

Sl. No.	Characteristics	Requirements
4.	pH (of aqueous extract)	6 to 9
5.	Carbonates (as CaCO ₃), (percentage by mass)	1.0 max.
6.	Grit, (percentage by mass)	0.001 max.
7.	Loss on drying (at 105° to 110° C), (percentage by mass)	0.5 max
8.	Bulk density, (gm / ml)	2.5 min.
9.	Fineness (wet sieving) (1) Material retained on 125 micron IS sieve, (percentage by mass) (2) Material retained on 63 micron IS sieve, (percentage by mass)	0.002 max. 1.0 max.

Specification for the Mangampeta barytes which are exported :

(A) High grade :

- Specific gravity - 4.23 (4.25 typical)
- Soluble Alkaline Earth Metals as calcium - 250 ppm max.
- Alkaline soluble carbonate - 2500 mg/1 max.
- Extractable sulphide - 50 mg/ 1 max.
- Mercury - 1 mg/kg max.
- Cadmium - 3mg/kg max.
- Moisture - 1% max.
- Size - 100 percent passing a 20 cm ring.

(B) Low grade :

- Specific gravity - 4.10 min. (4.12 typical)

8.3 CONSUMPTION

The statistical data on consumption of barytes in different consuming industries are tabulated in Table 8.7. It may be seen from the table that there is wide fluctuations in the consumption of barytes from year to year. Further, from 1984 to 1985 it witnessed an

abrupt increase in consumption and thereafter it maintained an upward trend. In 1980, the total consumption was of the order of 0.045 million tonnes which increased to 0.148 million tonnes in 1991-92. This represented a four-fold increase, the highest consumption being reported in 1990-91.

**TABLE - 8.7 : CONSUMPTION OF BARYTES FROM 1989-90 TO 1992-93
(BY INDUSTRIES)**

Sl. Industry No:	(Quantity in tonnes)			
	1989-90	1990-91	1991-92	1992-93
All Industries	175,150	181,026	147,935	136,269
1. Oil well drilling	147,100(2) (83.99%)	154,759(2) (80.75%)	119,467(2) (79.17%)	107,888(2)
2. Chemical	22,350(5) (12.76%)	20,120(4) (11.11%)	22,310(4) (15.10%)	22,310(4) (16.37%)
3. Paint	3,000(39) (1.71%)	3,479(39) (1.92)	3,540(37) (2.39%)	3,365(37) (2.47%)
4. Glass	1,300(15) (0.74%)	1,379(16) (0.76%)	1,380(18) (0.93%)	1,468(18) (1.08%)
5. Asbestos Products	1,150(2) (0.66%)	1,039(1) (0.57%)	1,039(1) (0.70%)	1,038(1) (0.76%)
6. Rubber	200(21) (0.11%)	200(21) (0.11%)	200(21) (0.13%)	200(21) (0.14%)
7. Abrasive	50(1) (0.028%)	50(1) (0.03%)	-	-

Note : Figures in parantheses denote the number of units in organised sector, reporting consumption.

Source : M.E. Division, IBM.

Pattern of Consumption

The above table further reveals that the bulk of the barytes is consumed in oil well drilling which accounts about 85 percent of the total consumption. The remaining 15 percent is consumed in chemical, paint, glass, asbestos products and rubber industries. Among these industries, the major share is accounted by chemical industry. The oil well drilling and chemical industry

together account more than 96 percent of the total consumption.¹⁴

(1) OIL WELL DRILLING

The Oil and Natural Gas Commission (now Corporation) and Oil India Ltd. (OIL) are presently engaged in the oil well drilling in the country. The details of metrage drilled and barytes consumed by these two organisations during last five years are as follows.¹⁴

Oil well drilling and barytes consumed by ONGC and OIL.

Year	ONGC		OIL	
	Barytes in metres	Drilling in consumed in tonnes	Drilling metres	Barytes consumed in tonnes
1988-89	9,89,000	1,07,056	1,28,000	6,628
1989-90	13,24,000	1,40,296	1,30,000	6,782
1990-91	10,53,000	1,48,452	1,12,000	6,307
1991-92	9,53,000	1,48,452	1,10,000	2,728
1992-93	10,06,000	1,03,939	99,000	3,949

The above table further reveals that the consumption of barytes per 1,000 m of drilling by the ONGC during the last six years has averaged 117 tonnes. In case of OIL, the barytes consumption rate is 65 tonnes per 1000 m of drilling. There is wide variation in consumption rate of barytes for oil well drilling depending on depth of the well and prevailing pressure conditions from area to area.

