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BARYTES

(FINAL RELEASE)

GOVERNMENT OF INDIA
MINISTRY OF MINES
INDIAN BUREAU OF MINES

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3 Barytes

Baryte or barite is a moderately soft crystalline mineral form of barium sulphate ($BaSO_4$). Approximately, 80% barytes produced worldwide is used for oil and gas drilling as a weighting agent in the drill mud, primarily to prevent the explosive release of gas and oil during drilling. Its unique physical and chemical properties like heavyness, high specific gravity, chemical and physical inertness, very low solubility and magnetic neutrality. Barium compounds are utilised as filler, extender and aggregate. Barytes after converting to barium carbonate, is used in the manufacture of ceramic and glass. The Mangampet deposit in Cuddapah district of Andhra Pradesh is the single largest barytes deposit in the world. India is one of the leading producers and exporters of barytes in the world.

RESOURCES

The total resources of barytes in India as on 1.4.2010 as per UNFC system is placed at 73 million tonnes of which 43% constitute reserves and 57% remaining resources. By grades, 40% resources are of Oil-well Drilling grade followed by 6% of Chemical grade, 1% of Paint grade and 33% constitute Low grade. About 20% resources are of Other, Unclassified and Not-known categories. Among the states Andhra Pradesh alone accounts for 94% of the country's baryte resources (Table - 1).

EXPLORATION & DEVELOPMENT

The details of exploration carried out by the Geological Survey of India during 2014-15 are furnished in Table - 2.

PRODUCTION, STOCKS AND PRICES

As per Govt. of India Notification S.O 423(E) dated 10th February 2015 barytes has been declared as 'Minor Mineral' hence the production beyond January 2015 is not available with IBM. However,the production of barytes at 911 thousand tonnes in 2014-15 (up to January 2015) decreased by 22% from that of the previous year due to non-availability of labour and machinery and lack of market demand. There were 21 reporting mines in 2014-15 as against 28 in 2013-14. Andhra Pradesh continued to be the premier state in barytes production accounting for almost 97% of the total production of barytes followed by Telangana and Rajasthan. The contribution of four principal producers was about 99% during the year.

The Andhra Pradesh Mineral Development Corporation (APMDC) Ltd is the sole producer in the Public Sector, which accounted for 90% of the total production during the year under review. The remaining ten percent output of barytes was contributed by 20 Private Sector mines. Contribution of four mines were in the range of above 20,000 tonnes, one mine each was in the range of 5,001 to 20,000 tonnes and 2,001 to 5,000 tonnes respectively, seven mines were in the range of 501 to 2,000 tonnes and rest eight mines were up,to 500 tonnes.

Almost the entire production of barytes was of off-colour variety. Only nominal production was reported in snow white variety which was from Cuddapah district of Andhra Pradesh and Udaipur district of Rajasthan.

The mine-head closing stocks of barytes for the year 2014-15 (up to January 2015) were 4,903 thousand tonnes as against 4,585 thousand tonnes in 2013-14.

The average daily employment of labour in 2014-15 was 942 as against 976 in the previous year.

Table – 1 : Reserves/Resources of Barytes as on 1.4.2010
(By Grades/States)

(In tonnes)

