Indian Minerals Yearbook 2015

(Part- III : MINERAL REVIEWS)

54th Edition

MICA

(FINAL RELEASE)

GOVERNMENT OF INDIA
MINISTRY OF MINES
INDIAN BUREAU OF MINES

Indira Bhavan, Civil Lines,
NAGPUR – 440 001

PHONE/FAX NO. (0712) 2565471
PBX : (0712) 2562649, 2560544, 2560648
E-MAIL : cme@ibm.gov.in
Website: www.ibm.gov.in

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36 Mica

Mica is widely distributed and occurs in igneous, metamorphic and sedimentary regimes. Mica group represents 34 phyllosilicate minerals that exhibits a layered or platy structure. Commercially important mica minerals are muscovite (potash or white mica) and phlogopite (magnesium or amber mica). Granitic pegmatites are the source of muscovite sheet, while phlogopite is found in areas of metamorphosed sedimentary rocks into which pegmatite rich granite rocks have been intruded. It possesses highly perfect basal cleavage due to which it can easily and accurately split into very thin sheets or films of any specified thickness. It has a unique combination of elasticity, toughness, flexibility and transparency. It possesses resistance to heat and sudden change in temperature and high dielectric strength. It is chemically inert, stable and does not absorb water.

For over hundred years, India has enjoyed the monopoly in the production and export of sheet mica in the world. Of late, there has been a steady downfall in the production of mica. This declining trend could be attributed to fall in the demand of natural mica in the world market due to technological improvements that facilitate use of reconstituted mica and emergence of mica substitutes. However, there are sufficient resources in the country to meet the domestic requirement and export demand.

RESOURCES

Most important mica-bearing pegmatites occur in Andhra Pradesh, Bihar, Jharkhand, Maharashtra, Odisha, Rajasthan and Telangana. Occurrences of mica pegmatites are also reported from Gujarat, Haryana, Karnataka, Kerala, Tamil Nadu and West Bengal.

As per UNFC, the total resources of mica in the country as on 1.4.2010 are estimated at 5,32,237 tonnes out of which 1,90,741 tonnes are placed under reserves category and 3,41,496 tonnes under remaining resources category. Andhra Pradesh leads with 41% share in country's total resources followed by Rajasthan (21%), Odisha (20%), Maharashtra (15%), Bihar (2%) and the remaining 1% is in Jharkhand and Telangana together. (Table- 1).

PRODUCTION, STOCKS & PRICES

Mica (Crude)

As per Govt. of India Notification S.O. 423(E) dated 10th February 2015, 'MICA' has been declared as 'Minor Mineral'. The production from January, 2015 onwards, therefore, is not available with IBM. The production of mica (crude) at 636 tonnes in 2014-15 declined sharply by about 62% as compared to the preceding year. There were only 31 reporting mines of mica during the year as against 39 in the previous year.

Two mines, each producing more than 100 tonnes annually accounted for about 59% of the total output and four mica mines producing 20 tonnes to 100 tonnes annually contributed about 34 percent. The remaining 7% was the contribution of 25 small mica mines, each producing less than 20 tonnes annually.

The entire production was reported from Private Sector during the period under review. Six principal producers accounted for 93% of the total output. Andhra Pradesh was the only state reporting production of crude mica during the year.

Mine-head closing stock of mica (crude) for the year 2014-15 was 964 tonnes (up to January 2015) as against 597 tonnes in the previous year.

The average daily labour employed in mica mines during 2014-15 was 330 as against 443 in the previous year. The domestic prices of mica are furnished in the General Review on 'Prices'.