(2) CHEMICAL INDUSTRY

Next to oil well drilling, chemical industry is the most important consumers of barytes. There are

five large barium chemical plants which have reported consumption of barytes in their plants. The year-wise consumption by these units during 1989-90 to 1992-93 are tabulated in Table 8.8. The new unit set up in Andhra Pradesh namely M/s. Jyoti Chemicals Ltd., has reported the maximum consumption and the second largest consumer of barytes is reported by M/s. Barium Chemicals Ltd., which is also situated in A.P.¹⁴.

TABLE - 8.8 : UNIT-WISE CONSUMPTION OF BARYTES IN CHEMICAL INDUSTRIES

(Quantity in tonnes)

Sl.No.	Unit	1989-90	1990-91	1991-92	1992-93
1.	Barium Chemicals, Khammam(A.P)	5,772	5,772	5,772	5,772
2.	Barium Industry, Rajasthan.	500	500	500	500
3.	Indian Explosives Ltd., Bihar.	997	997	995	995

Sl.No:	Unit	1989-90	1990-91	1991-92	1992-93
4.	Travancore Chemicals & Mfg. Co. Ltd., Mettur Dam.	6,101	4,377	6,563	6,563
5.	Jyoti Chemicals, (AP) (New Unit)	8,980	8,980	8,980	8,980

Source : M.E.Division, IBM.

(3) PAINT INDUSTRY

The important consumer of barytes is paint industry. During the period for 1989-90 to 1993-94 this unitwise consumption pattern is tabulated in Table 8.9. The paint industry accounts little more than 2.5 percent of the total consumption. M/s. Anglo Dutch Paint, M/s.Modi Paints & M/s. Varnish and Shalimar Paints are among the major consumers of barytes in India¹⁴.

(4) RUBBER INDUSTRY

There are 21 rubber industries units which have reported consumption of barytes in their plants. Of late, it is found that these units con-

sumed only about 200 tonnes per annum and in terms of percentage, it is about 0.1 percent of total consumption¹⁴.

(5) GLASS INDUSTRY

There are about 15 units which reported consumption of barytes. Of which, only 6 units have reported more than 50 tonnes consumption of barytes and are tabulated in Table 8.10. M/s. Bharat Glass Works, M/s. Hindustan National Glass Industries Ltd., and M/s. Alembic Glass Industries are among the important consumers of barytes.¹⁴

TABLE - 8.9 : UNIT-WISE CONSUMPTION OF BARYTES IN PAINT INDUSTRIES

(Quantity in tonnes)					
S.No	Unit	1989-90	1990-91	1991-92	1992-93
1.	ICI Ltd. Chemical Divn., CALCUTTA	122	122	122	122
2.	Anglo Dutch Paint Colour & Varnish Works (P) Ltd.,NEW DELHI	650	650	650	650
3.	Berger Paints (India) Ltd., CALCUTTA	122	122	122	122
4.	Comet Paints Pvt. Ltd., KAIRA	100	100	100	100

S.No	Unit	1989-90	1990-91	1991-92	1992-93
5.	Goodlass Nerolac Paints Ltd., BOMBAY	200	150	343	334
6.	Modi Paints & Varnish Works Ltd., U.P.	331	331	331	331
7.	Indian Paint & Colour Varnish Co., CALCUTTA.	161	161	161	161
8.	Lakshmi Paint Works, CALCUTTA	18	18	18	18
9.	Punjab Paint Colour & Varnish Works, KANPUR	80	105	66	5
10.	Shalimar Paints Ltd., HOWRAH	296	296	296	296

Source : Mineral Economics Division, IBM.

TABLE - : 8. 10 UNIT-WISE CONSUMPTION OF BARYTES IN GLASS INDUSTRIES

(Quantity in tonnes)

SNo:	Unit	1989-90	1990-91	1991-92	1992-93
1.	Alembic Glass Industries, GUJARAT	209	209	209	209
2.	Alembic Glass, Industries, BANGALORE	69	69	69	69
3.	Bharat Glass Works, BOMBAY	343	343	343	343
4.	Universal Glass Ltd. Sahibabad, (U.P)	-	-	-	-
5.	Vazir Glass Works Ltd., BOMBAY	67	54	62	62
6.	Hindusthan National Glass Industries Ltd., Rishra (New unit) Bombay	189	242	116	195

Source : Mineral Economics Division, IBM.

