbonate in a plant located at Torreion. The plant has a capacity of 10,000 to 12,000 tpa.

(7) Turkey⁵

Turkey ranks sixth in world barytes production with a production 300,000 tonnes in 1992. The important producers in the country are given below:

Eti Bank General Management : The company operates quarries in the area between Huyuk town, Konya city and Sarkikaragac town, Isparta city. Ore is transported to Beysehir plant in Arak district, about 9 km away, where it is washed and jigged.

Baser Mining industry & Commerce Inc. : The company is an important producer of non-drilling grade barytes from (a) underground mines at Konya and Isparta (b) opencast quarries in Antalya, Korkuteli, Gazipasa and Nevsehir. The ore is processed by jigging, grinding and micronising to produce 15,000 tpa of barytes grading more than 98 percent BaSO_4 and sp. gr. more than 4.4, for paints, ceramics and filler applications.

Emas Industrial Minerals Co. : The company operates opencast and underground mines at Muh in Mush province. The output is around 45,000 tpa; major portion of the production is used in oil well drilling.

Baryte Maden Turk : The company operates an underground mine near Marash and has a processing plant with a grinding capacity of 10,000 tpa.

Akmeden Mining and Mineral Processing Co. : The company has a 50,000 tpa capacity processing plant at Izmir. After jaw crushing, the ore is washed and hand sorted to produce two grades, white and semi-white. White grade has 95 to 98 percent BaSO_4 . Akmeden is reported to be the largest producer of micronised barytes in the country for use in paint industry.

(8) France

The production of barytes in France was 90,000 tonnes in 1992. The principal producer companies are as below :

Barytine de Chaillac : The company operates an opencast mine and a plant at Chaillac in Central France. Annual production is about 95,000 tonnes of flotation grade baryte (98 percent BaSO_4), with low strontium sulphate to barium sulphate ratio, which renders it suitable for production of barium chemicals. The company has another processing plant of 15,000 tpa capacity at Pontleroy in Montrichard.

The r.o.m. is crushed and ground to 120 micron size and beneficiated in a classic flotation circuit. After drum filtration, the concentrate containing 8 percent moisture is supplied to chemical industries.

While the company exports about 70,000 tpa of barytes to Bad Honningen (Germany) for manufacture of barium chemicals, the dried barytes is consumed locally in a number of applications including sound insulation, brake linings, glass and drilling muds.

Ste Industrielle de Centre : The company produces barytes as a by-product of flourspar mining from an underground mine at Chaillac. The ore is beneficiated at the processing plant (80,000 tpa capacity) by flotation and heavy media separation. Depending upon the level of flourspar production, the barytes output is of the order of 3,000 tpa.

Provencale SA : The company undertakes only processing of barytes at its Cases de Peneplant in the Pyrenees Orientales, which has a capacity of 400,000 tpa for grinding and micronising. It produces different grades of barytes mainly for the paint industry and brake lining.

Recently a copper zinc project is coming up in the region of Chessy, Beaujolais, which will produce pyrite and barytes as by products. The anticipated concentrate production is 50,000 tpa zinc, 2500 tpa copper, 100,000 tpa pyrite and 70,000 tpa barytes.

(9) Italy

The barytes industry in Italy is concentrated in Sardinia, where there are a number of companies engaged in barytes mining. The production of barytes was 50,000 tonnes 1992. The principal producer companies are as below :

S O C Mineraria Baritina S P A ⁵ : The company produces barytes from underground mines at Darzodi Storo in Trentino, Monte Elto and Primaluna in Lombardy. The company's production capacity is 20,000 tpa of natural white barytes. Processing is done by gravity separation, grinding in ball mills and air jet micronising. The company produces barytes of three grades i.e. (a) standard grade (40 μ), micro grade (20 μ) and ultra micro grade (10 μ) to cater to the varying specifications of the consuming industries.

Samatec Co. : It has two mines at *Mastericarro* in Calabria and *Schilipario* in the Alps. The products of the company are precipitated barytes and barium carbonate.

SOC Bario E Derivati : The company has only processing plant. It processes chemical grade barytes from imported barytes at its *Massa* plant. The products are high purity barium carbonate and other barium chemicals.

(10) Brazil

Brazil is the major producer of barytes in South America. Its production was 65,000 tonnes in 1992. In Brazil *Baroid Pigmina Industrial and Commercial SA* a subsidiary of *NL Industries Baroid Division* operates a mine and processing facilities at *Camamu* in *Bahia* state. *Eugeminas Empresa Geral de Mineracao e Industria Lida* produces 40,000 tpa of crude barytes at its open-cast mine at *Vila Itapura*, in the *Miguel Calmon* area of *Bahia* state. The company's 30,000 tpa jigging and grinding plant produces chemical, filler, paint and *API/OCMA* grade material although in the past only 10 percent of production has been consumed in oil well drilling.

(11) Germany

The production of barytes in Germany was 170,000 tonnes in 1992. The following are the important producers.