Grade/State	Reserves				Remaining Resources								Total Resources (A+B)
	Proved STD111	Probable		Total (A)	Feasibility STD211	Pre-feasibility		Measured STD331	Indicated STD332	Inferred STD333	Reconnaissance STD334	Total (B)	
		STD121	STD122			STD221	STD222						
All India : Total	**29557972**	**90844**	**1935312**	**31584128**	**179447**	**4288189**	**2608562**	**207384**	**1269214**	**32491229**	**105721**	**41149746**	**72733874**
By Grades													
Chemical-A	91368	41970	133860	267198	1694	21665	20081	-	140553	546843	-	730836	998034
Chemical -B	1469453	17550	603280	2090283	28913	24860	111201	21717	493318	905933	12835	1598777	3689060
Oil- well Drilling	20843906	16722	882447	21743075	85522	169400	562294	48550	177407	6295057	-	7338230	29081305
Paint	87795	14602	119669	222066	-	28452	15606	48904	21608	147135	-	261705	483771
Low	5000	-	5285	10285	-	58068	333928	1210	361950	23040953	92886	23888995	23899280
Others	7032150	-	190771	7222921	28206	3985744	1535592	-	-	12599	-	5562141	12785062
Unclassified	28300	-	-	28300	35112	-	29440	83195	69878	1494283	-	1711908	1740208
Not-known	-	-	-	-	-	-	420	3808	4500	48426	-	57154	57154
By States													
Andhra Pradesh	28010116	79736	1400265	29490117	173429	4206661	2411683	105872	374454	28921318	105721	36299138	65789255
Haryana	-	-	-	-	-	-	-	-	-	440	-	440	440
Himachal Pradesh	27288	-	12645	39933	-	12846	-	48904	12370	3000	-	77120	117053
Jharkhand	-	-	-	-	-	-	-	-	-	35900	-	35900	35900
Karnataka	-	-	-	-	-	-	-	-	-	15175	-	15175	15175
Madhya Pradesh	-	-	-	-	-	18500	4472	-	35000	233940	-	291912	291912
Maharashtra	-	-	-	-	-	-	-	14800	89450	18610	-	122860	122860
Rajasthan	134448	11108	77397	222953	6018	4782	103931	37808	311500	2304688	-	2768727	2991680
Tamil Nadu	-	-	-	-	-	-	-	-	500	221919	-	222419	222419
Telangana	1386120	-	445005	1831125	-	45400	88476	-	12940	711239	-	858055	2689180
Uttarakhand	-	-	-	-	-	-	-	-	-	25000	-	25000	25000
West Bengal	-	-	-	-	-	-	-	-	433000	-	-	433000	433000

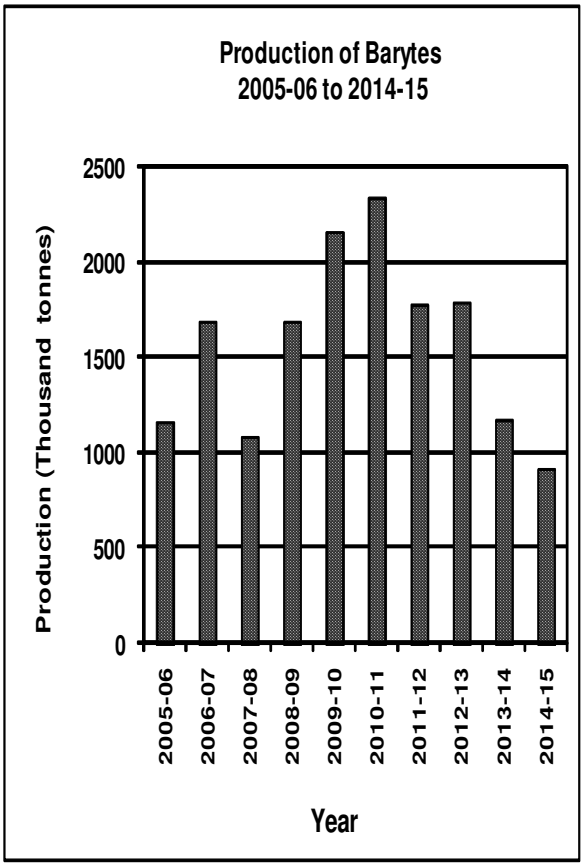
Figures rounded off.

Table –2 : Details of Exploration Activities for Barytes during 2014-15

Agency/ State/District	Location	Mapping		Drilling		Sampling	Remarks
		Scale	Area (sq km)	No. of boreholes	Meterage	No.	Reserves/Resources estimated
GSI							
Andhra Pradesh							
Cuddapah	Mangampet	-	52	2	1600	-	A deep litho stratigraphic-cum-structural drilling of 1600 m and large-scale mapping of 52 sq km were carried out in Mangampet area.The exploration was basically carried out for Base metal. However, zone of reverse fault/thrust of about 150 m width cutting across the crown/periphery of barytes has been recorded in the eastern part of the Northern Baryte lens where deep boreholes have been drilled. The first bore hole was drilled to check the occurrence of base metal below the bedded barytes horizon which usually occurs in this type of deposit. The second borehole was drilled to check the continuity of barytes bed which pinches out around 250 m due east of the first borehole.

