

DIASPORE



# Indian Minerals Yearbook 2012

(Part- III : Mineral Reviews)

**51<sup>st</sup> Edition**

**DIASPORE**

**(FINAL RELEASE)**

**GOVERNMENT OF INDIA  
MINISTRY OF MINES  
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**February, 2014**

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**D**iaspore is a dimorphous form of boehmite, with chemical composition  $Al_2O_3 \cdot H_2O$  (betamono-hydrate of aluminium). It is an important constituent of bauxite. Because of its good refractory properties, it is used chiefly for making high-alumina refractory bricks. It is also used as a filler in plastic industry.

## 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

The production of diaspore at 24,124 tonnes in 2011-12 registered a decrease by 8% as compared to that in the previous year.

The entire production of diaspore was reported as an associated mineral by 17 pyrophyllite mines in 2011-12. Five principal producers accounted for 95% of the total production during the year. The private sector accounted for almost entire production of diaspore during the year.

Madhya Pradesh being the leading producer of diaspore contributed about 51% of total production. The remaining 49% production was reported from Uttar Pradesh (Tables - 2 to 4).

Mine-head stocks of diaspore at the end of 2011-12 were 7,490 tonnes as against 6,905 tonnes at the beginning of the year (Table -5). Prices of diaspore are furnished in the General Review on Prices'.

**Table – 3 : Production of Diaspore, 2009-10 to 2011-12  
(By States)**

(Qty in tonnes; value in ₹ '000)

State	2009-10		2010-11		2011-12(P)	
	Quantity	Value	Quantity	Value	Quantity	Value
<b>India</b>	<b>25569</b>	<b>27422</b>	<b>26082</b>	<b>32003</b>	<b>24124</b>	<b>28519</b>
Madhya Pradesh	11042	8540	11165	9251	12399	11660
Uttar Pradesh	14527	18882	14917	22752	11725	16859

**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)	
<b>All India : Total</b>	<b>1469687</b>	<b>1106296</b>	<b>283691</b>	<b>187821</b>	<b>714316</b>	<b>488395</b>	<b>248880</b>	<b>133360</b>	<b>1306306</b>	<b>46068</b>	<b>3125144</b>	<b>5984818</b>
<b>By Grades</b>												
Ceramic	5646	6274	3137	-	-	-	-	-	252	-	252	15309
Refractory-I	1459674	706699	134619	11659	156266	80350	545	-	531597	-	780415	3081407
Refractory-II	4367	345830	17785	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
<b>By States</b>												
Jammu & Kashmir	-	-	-	-	-	-	-	566	711	-	1277	1277
Madhya Pradesh	719609	562818	174476	51764	386086	349488	248335	132794	1081412	46068	2295947	3752850
Uttar Pradesh	750078	543478	109215	136057	3282230	138907	545	-	224183	-	827922	2230693

Figures rounded off.

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**Table – 2 : Principal Producers\* of Diaspore, 2011-12**

Name and address of producer	Location of mine	
	State	District
Jindutta Minerals Pvt. Ltd Post Box No. 27, Dhadari, Chhatarpur-471 001, Madhya Pradesh.	Madhya Pradesh	Chhatarpur
The Ishwar Industries Ltd 'Charan kamal', 7, Ishwar Nagar, Mathura Road, New Delhi-110 065.	Uttar Pradesh	Lalitpur
J.K.Minerals C1 & C2 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 Area, P. O. Jhansi-284 001, Uttar Pradesh.	Madhya Pradesh	Tikamgarh Chhatarpur

\* Produced as an associated mineral with pyrophyllite.

**Table – 4 : Production of Diaspore, 2010-11 and 2011-12  
(By Sectors/States/Districts)**

(Qty in tonnes; value in ₹ '000)

State/District	2010-11			2011-12(P)		
	No. of mines	Quantity	Value	No. of mines	Quantity	Value
<b>India</b>	<b>(18)</b>	<b>26082</b>	<b>32003</b>	<b>(17)</b>	<b>24124</b>	<b>28519</b>
Public sector	(1)	40	180	-	-	-
Private sector	(17)	26042	31823	(17)	24124	28519
<b>Madhya Pradesh</b>	<b>(10)</b>	<b>11165</b>	<b>9251</b>	<b>(9)</b>	<b>12399</b>	<b>11660</b>
Chhatarpur	(6)	8601	5936	(6)	11532	10270
Shivpuri	(1)	1264	2528	(1)	659	1301
Tikamgarh	(3)	1300	787	(2)	208	89
<b>Uttar Pradesh</b>	<b>(8)</b>	<b>14917</b>	<b>22752</b>	<b>(8)</b>	<b>11725</b>	<b>16859</b>
Jhansi	(3)	648	590	(2)	430	378
Lalitpur	(3)	12907	20746	(4)	10738	15900
Mahoba	(2)	1362	1416	(2)	557	581

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**Table – 5 : Mine-head Stocks of Diaspore, 2011-12(P)  
(By States)**

State	At the beginning of the year	At the end of the year
<b>India</b>	<b>6905</b>	<b>7490</b>
Madhya Pradesh	1598	2217
Uttar Pradesh	5307	5273

### **MINING AND MARKETING**

Diaspore is normally mined manually by opencast method. Mining has been carried out by formation of benches in O.B. and minerals & mined up to a depth of 25 m. The average Al<sub>2</sub>O<sub>3</sub> content in the mined ore ranges between 42 and 72% and Fe<sub>2</sub>O<sub>3</sub> between 0.7 and 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**

Diaspore mainly finds application in the manufacture of high alumina refractories either by itself 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 Al<sub>2</sub>O<sub>3</sub> 56 to 62%, Fe<sub>2</sub>O<sub>3</sub> 1 to 4% , TiO<sub>2</sub> 0.8 to 1.5%, Pyrometric Cone Equivalent(PCE) 36 (min.) and of size between 75 and 150 mm. In 2011-12, about 9,100 tonnes diaspore was consumed mostly

in refractory industry. A very negligible quantity was consumed in ceramic industry. The consumption of diaspore remained same as 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.

**Table – 6 : Reported Consumption of Diaspore  
2009-10 to 2011-12  
(By Industries)**

Industry	2009-10	2010-11(R)	2011-12(P)
<b>All Industries</b>	<b>14000</b>	<b>9100</b>	<b>9100</b>
Ceramic	++(1)	++(1)	++(1)
Refractory	14000(18)	9100 (15)	9100(14)

*Figures rounded off.*

*Figures in parentheses denote the number of units in organised sector reporting\* consumption.*

*(\*Includes actual reported consumption and/or estimates made wherever required.)*