Metal Gessel Shaft : The company operates underground mines at *Dreislar* and *Wolfach*. *Dreislar* mine produces 70,000 tpa of crude barytes, which is treated at *Hallenberg-liesen* plant. At *Wolfach* where barytes is mined together with *fluorspar*, the production is around 80,000 tpa of crude barytes, which is treated at the associated plant to produce 59,000 tpa of barytes of three grades:

- (a) white filler grade for paints and plastics
- (b) flotation concentrate for the chemical industry and
- (c) drilling grade barytes for oil wells.

Deutsche Baryte : The company operates underground mine at *Bad Lauterberg*, producing about 87,000 tpa of crude barytes. The r.o.m. is beneficiated, by froth flotation, gravity and heavy media separation to produce 33,000 tpa of white filler grade and 10,000 tpa of flotation concentrate.

Fluss and Schwerspat-werke GmbH : The company has three underground mines at *Brunndobra*, *Trusetal* and *Schmalkalden*. The output is around 75,000 tonnes. 80 percent of the production is supplied to chemical industry, 10 percent to paint industry and remaining 10 percent to oil well drilling.

(12) Ireland

Ireland produced 100,000 tonnes of barytes in 1992. The mining is being carried out at barytes deposit near *Silver* mines in *Tipperary* and *Tynagh* lead-zinc-silver-baryte deposit in *Galway*. The barytes is of drilling grade and exported to U.K. for use in *North Sea* drilling operations².

7.2 WORLD TRADE

(1) Exports

The total exports by the exporting countries in 1990 were of the order of 2.9 million tonnes. About 86 percent of this is accounted by the six leading producing/exporting countries viz. *China*, *Turkey*, *Thailand*, *Ireland*, *Morocco* and *India*.

(2) Imports

The total imports by the importing countries in 1990 were of the order of 2.9 million tonnes. About 75 percent of the total imports is accounted by the *USA*, *Germany*, *UK*, *Norway*, *Japan* and *Netherlands*. Eight countries which imported barytes more than 50,000 tonnes in 1990 were *USA* more than 1 million tonnes, whereas *Indonesia* 82,000 tonnes and others.

Countrywise exports and imports for the years 1989 and 1990 are given in *Table-7.2* and *Table-7.3*.

TABLE 7.1 : WORLD PRODUCTION OF BARYTES (1991 AND 1992)

		(Quantity in thousand tonnes)	
Sl. No.	Country	1991	1992
1.	China	1800	1800
2.	India	500	525
3.	U.S.A.	448	410
4.	CIS (USSR erstwhile)	450	400
5.	Morocco	360	350
6.	Mexico	210	350
7.	Turkey	275	300
8.	Germany	168	170
9.	Thailand	100	100
10.	Ireland	100	100
11.	France	90	90
12.	U.K.	65	70
13.	Brazil	65	65
14.	Czechoslovakia	85	60
15.	Algeria	53	50
16.	Italy	49	50
17.	Poland	25	30
18.	Romania	26	30
19.	Other Countries	410	400
World Total		5289	5200

Source : Mineral Commodity Summaries 1993, United States Department of Interior, Bureau of Mines
(Production for the year 1991 & 1992) latest.

TABLE -7.2 : EXPORTS OF BARYTES COUNTRYWISE, (1989 & 1990)

		(Quantity in thousand tonnes)	
Country	1989	1990	
China	1031.30	1442.87	
U.S.A.	17.12	12.51	
India	N.A.	633.00	
Morocco	358.90	373.85	

Country	1989	1990
Thailand	99.31	105.23
Mexico	54.24	41.15
Turkey	301.09	177.01
France	89.03	78.03
Italy	8.74	9.94
Brazil	6.33	12.49
Germany	34.46	36.85
Ireland	74.76	100.77
	2,334.53	2,883.38

Source : 1. British Geological Survey World Mineral Statistics, 1991. (It is updated once in 5 years)

2. Export Possibilities of Minerals. Prepared by F.I.M.I., March 1994 (latest).

Note : 1. Trade in barytes is reported under Standard International Trade Classification.

2. BGS estimates based on known imports into certain countries.

TABLE - 7.3 : IMPORTS OF BARYTES- COUNTRYWISE, (1989 & 1990)

Country	(Quantity in thousand tonnes)	
	1989	1990
United Kingdom	113.01	217.42
Denmark	7.93	16.91
France	45.44	42.05
Germany	218.48	232.32
Italy	61.77	74.21
Netherlands	150.66	94.77
Spain	17.49	23.12
Norway	219.64	194.46
Canada	5.57	8.00
Trinidad & Tobago	48.30	20.68
U.S.A.	1034.15	1044.30
Colombia	16.02	-
Venezuela	84.10	-
Abu Dhabi	-	26.00
Indonesia	61.48	82.39
Japan	129.38	115.68
Korea	4.00	3.53

Country	1989	1990
Malaysia	0.70	-
Singapore	10.05	30.83
Taiwan	1.71	12.00
Australia	14.16	10.15
	2,334.53	2,883.38

Source: British Geological Survey,
World Mineral Statistics, 1991.
(It is updated once in five years)

Note: 1. Trade in barytes is reported under Standard International Trade Classification.
2. BGS estimates based on known imports into certain countries.

References

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