Table – 1 : Reserves/Resources of Mica as on 1.4.2010
(By Grade/States)

(In kg)

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	**169840721**	**15268960**	**5631767**	**190741448**	**21427000**	**11317310**	**118867638**	**52723690**	**42504035**	**94427443**	**228415**	**341495531**	**532236979**
By Grades													
Unclassified	169840721	15268960	5631767	190741448	21427000	11317310	118867638	52723690	42504035	94427443	228415	341495531	532236979
By States													
Andhra Pradesh	162325190	15247003	2205000	179777193	7794000	5101000	-	3750000	5502145	18277005	-	40424150	220201343
Bihar	-	-	74233	74233	-	-	-	-	-	12992434	7700	13000134	13074367
Jharkhand	-	-	-	-	-	-	-	-	-	1494430	170700	1665130	1665130
Maharashtra	-	-	-	-	-	-	65916000	-	-	15120000	-	81036000	81036000
Odisha	-	-	-	-	-	6216000	52024000	-	20328000	26712000	-	105280000	105280000
Rajasthan	7515531	21957	2767649	10305137	13633000	310	927638	48973690	16673890	19831574	50015	100090117	110395254
Telangana	-	-	584885	584885	-	-	-	-	-	-	-	-	584885

Figures rounded off.

Mica (Waste and Scrap)

The production of mica (waste and scrap) at 11,852 tonnes in 2014-15 decreased by 40% as compared to the previous full year. Andhra Pradesh continued to be the leading producing state with contribution of 64%, followed by Rajasthan (24%) and Bihar (12%) (Tables- 2 to 6).

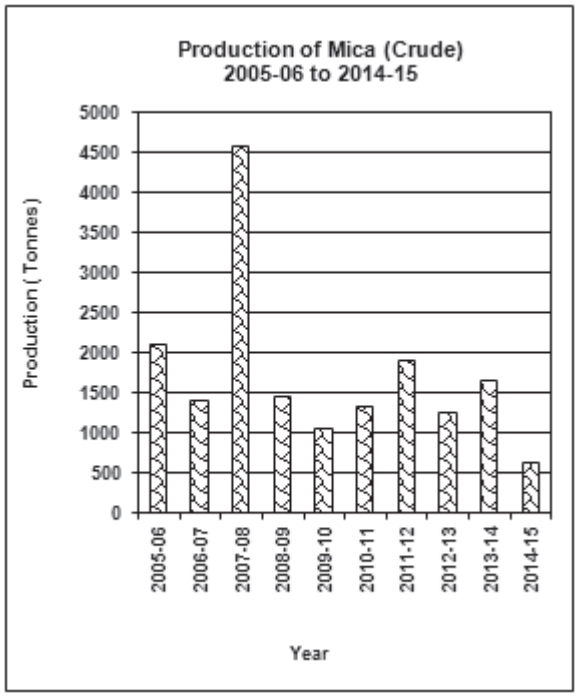

Table – 2 : Principal Producers of Mica (crude) 2014-15

Name & address of producer	Location of mine	
	State	District
Mahanth Mica Mines, Door No. 8, Plot No.7, 1st Main Road, Kasturba Nagar, Adyar Chennai- 600 020, Tamil Nadu.	Andhra Pradesh	Nellore
Dwarakhanad M. Reddy, & 7 Others, 1-C, Vaibhav Enclave, Magunta Layout, Nellore- 524 003, Andhra Pradesh.	Andhra Pradesh	Nellore
Dwarakhand M. Reddy, & 4 Others, 1-C, Vaibhav Enclave, Magunta Layout, Nellore- 524 003, Andhra Pradesh.	Andhra Pradesh	Nellore
Seetharama Mining Co., 86, Sydapuram, Post Kalichedu- 524 409, Distt. Nellore, Andhra Pradesh.	Andhra Pradesh	Nellore
Shree Kalyanarama Co., W 6/567, Kalichedu, Sydapuram - 524 409, Distt. Nellore, Andhra Pradesh.	Andhra Pradesh	Nellore

Table – 3 : Production of Mica (Crude and Waste & Scrap), 2012-13 to 2014-15 (By States)

(Qty in tonnes; Value in ₹'000)

State	2012-13		2013-14		2014-15*(P)	
	Quantity	Value	Quantity	Value	Quantity	Value
Mica (Crude)						
India	**1256**	**39963**	**1660**	**47838**	**636**	**21892**
Andhra Pradesh	1177	37988	1660	47838	636	21892
Jharkhand	-	-	-	-	-	-
Rajasthan	79	1975	-	-	-	-
Mica (Waste & Scrap)						
India	**16255**	**-**	**19752**	**-**	**11852**	**-**
Andhra Pradesh	7415	-	7626	-	7644	-
Bihar	2939	-	3381	-	1378	-
Jharkhand	782	-	2110	-	-	-
Rajasthan	5119	-	6635	-	2830	-