Table – 3 : Principal Producers of Barytes 2014-15

Name and address of producer	Location of mine	
	State	District
Andhra Pradesh Mineral Development Corpn. Ltd, HMWSSB, Rear Block, 3rd Floor, Khairatabad, Hyderabad - 500 004, Andhra Pradesh.	Andhra Pradesh	Cuddapah
Sudarsan Barytes Company Arthi Apartment, No.150, Habibullah Road, Post: T Nagar, Chennai-600 017 Tamil Nadu.	Andhra Pradesh	Nellore
S. Ramdas, Arthi Apartment, No.150, Habibullah Road, Post: T Nagar, Chennai-600 017 Tamil Nadu.	Andhra Pradesh	Nellore
Viswabharati Mining Corpn. Ltd, 1/397, Court Road, Cuddapah - 516 001, Andhra Pradesh.	Telangana	Khammam



MINING, MARKETING AND TRANSPORT

Barytes mines in India are worked by opencast method. Andhra Pradesh Mineral Development Corp. Ltd, (APMDC), the largest producer, obtains barytes from the mechanised opencast mine in Mangampet area in Cuddapah district, Andhra Pradesh. Drill machines, loaders, dozers and dumper-trucks are used for removing overburden. Barytes is won from benches using jackhammer drilling followed by blasting and then loading into trucks. The Corporation produces ore by engaging a raising contractor and supplies the ore to Exporters, Oil and Natural Gas Corporation Ltd, Oil India, Barium Chemical Industries and also to local Pulverising Industries. While marketing, barytes is graded into two varieties: off-colour and snow-white.The white and snow-white varieties are used generally as fillers in the manufacture of rubber goods and as an opacifying material in the manufacture of paints and paper. The off-colour barytes is used for manufacturing chemicals or as drilling muds. Both the well-known grades laid down by Oil Companies Material Association (OCMA) and American Petroleum Institute (API) were produced and marketed in the country. The country supplies drilling grade barytes to the countries in Middle East and South America.

Table – 4 : Production of Barytes, 2012-13 to 2014-15 (P)
(By States)

(Qty in tonnes; Value in ₹'000)

State	2012-13		2013-14		2014-15(P)	
	Quantity	Value	Quantity	Value	Quantity	Value
India	**1789431**	**5314116**	**1170522**	**3561386**	**910963**	**2693456**
Andhra Pradesh#	1769940	5291524	1149081	3520639	886929	2639622
Rajasthan	7352	4783	5560	3617	3380	2199
Telangana#	12139	17809	15881	37130	20654	51635

Data up to January 2015.

#Figures mentioned against 2012-13 & 2013-14 are of districts which are part of present Andhra Pradesh and Telangana states.

Table – 5 : Production of Barytes, 2013-14 and 2014-15 (P)
(By Sectors/States/Districts/Grades)

(Qty in tonnes; Value in ₹'000)

State/District	2013-14					2014-15 (P)				
	Grades			Total		Grades			Total	
	No. of mines	Snow-White	Off-colour	Quantity	Value	No of mines	Snow-white	Off-colour	Quantity	Value
India	**28**	**5815**	**1164707**	**1170522**	**3561386**	**21**	**4819**	**906144**	**910963**	**2693456**
Public sector	1	–	1066797	1066797	3440420	1	-	818561	818561	2569682
Private sector	27	5815	97910	103725	120966	20	4819	87583	92402	123774
Andhra Pradesh#	**26**	**4703**	**1144378**	**1149081**	**3520639**	**18**	**4146**	**882783**	**886929**	**2639622**
Cuddapah	22	4703	1070978	1075681	3483939	15	4146	821833	825979	2609147
Nellore	4	-	73400	73400	36700	3	-	60950	60950	30475
Rajasthan	**1**	**1112**	**4448**	**5560**	**3617**	**1**	**673**	**2707**	**3380**	**2199**
Udaipur	1	1112	4448	5560	3617	1	673	2707	3380	2199
Telangana#	**1**	**-**	**15881**	**15881**	**37130**	**2**	**-**	**20654**	**20654**	**51635**
Khammam	1	-	15881	15881	37130	2	-	20654	20654	51635

Data up to January 2015

#Figures mentioned against 2013-14 are of districts which are part of present Andhra Pradesh and Telangana states.