8.4 TRADE

8.4.1 Exports

Till the early 1970's India was exporting minor quantity of barytes. The export during 1970-73 ranged from 20,000 to 41,000 tonnes thus showing the average yearly export during this period to 33,000 tonnes. The demand for the barytes has been increased in the subsequent years and the export from India picked up considerably. This is due to the hike in oil prices in

1974 and hence the search for petroleum intensified all over the world.

Although China is producing more barytes than India, but industries over the world prefer Indian barytes because it is of very good quality. In India only one port exports barytes whereas in China eight ports are engaged for barytes export.

The barytes export data from India during the period for 1988-89 to 1993-94 are tabulated and given in Table 8.11. The table shows that the exports of barytes have been fluctuating.

TABLE - 8.11 : EXPORT OF BARYTES FROM THE YEAR 1988-89 TO 1993-94

Sl.No:	Year	Export (In tonnes)	Value (Rs.'000)
1.	1988-89	433,000	153,257
2.	1989-90	413,120	180,406
3.	1990-91	304,150	159,837
4.	1991-92	392,070	249,085
5.	1992-93	38,129	33,849
6.	1993-94	50,337	48,393

Source : Mineral Statistics Division, IBM.

The varying quantities of exports are because of the rise/fall in oil and gas well drilling activities and this has a result on upsurge or weakening of their prices.

Recently it is observed that barytes importing countries prefer only lumps of barytes, as major

importers have established their own pulveriser mills and to keep their mills busy prefer lumps.

The country-wise exports of barytes (lumps and powders) from India for the year 1993 and 1994 are given below.

Country	1993	1994
	(Thousand Rupees)	
1. United Arab Emirates	16043	14747
2. U.K.	5360	8466
3. U.S.A.	27500	20013
4. Bangladesh	82	151
5. Gautemala	13	47
6. Indonesia	579	3654
7. Qatar	727	1148

Country	1993	1994
	(Thousand Rupees)	
8. Singapore	13	48
9. Srilanka	8	51
10. Bahrain	7	43
11. Spain	5	24
Total	50337	48392

Source : Directorate General of Commercial Intelligence & Statistics (DGCIS), Calcutta.

World Export :

Only three buyers are controlling the entire world barytes market, viz.

(i) Baroid Drilling Fluids Inc.

3000 N. Sam, Houston,
P.O. Box 1675, Houston, Texas 7725
U.S.A.

(ii) Baker Hughes Inteq.

1010 Rankin Road
(77073-4606)
P.O. Box 61486
Houston, Texas 77208-1686
U.S.A.

(iii) M I Drilling Fluids Co.

P.O. Box 42842
Suite 2022
Houston, Texas 77242
U.S.A.

8.4.2 India's Export Policy

The Government of India has been revising the barytes export policy from time to time in order to boost the exports of barytes and earn maximum foreign exchange. The policy for the year 1978-79 was fully canalised through MMTC, except earlier pending private orders which were allowed and

routed through MMTC. However, from 1979-80 onwards upto 1981-82, the export policy envisaged partial canalisation. As per the export policy for 1982-83, exports of barytes from India were fully de-canalised, except for pending orders from Iraq with MMTC. During 1983-84, exports of barytes lumps and powder of OCMA/API grade were allowed by the Licensing Authorities to all categories of exporters without imposing any quantitative restrictions. The exports were allowed by making endorsements on shipping bills, subject to the following conditions :

i) Allowing export of barytes powder without any floor restriction.

ii) Allowing export of barytes lumps on the following floor prices as per metric tonne f.o.b., Indian Port/Madras,

(a) Allowing export of barytes lumps of OCMA/API grade to all destinations except West Asia with floor price of U.S. \$ 40.

(b) Allowing exports of barytes lumps of OCMA/API grade to West Asia with a floor price of U.S. \$ 42.

Exports of white barytes/snow-white barytes/super snow-white barytes possessing the following degree of whiteness were allowed subject to minimum f.o.b. price mentioned against each :

	Degree of whiteness	U.S.\$ per tonne
White barytes	90 - 93%	138
Snow-white barytes	93 - 95%	150
Super snow-white barytes	95 %	162

U.S. \$ 8 was to be charged over and above the floor price when the material is exported in pellets.

Exports of chemical grade barytes powder were allowed on merits.

As the exports were declining, the export duty of Rs. 50 per tonne was abolished with effect from May, 1984 to boost exports of barytes from India.