** Data up to January 2015*

Table – 4 : Production of Mica (Crude and Waste & Scrap), 2013-14 and 2014-15 (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
Mica (Crude)						
India	**39(27)**	**1660**	**47838**	**31(17)**	**636**	**21892**
Private Sector	39(27)	1660	47838	31(17)	636	21892
Andhra Pradesh	**33(2)**	**1660**	**47838**	**25(1)**	**636**	**21892**
Nellore	33(1)	1160	47838	25(1)	636	21892
Bihar#	**1**	-	-	**1**	-	-
Nawada#	1	-	-	1	-	-
Jharkhand#	**(2)**	**-**	**-**	**-**	-	-
Giridih#	(1)	**-**	**-**	-	-	-
Kodarma#	(1)	**-**	**-**	**-**	-	-
Rajasthan	**5(23)**	**-**	**-**	**5(16)**	**-**	**-**
Ajmer	1(13)	-	-	1(10)#	-	-
Bhilwara#	4(9)	-	-	4(5)	-	-
Rajsamand#	(1)	-	-	(1)	-	-
Mica (Waste & Scrap)						
India	*	**19752**	**-**	*	**11852**	**-**
Private Sector	*	19752	-	*	11852	-
Andhra Pradesh	*	**7626**	**-**	*	**7644**	**-**
Nellore	*	7626	-	*	7644	-
Bihar	*	**3381**	**-**	*	**1378**	**-**
Nawada	*	3381	-	*	1378	-
Jharkhand	*	**2110**	**-**	*	**-**	**-**
Giridih	*	2039	-	*	-	-
Kodarma	*	71	-	*	-	-
Rajasthan	*	**6635**	**-**	*	**2830**	**-**
Ajmer	*	1711	**-**	*	654	**-**
Bhilwara	*	4882	-	*	2172	-
Rajsamand	*	42	-	*	4	-

** Mines covered under mica (crude), up to January 2015*
 # Production of mica (waste & scrap)/feldspar/quartz or only labour reported.
Figures in parentheses indicate associated mines of mica with feldspar and quartz.

Table – 5: Production of Mica (Crude), 2013-14 and 2014-15 (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*(P)	2013-14	2014-15*(P)	2013-14	2014-15*(P)	2013-14	2014-15*(P)
All Groups	**39**	**31**	**1660**	**636**	**100.00**	**100.00**	**-**	**-**
Up to 4	26	21	7	1	0.42	0.16	0.42	0.16
4 to 8	1	1	6	6	0.36	0.94	0.78	1.10
8 to 20	2	3	20	39	1.20	6.13	1.98	7.23
20 to 30	1	-	25	-	1.51	-	3.49	7.23
30 to 40	1	1	30	35	1.81	5.50	5.30	12.73
40 to 100	3	3	153	182	9.22	28.62	14.52	41.35
100 and above	5	2	1419	373	85.48	58.65	100.00	100.00

**Data up to January 2015*

Table – 6 : Mine-head Stocks of Mica (Crude), 2013-14 & 2014-15
(By States)

(In tonnes)

State	2013-14	2014-15* (P)
India/Andhra Pradesh	**597**	**964**

**Data up to January 2015*

MINING, MARKETING AND TRANSPORT

All the mica mines were first opened as prospecting pits. These trial workings were later developed into opencast workings of 5 to 10 m depths known as Upper Challa. The nature & quality of the yield decides as to whether underground method has to be adopted for mining of mica, especially mica-bearing pegmatites. Overhand cut-and-fill method of mining with flat-back and waste-fill methods are practised in mica mines. Pegmatite deposits are opened up by striking vertical or inclined shaft. As mica is confined to hanging wall and footwall contacts and sometimes to core zone, driving and stoping is done only in these areas. The entire pegmatite body is not subjected to stoping, and wall and roof are generally self-supporting. The mines are developed to maximum 100 m depths. Most of the mines have installed haulages for transport of material, electric fans for ventilation and pumps for dewatering.