Table – 6 : Production of Barytes, 2013-14 and 2014-15 (P)
(By Frequency Groups)

(Qty in tonnes)

Production Group	No. of mines		Production for the group		Percentage in total production		Cumulative percentage	
	2013-14	2014-15	2013-14	2014-15	2013-14	2014-15	2013-14	2014-15
All Groups	**28**	**21**	**1170522**	**910963**	**100.00**	**100.00**	**–**	**–**
Up to 500	17	8	3216	1240	0.27	0.14	0.27	0.14
501-2000	3	7	3588	6353	0.31	0.70	0.58	0.84
2001-5000	1	1	2080	3380	0.18	0.37	0.76	1.21
5001-20000	5	1	63491	5100	5.42	0.56	6.18	1.77
Above 20000	2	4	1098147	894890	93.82	98.23	100.00	100.00

Data up to January 2015

Table – 7 : Mine-head Stocks of Barytes, 2013-14 & 2014-15 (P)
(By States/Grades)

(In tonnes)

State	2013-14			2014-15		
	Grades		Total	Grades		Total
	Snow-white	Off-colour		Snow-white	Off-colour	
India	**6958**	**4577997**	**4584955**	**1899**	**4901104**	**4903003**
Andhra Pradesh#	6731	4508970	4515701	1862	4816376	4818238
Himachal Pradesh	–	87	87	–	87	87
Rajasthan	227	960	1187	37	1608	1645
Telangana#	–	67980	67980	–	83033	83033

(P)Provisional, up to January 2015, #Figures mentioned against 2013-14 are of districts which are part of present Andhra Pradesh and Telangana.

CONSUMPTION

The consumption of barytes was about 138 thousand tonnes in 2013-14 and 2014-15. The Oil-well drilling Industry is the main consumer of barytes, accounted for 77% consumption, which was followed by Chemical Industry while the other barytes consuming industries like paint, asbestos products, glass, rubber, paper and cement accounted for about 5% of the consumption (Table-8).

Table – 8 : *Consumption of Barytes, 2012-13 to 2014-15 (P)
(By Industries)

(In tonnes)

Industry	2012-13	2013-14 (R)	2014-15 (P)
All Industries	**186200**	**138100**	**138100**
Chemical	34300(5)	34300(5)	34300(5)
Glass	600(8)	600(8)	600(8)
Oil-well drilling	143400(2)	95300(2)	95300(2)
Paint	6800(31)	6800(31)	6800(31)
Others (Paper, Rubber & Cement etc.)	1100(6)	1100(6)	1100(6)

Figures rounded off.
Figures in parentheses denote the number of units in organised sector reporting consumption.*
(Paucity of data, hence consumption may not be complete).*

USES AND SPECIFICATIONS

Oil and Gas Drilling

The properties like non-corrosive, non-abrasive, insolubility in water, inertness and high specific gravity enable barytes application as a weighting agent in drilling operations to remove the cutting from the bits, transport cutting to the surface to reduce the friction in the drilling string, control pressure, prevent blow-out and at the same time to provide lubrication. Barytes most desirable characteristics is its high specific gravity which makes it the only mineral used in substantial tonnages to increase the density of water based drilling. Barytes powder containing minimum 90% barium sulphate with 4.15 specific gravity is recommended for drilling. For offshore drilling, the specific gravity should be 4.2. At least 97% ground barytes should pass through 75- micron IS sieve and 95% through 53- micron IS sieve. BIS has prescribed IS:2881:1984 (Reaffirmed 2010) as specification of barytes for use in Chemical Industry and Oil-well drilling Industry.

