

DIASPORE



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DIASPORE

(FINAL RELEASE)

**GOVERNMENT OF INDIA
MINISTRY OF MINES
INDIAN BUREAU OF MINES**

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Diaspore is a dimorphous form of boehmite, with chemical formula $AlO(OH)$ (betamono hydrate of aluminium). It is an important constituent of bauxite. It is used chiefly for making high-alumina refractory bricks. It is also used as a filler in plastic industry and in jewellery as a gemstone.

RESOURCES

Diaspore occurs as thin veins, stringers and geode like bodies in association with pyrophyllite in Uttar Pradesh and Madhya Pradesh. The host rock mainly comprises granite, quartz and pyrophyllite of Bundelkhand Super Group, and as a common constituent of bauxite in Jammu & Kashmir.

As per UNFC System of resource classification, the total resources of diaspore as on 1.4.2010 are placed at 5.98 million tonnes of which about 63% are located in Madhya Pradesh, 37% in Uttar Pradesh and a nominal quantity in Jammu & Kashmir. About 2.86 million tonnes (48%) of these resources are placed under reserves category. Out of the total resources, more than 76% are grouped under refractory grade, less than 1% in ceramic grade, while 23% resources fall under unclassified, not-known and other grades (Table - 1).

PRODUCTION, STOCKS & PRICES

As per Govt. of India Notification S.O.423(E) dated 10th February 2015, diaspore has been declared as 'Minor Mineral', hence the production beyond January, 2015 is not available with IBM. The production of diaspore at 12,207 tonnes in 2014-15 (upto January 2015) registered a decrease of 16% as compared to that in the previous year.

The entire production of diaspore was reported as an associated mineral by 15 pyrophyllite mines in 2014-15. Five principal producers accounted for 93% of the total production during the year. The private sector accounted for the entire production of diaspore during the year.

Uttar Pradesh being the leading producer of diaspore contributed about 61% of total production. The remaining 39% production was reported from Madhya Pradesh (Tables - 2 to 4).

Mine-head closing stocks of diaspore for the year 2014-15 (upto January 2015) were 8,532 tonnes as against 6,706 tonnes in the previous year (Table -5).

Prices of diaspore are furnished in the General Review on 'Prices'.

**Table – 3 : Production of Diaspore, 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	16222	25742	14599	29166	12207	25480
Madhya Pradesh	7268	10954	6479	13570	4717	9652
Uttar Pradesh	8954	14788	8120	15596	7490	15828

* Production figures are upto January, 2015

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

(In tonnes)

Grade/State	Reserves			Remaining Resources				Total Resources (A+B)				
	Proved STD111	Probable STD121 STD122	Total (A)	Feasibility STD211	Pre-feasibility STD221 STD222	Measured STD331	Indicated STD332		Inferred STD333	Reconnaissance STD334	Total (B)	
All India : Total	1469687	1106296	2859674	187821	714316	488395	248880	133360	1306306	46068	3125144	5984818
By Grades												
Ceramic	5646	6274	11920	-	-	-	-	-	252	-	252	15309
Refractory-I	1459674	706699	2166373	11659	156266	80350	545	-	531597	-	780415	3081407
Refractory-II	4367	345830	350197	171443	347331	156025	199559	44381	205550	-	1124289	1492271
Unclassified	-	-	57531	-	3178	23080	-	6502	6422	46068	85250	142781
Not-known	-	-	-	-	4522	3290	-	9950	10966	-	28728	28728
Others	-	47493	70619	4719	203019	225650	48776	72527	551519	-	1106210	1224322
By States												
Jammu & Kashmir	-	-	-	-	-	-	-	566	711	-	1277	1277
Madhya Pradesh	719609	562818	1282427	51764	386086	349488	248335	132794	1081412	46068	2295947	3752850
Uttar Pradesh	750078	543478	1293556	136057	3282230	138907	545	-	224183	-	827922	2230693

Figures rounded off.