The old method was tunneling, which has now in some of the old mines been converted into open quarries. With this system, mines now produce felspar, quartz, mica and vermiculite. This system has also enabled use of heavy machinery which resulted in increased production.

Crude mica produced from the workings is transported to the surface where it is cobbled manually to remove the gangue minerals like quartz, felspar and other associated minerals, including waste mica. Skilled labourers dress the hand-cobbled mica with sickle, knife and scissors. During dressing, the part of mica containing deformities, such as, fractures, unevenness and cracks is removed and only the better material is retained as blocks. Such blocks are classified into various sizes and qualities on the basis of visual estimates. The mica so rejected during dressing is sold as scrap. Mica processing is a labour-intensive activity requiring special skills. The art of manual processing of mica has been acquired by the Indian workers through generations and has become a cottage industry in the mica mining areas of Bihar, Andhra Pradesh, Jharkhand and Rajasthan.

CONSUMPTION

Complete picture regarding the consumption of mica is not available due to inadequate availability of information on various mica-consuming industries. Sheet mica is used mainly in Electrical and Micanite industries, while scrap mica is used in the manufacture of mica paper and ground mica, finds application in asphaltic roofing, welding electrode, paint, rubber, insulation bricks, etc.

USES

Natural sheet mica is used in Electrical and Electronic industries in the form of blocks, splittings and films or built-up mica called “micanite". Sheet mica is used in manufacturing fabricated and micanite products, such as, capacitors and commutator segments. Micanite or built-up mica is partly overlapped, irregular-shaped and arranged as splittings cemented together with either an organic or inorganic binder. Other uses of sheet mica include gauge glasses of high pressure steam boilers, diaphragms of oxygen-breathing equipment, marker dials of navigation compasses, quarterwave plates for optical instruments, window covers for radiation pyrometers & thermal regulators, stove window,

chimneys for gas & petromax lamps, diaphragms in microwave transmitters and insulation wrappers for high tension radar coils. Besides, high quality natural mica sheets are used in helium-neon lasers where mica sheet works as retardation plate. Of late, mica washers are extensively used in Computer Industry.

Mica paper or reconstituted mica is a paper-like material made by depositing fine flakes of scrap mica as a continuous mat which is then dried. Mica paper is usually impregnated with organic binder. Primary end-uses of mica paper are the same as for micanite or built-up mica.

Micanite is used in electrical insulation mainly because natural mica sheet of sufficient thickness is not always available. This is used in copper commutator segments of DC universal motors and generators, moulding plates from which V-rings are cut and stripped for use in commutators. These moulding plates also find use in the form of tubes and rings as an insulator in transformers, armatures and motor starters. As flexible plates, micanite is also used in electric motors and generator-armatures, field coil insulators & magnet and commutator core insulation. Similarly, as heater plates, micanite is used where high insulation strength at high temperature is required.

In the Construction Sector, mica scrap/ground mica is used in jointing cement for gypsum boards, asphaltic roofings and damp-proof seal, and insulation boards. Ground mica acts as reinforcing filler in plaster for textured coatings. Mica is used in insulation bricks, slabs and tiles because of its excellent thermal and insulating properties. Dry-ground 50 mesh mica is used in the flux coating for arc welding electrodes, with flux containing 3 to 5% mica powder. In paints, mica in the form of powder is used as filler and as an extender because it provides a smoother consistency, improved workability and imparts increased resistance to water penetration and weathering. It also facilitates suspension due to its relatively low specific gravity and platy morphology. Mica is used mainly in four types of paints, such as, bituminous emulsions, exterior paints, fire-retardant paints and pearlescent pigments. Mica is added to drilling fluids to get off the lost circulation zones. The platy structure of mica facilitates the overlapping of particles to form a tight layer or wall, thereby preventing further fluid loss.

Ground mica is used in the Rubber Industry as a dusting agent and as an inert filler in the production of rubber. Mica fillers increase the hardness, tensile strength and tear resistance of rubber articles. In Plastic Industry, mica is used as a filler and reinforcer in thermoplastics to improve the electrical properties, flexural strength & modulus, stiffness, heat deflection temperatures and resistance. Dry-ground mica powder is used in small quantities in cosmetic applications. The property of high resistance of mica to the effect of the sun rays, moisture, gases, water and other chemicals, enables the use of dry-ground mica powder in small quantity to improve the decorative coating and lustre of wallpaper, printing and ceiling papers, etc. Wet-ground mica powder is used in paints, cosmetics, rubber, etc. as a filler. Small quantities of scrap mica/ground mica are also used in industries like foundries as coating to foundry cores and moulds, as a dry lubricant to prevent hot bearings from seizing up.