Chemical

Major barium chemicals obtained from barytes are carbonate, chloride, oxide, hydroxide, nitrate, peroxide and sulphate. Barium carbonate is used in Glass Industry as a flux to add brilliance & clarity in electro-ceramics and for removing inconvenient impurities in phosphoric acid. Barium hydroxide is used in the preparation of barium salts of organic acids which are utilised as additives for lubricating oils and as stabilisers for PVC. Barium sulphate is used as pigment, extender and filler in Rubber and Paper Industries.

Lithopone, a mixture of $BaSO_4$ and ZnS, is used in Paint and Lacquer Industries as white pigment, extenders and fillers. Barium nitrate is used in green signal flares, tracer bullets, primers and detonators. Barium oxide is used in electric furnace. Barium titanate finds its use in miniature electronic and communication equipment. Barytes is also used in explosive manufacture.

For Chemical Industry, purity is the prime criterion, with ferric oxide and strontium sulphate limited to a maximum 1% and fluorine to traces. The mesh size is also important in manufacturing chemicals. Barytes used in explosive manufacture may be bleached or unbleached. It should be in dry powder form free from extraneous matter.

Paint

Barytes is used as filler and extender in Paint Industry. White pigment is manufactured from barytes. Barytes should be free from mud, clay or siliceous minerals. Presence of iron oxide is undesirable. The material should be in the form of dry powder.

Glass

In glass manufacturing, barytes is added to the glass melt for making the glass more workable and enhancing its brilliance. Iron is the most undesirable impurity in barytes.

Rubber

Barytes is used as a filler and extender in rubber products. It is added to rubber compounds to impart resiliency and durability. Barytes containing minimum 99.5% $BaSO_4$ is usually preferred. Since such purity material is not found in nature, before use, barytes is normally bleached called 'blanc fixe' used as a best acid resistance. The sieve residue through 75-micron and 150- micron should be 4% and 0.01% max., respectively. BIS has prescribed IS:1683-1994 (Reaffirmed 2008) as specification of barytes for use in Rubber Industry.

Other Uses

Barytes is used in the manufacture of asbestos products required for autobrake lining and other frictional materials. It is used as a filler in Paper Industry, oil cloth, X-Ray proof plaster and rope finishes. Finely ground barytes and clay are used as suspension in Barvois system of coal washing. Barytes is also used in concrete aggregate as an absorber of gamma and X-Ray radiation required for reactor shielding. In medicine, it is used in radiodiagnosis to highlight the abnormalities in internal body parts. Barytes also finds use in explosives and pyrotechnics composition for which BIS has laid down specifications vide IS 7588-1992 (Reaffirmed 2011).

The specifications of barytes for various industries are detailed in Table - 9.

SUBSTITUTES AND TECHNICAL POSSIBILITIES

Drilling mud substitutes include celestite, witherite calcium carbonate, synthetic hematite and ilmenite but the low cost and technical advantages of barytes deter substitution. Iron ore fines and ilmenite are substitutes used for deep drilling. Apart from calcium carbonate, none of the mineral substitutes has had a major impact on the barytes drilling mud industry. Reclamation and recycling of drilling muds have been increasingly hampering the requirement for new supplies. Further new oil exploration techniques and drilling methods have reduced the need for new boreholes and wells, which have led to curtailment in the requirement for drilling muds. As a filler, barytes can be substituted by diatomite, felspar, kaolin, mica, talc and silica flour.