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Table – 2 : Principal Producers* of Diaspore, 2014-15

Name and address of producer	Location of mine	
	State	District
Jindutt Minerals Pvt. Ltd, Post Box No. 27, Dhadari, Chhatarpur-471 001, Madhya Pradesh	Madhya Pradesh	Chhatarpur*
The Ishwar Industries Ltd, Room No.1, 'Charan Kamal', 7, Ishwar Nagar, Mathura Road, New Delhi-110 065.	Uttar Pradesh	Lalitpur*
J.K.Minerals, C-1 & C-2 Industrial Estate, Gwalior Road, Jhansi-284 003, Uttar Pradesh.	Uttar Pradesh	Jhansi* Lalitpur*
Khajuraho Minerals, Post Box No.25, Chhatarpur-471 001 Madhya Pradesh.	Madhya Pradesh	Chhatarpur*
Eastern Minerals, 35,Vivekanand Marg, Cantonment, P.O. Jhansi-284 001, Uttar Pradesh.	Madhya Pradesh	Chhatarpur*

* Produced as an associated mineral with pyrophyllite.

**Table – 4 : Production of Diaspore, 2013-14 and 2014-15(P)*
(By Sectors/States/Districts)**

(Qty in tonnes; value in ₹'000)

State/District	2013-14			2014-15(P)*		
	No. of mines	Quantity	Value	No. of mines	Quantity	Value
India	(15)	14599	29166	(15)	12207	25480
Private sector	(15)	14599	29166	(15)	12207	25480
Madhya Pradesh	(8)	6479	13570	(7)	4717	9652
Chhatarpur	(4)	5711	11973	(6)	4361	8814
Shivpuri	(1)	556	1223	(1)	356	838
Tikamgarh	(3)	212	374	-	-	-
Uttar Pradesh	(7)	8120	15596	(8)	7490	15828
Jhansi	(2)	52	51	(3)	139	125
Lalitpur	(3)	7673	14671	(3)	7087	15111
Mahoba	(2)	395	874	(2)	264	592

Figure in parenthesis indicates associated mines with pyrophyllite.

* Production figures are upto January, 2015

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**Table – 5 : Mine-head Closing Stocks of Diaspore, 2013-14 & 2014-15(P)*
(By States)**

State	2013-14	2014-15(P)*
India	6706	8532
Madhya Pradesh	1171	1477
Uttar Pradesh	5535	7055

* Upto January, 2015

MINING AND MARKETING

Diaspore is normally mined manually by opencast method. Mining has been carried out by formation of benches in overburden and mined up to a depth of 25 m. The average Al₂O₃ content in the mined ore ranges between 42-72% and Fe₂O₃ between 0.7-4.45%.

Chhatarpur, Shivpuri and Tikamgarh districts in Madhya Pradesh and Lalitpur, Jhansi and Mahoba districts in Uttar Pradesh are the mining centres of diaspore in the country.

CONSUMPTION & USES

Diaspore mainly finds application in the manufacture of high alumina refractories either on its own or by bonding with flint or plastic clay as per content of alumina needed in the finished product. The domestic refractory manufacturers use indigenous diaspore, analysing Al₂O₃ 56 to 62%, Fe₂O₃ 1 to 4% , TiO₂ 0.8 to 1.5%, Pyrometric Cone Equivalent (PCE) 36 (min.) and of size between 75 and 150 mm. In 2014-15, about 14,800 tonnes diaspore was consumed entirely in refractory industry. The consumption of diaspore increased considerably by 30% as compared to previous year (Table - 6).

In addition to its industrial applications, diaspore is also used for making decorative items such as small figurines, lampshades, flower-vase, etc.

Crystallised diaspore specimens are highly desired by mineral collectors, especially those from Turkey. The transparent colour-changing diaspore often promoted by the name Zultanite is used as a gemstone. There are other varieties of diaspore namely chrome diaspore, Csarite, mangan diaspore & Zultanite. Zultanite was officially abandoned in 2012 by Murat Algun, the original promoter of the name Zultanite.

It is commonly used in refractories, cosmetics & soaps, ceramics, paper, rubber, potteries, insecticides, toys and statues.

**Table – 6 : Consumption* of Diaspore
2012-13 to 2014-15(P)
(By Industries)**

Industry	2012-13	2013-14(R)	2014-15(P)
All Industries	20800	11400	14800
Refractory	20800(15)	11400 (15)	14800(15)

Figures rounded off.

Figures in parentheses denote the number of units in organised sector.

** Paucity of data, hence coverage may not be complete.*