Export policy of barytes (Lumps and Powder) for the year 1985 to 1988 was amended in December, 1986. The Export policy is as follows :-

1) Exports of barytes lumps and powder OCMA/API grade will be allowed by the Licensing Authority to all categories of exporters without any quantitative restrictions. Export will be allowed by making endorsement on shipping bills, subject to the following conditions :-

- i) Export of barytes powder will be allowed without any floor price restriction;
- ii) Export of barytes lumps OCMA/API grade to all destinations will be allowed to US \$ 32 per metric tonne f.o.b. Indian Port/Madras.

2) Export of white barytes/snow-white barytes/super snow-white barytes of the following degrees of whiteness will be allowed subject to the minimum f.o.b. price mentioned against each:

	Degree of whiteness	US \$ per tonne f.o.b.
White barytes	90 - 93%	88.00
Snow-white barytes	93 - 95%	100.00
Super snow-white barytes	+ 95%	110.00

US \$ 8 will be charged over and above the floor price when the material is exported in pellet.

3) Export of chemical grade barytes and low grade barytes with specific gravity below 4.1 is allowed freely.

Export policy of barytes (lumps and powder) including chemical grade, barytes powder white/snow-white/super snow-white barytes was earlier announced for the year 1988 to 1991. As per the policy, export of barytes is allowed without any restrictions.

In the import and export policy for the period from April, 1990 to March, 1993 as modified in Sept., 1991, barytes does not figure meaning thereby it is not subject to any export restrictions.

With a view that the minerals conform to the specifications stipulated in the export contract as declared by the exporter, the Government of India formulated "Export of minerals and ores Group I and II (Inspection) Rules, 1965". These Rules which came into force on 1st January, 1966, provide for pre-shipment inspection to ensure the conformity of the minerals covered by it to the specifications stipulated in the export contract as declared by the exporter. These rules are applicable to barytes which falls in group II^{5,11,12,14}.

8.4.3 Incentives for Exports of Processed Minerals & Ores under Section 80-HHC of Income Tax Act, 1961.

In order to encourage exports of beneficiated and processed minerals and ores, the Finance Bill, 1991 has proposed an amendment to Section-80 HHC of Income Tax Act, 1961. This amendment provides for deduction from total income the entire profits derived from export of processed minerals and ores specified in the Twelfth Schedule (reproduced below). The proposed amendment will take effect from 1.4.1992 and will directly apply in relation to the assessment year 1992-93 and subsequent years¹⁴.

THE TWELFTH SCHEDULE (SECTION 80 HHC (2) (b) (ii))

Processed Minerals and Ores

(i) Pulverised or micronised barytes, calcite, steatite, pyrophyllite, wollastonite, zircon, ben-

tonite, red or yellow oxide, red or yellow ochre, talc, quartz, feldspar, silica powder, garnet, sillimanite, fireclay, ballclay, manganese dioxide ore.

(ii) Processed or activated bentonite, diatomaceous earth, fuller's earth.

(iii) Processed Kaolin (chinaclay), whiting, calcium carbonate.

(iv) Beneficiated chromite, fluorspar, graphite, vermiculite, ilmenite, brown ilmenite (leucosene) rutile, monazite and other mineral concentrates.

(v) Mica blocks, mica splittings, mica condenser films, mica powder, mica, silvered mica, punched mica, mica paper, mica tapes, mica flakes.

(vi) Exfoliated vermiculite, calcined kyanite, magnesite, calcined magnesite, calcined alumina.

(vii) Sized iron ore processed by mechanical crushing and screening through dry process or mechanical crushing, screening, washing and classification through wet process.

(viii) Iron ore concentrates processed through crushing, grinding or magnetic separation.

(ix) Agglomerated iron ore.

(x) Cut and polished minerals and rocks.

Explanation : For the purposes of this Schedule, "processed", in relation to any mineral or ore means :

a) dressing through mechanical means to obtain concentrates after removal of gangue and unwanted deleterious substances or through other means without altering the mineralogical identity;

b) pulverisation, calcination or micronisation;

c) agglomeration from fines;

d) cutting and polishing;

e) washing and levigation;

f) beneficiation by mechanical crushing and screening through dry process.

g) sizing by crushing, screening, washing and classification through dry process;

h) other upgrading techniques such as removal of impurities through chemical treat-

ment, refining by gravity separation, bleaching, flotation or filtration.

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