Table –9 : Specifications of Barytes in Different Industries

Industry	IS Specifications/ Specifications of other organisation	Chemical constituent						Physical characteristic							Remarks
		$BaSO_4$	SiO_2	Ca & Mg as $CaCO_3$	$BaCO_3$	Aluminium as Al	Iron as Fe	Fineness	Relative density	Colour	Volatile matter	Residue on sieve	Oil absorption	pH	
1. Oil-well drilling	IS : 2881-1984, (Reaffirmed 2010)	90%	-	-	-	-	-	(a) Passing through 75-micron IS sieve : 97% min. (b) Passing through 53 micron IS sieve : 95% min.	4.15 at 27 °C	Off-colour	-	-	-	-	For offshore drilling, relative density shall be 4.20.
	ONGC	-	-	-	-	-	-	Passing through 75 & 53 micron	-	-	-	75	-	-	-
	Oil India Ltd.	90% min.	-	-	-	-	-	-	4.15 at 26+/-2 °C	white	-	-	-	-	-
2. Chemical	IS : 2881-1984, (Second Revision, Reaffirmed 2003) Grade-1	Quality 'A' 97% min.	2% max.	0.1% max.	-	0.1% max.	0.1% max.	-	-	-	-	-	-	-	-
		Quality 'B' 90% min.	-	2% max.	-	-	1.5% max.	-	4.0 min.	-	-	-	-	-	Silica and aluminium oxide together shall be 6% max.

(Contd.)

Table –9 (Concld.)

Industry	IS Specifications/ Specifications of other organisation	Chemical constituent						Physical characteristic							Remarks
		$BaSO_4$	SiO_2	Ca & Mg as $CaCO_3$	$BaCO_3$	Alumi-nium as Al	Iron as Fe	Fineness	Relative density	Colour	Volatile matter	Residue on sieve	Oil absorption	pH	
3. Paint	IS : 64-1972, (First Revision, Reaffirmed 2004) Type - I (Natural barytes) Grade - I	95% min.	-	-	2.24% max.	-	-	-	4.45 at 25 °C	Snow-white to white.	0.5% max.	0.25% on 40-micron IS sieve (400 mesh)	6 to 12	6 to 8	Matter soluble in water should not be more than 0.5%.
	Grade-II	95% min.	-	-	2.24% max.	-	-	-	4.45% at 25 °C	-do-	0.5% max.	0.25% on 63-micron IS-Sieve (240 mesh)	6 to 12	6 to 8	Matter soluble in water should not be more than 0.5%.
	Type-II (Precipitated barytes)	97% min.	-	-	0.45% max.	-	-	-	3.36 at 25 °C	A close match to that of ap-proved sample	0.5% max.	0.1% on 40-micron IS-sieve (400 mesh)	15 to 30	6 to 8	Matter soluble in water should not be more than 0.5%.
4. Glass	Based on user's demand	90 to 98% (preferably 96%)	1.5% max.	-	-	0.15% max. as Al_2O_3	0.3 to 0.5% max. (pre-ferably 0.1% Fe_2O_3)	30/80 mesh	-	-	-	-	-	-	Iron is the most undesirable impurity; white colour or light shades are preferred.

Note: BIS has prescribed IS: 1683-1994 for specifications of barytes used in Rubber Industry and IS:7588-1992 for that used in Explosive Industry.

TRADE POLICY

As per Foreign Trade Policy (FTP) 2009-14, in force, import and export of barytes (both lumps and powder) as also witherite (natural barium carbonate) are allowed without restrictions under HS Code 2511.

WORLD REVIEW

The world reserves of barytes are assessed at 380 million tonnes. China (26%), Kazakhstan (22%), Turkey (9%), India (8%), USA (4%), Morocco (3%) and Mexico (2%) accounted for 74% world reserves (Table-10).

The world production of barytes increased marginally to 9.31 million tonnes in 2014. The leading producers were China (44%), India (15%), Morocco (11%), USA (8%) and Iran (5%). The country-wise production of barytes is given in Table - 11.

FOREIGN TRADE

Exports

Exports of barytes decreased considerably to 6.52 lakh tonnes in 2014-15 from 10.68 lakh tonnes in the previous year. Exports were mainly to USA (47%), Saudi Arabia (22%) and Kuwait (7%). Exports of witherite also increased considerably to 10 tonnes from 6 tonnes during the previous year (Tables - 12 and 13).

Table – 10 : World Reserves of Barytes (By Principal Countries)

(In '000 tonnes)

Country	Reserves
World : Total (rounded)	**380000**
China	100000
India	32000
Iran	24000
Kazakhstan	85000
Mexico	7000
Morocco	10000
Pakistan	1000
Turkey	35000
USA	15000
Other countries	66000

Source : *Mineral Commodity Summaries, 2016.*
**India's total resources of barytes as per UNFC System are placed at 72.7 million tonnes as on 1.4.2010*

Table – 11: World Production of Barytes (By Principal Countries)

(In '000 tonnes)

Country	2012	2013	2014
World : Total	**9819**	**8516**	**9307**
Algeria	36	30	57
Australia	10	13	15
Bolivia	20	30	26
Canada	22	25	25
China	4400	3500	4100
Germany	52	45	71
India*	1789	1137	1439
Iran	315	436	440[e]
Kazakhstan	590	530	200
Laos	23	27	46[e]
Mexico	140	119	131
Morocco	1021	1095	1007
Myanmar	22	31	23
Nigeria[e]	11	11	11
Pakistan	49	118	132
Peru	79	52	106
Russia[e]	64	64	45
Saudi Arabia	32	30	32
Slovakia	21	24	21
Thailand	64	107	135
Turkey[e]	250	250	340[e]
UK	30	30[e]	44[e]
USA	666	700[e]	720[e]
Vietnam	90	90	100
Other countries	23	22	41

Source: *World Mineral Production, 2010-2014.*
** India's production of barytes during 2012-13, 2013-14 and 2014-15 was 179 thousand tonnes, 117 thousand tonnes and 910 thousand tonnes respectively.*

Table – 12 : Exports of Barytes (By Countries)

Country	2013-14		2014-15 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**1067755**	**8699415**	**651571**	**4525675**
USA	345445	2289610	304417	1559433
Saudi Arabia	255978	2288285	145754	1254063
Kuwait	65287	415600	43929	305499
Sudan	11159	93913	25116	209599
Argentina	15718	144677	21631	180993
Canada	2674	22407	15536	132621
Venezuela	44799	463033	10990	122888
Singapore	16739	150994	10211	94333
UAE	14154	121710	9622	83467
Oman	40277	357375	10108	82858
Other countries	255525	2351811	54257	499921

Table – 13 : Exports of Witherite (By Countries)

Country	2013-14		2014-15 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**6**	**79**	**10**	**526**
Kuwait	-	-	10	526
Other countries	6	79	-	-

Imports

In 2014-15, imports of barytes increased marginally to 7,484 tonnes as compared to 5,687 tonnes in the previous year. Imports were mainly from China (52%), Pakistan (23%) and UK (13%). On the other hand imports of witherite decreased considerably to 184 tonnes as compared to 344 tonnes during the previous year and was mainly from Germany (89%) and Slovak Rep. (11%) in 2014-15 (Tables - 14 and 15).

Table – 14 : Imports of Barytes (By Countries)

Country	2013-14		2014-15 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**5687**	**144378**	**7484**	**146614**
China	4222	78968	3911	79412
UK	1126	34300	984	29520
Netherlands	13	657	563	15826
Pakistan	-	-	1715	15101
UAE	21	446	221	3098
Belgium	-	-	50	1569
Germany	92	23935	27	922
Japan	6	984	11	843
Malaysia	-	-	++	118
USA	29	1533	1	97
Other countries	178	3555	1	108

Table – 15: Imports of Witherite (By Countries)

Country	2013-14		2014-15 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**344**	**7122**	**184**	**5268**
Germany	40	934	164	4861
Slovak Rep.	-	-	20	400
UK	-	-	++	7
Other countries	304	6188	-	-

FUTURE OUTLOOK

India ranks second in the production of barytes in the world after China and is one of the important exporters in the world market. About 80% of the world's barytes is used in the Petroleum Industry. The worldwide demand for barytes would continue till petroleum products are preferred as chief source of energy given their importance in the transportation and industrial end-use sectors. The future growth in petroleum usage suggests that petroleum exploration will continue to grow and along with it barytes consumption, especially as more drilling has to be done per unit of oil as hydro carbon discoveries become marginal and less productive with time. In the domestic front, however, exploration is necessary to locate new deposits of barytes especially in Rajasthan, Himachal Pradesh, etc. The apparent domestic demand of barytes is estimated to be 2.09 million tonnes by 2016-17 and is expected to grow at 9% growth rate.