SUBSTITUTES

Mica and its products can be substituted to some extent by using alumina, ceramics, bentonite, glass, mylar polystyrene, fused quartz, silicon, talc, bakelite, teflon, nylon synthetic mica, acrylate polymers, cellulose acetate, fibre glass, etc.

Some lightweight aggregates, such as, diatomite, vermiculite and perlite may be substituted for ground mica when used as filler. Ground synthetic fluorophlogopite, fluorine-rich mica, may replace natural ground mica for uses that require thermal and electrical properties of mica.

Sheet mica is used in electrical components, electronics and atomic force microscopy. Many products can be substituted for mica in electrical and electronic uses. Substitutes include Acrylic, Benelex, Cellulose acetate, Delrin, Duranel N, Fibreglass, Fishpaper, Kel F, Kydex, Kapton Lexan, Lucite, Mylar, Nylon, Nylatron, Nomex, Noryl, Phenolics, Plexiglass, Polycarbonate, Polyester, Styrene, Teflon, Vinyl-PVC and Vulcanised Fibre.

SPECIFICATIONS

The Bureau of Indian Standards (BIS) has prepared standards for (a) processed mica, (b) fabricated mica and (c) mica-based products. BIS has brought out the following specifications for mica for various purposes:

IS:1175 – 1981(First Revision, Reaffirmed 2011): Deals with methods of grading and classification of muscovite mica blocks, thins and films according to visual size, visual qualities and presence of structural imperfections.

IS:1885 (Part-53)-1980 (Reaffirmed 2007): Deals with electrotechnical vocabulary, Part-53, Mica.

IS:2001-1968: Deals with specifications of fixed silvered mica capacitors.

IS:2464-1963 (Reaffirmed 2008): Deals with specifications of built-up mica for electrical purposes.

IS:9043-1979 (Reaffirmed 2011): Deals with grading (by size) of phlogopite mica blocks, thins, films and splittings.

IS:9044-1979 (Reaffirmed 2011): Deals with methods of measuring thickness of mica blocks, thins, films and splittings.

IS:9045-1979 (Reaffirmed 2011): Deals with thermal classification of phlogopite mica splittings.

IS :9299 (Part 3/Sec.1)- 1979 (Reaffirmed 2003): Deals with rigid mica material for commutator separators.

IS:9299 (Part3/Sec.2)–1982 (Reaffirmed 2003): Deals with moulding mica materials for electrical purposes.

IS:9299 (Part 3/Sec. 3) – 1982 (Reaffirmed 2008): Deals with flexible mica flake tape for insulation of electrical machines.

IS:9299 (Part 3/Sec. 4) (Reaffirmed 2008): Deals with rigid mica materials for heating equipment.

IS:13357: Methods of grading and visual classification of muscovite mica splittings.

TRADE POLICY

As per the Foreign Trade Policy for 2009-14 and the effective Export-Import Policy, exports and imports of all varieties of mica blocks, splittings, powder, waste and scrap under heading 2,525 are allowed without restrictions.

WORLD REVIEW

Very large reserves of mica (Natural), sheet are located mainly in India and moderate reserves of mica are located in Russia. The data on world reserves of mica (natural) sheet are provided in Table- 7.

The world output of mica was 343 thousand tonnes in 2014. China (46%) and USA (15%) were the leading producers of mica, followed by Republic of Korea (7%), France (6%), Canada (5%) and Madagascar (3%) (Table- 8).

Table – 7 : World Reserves of Mica (Natural) Sheet (By Principal Countries)

Country	Reserves
World: Total	**Very Large**
India*	Very large
Russia	Moderate
USA	Very small
Other countries	Moderate

Source: *Mineral Commodity Summaries, 2016.*
** India's total UNFC resources of mica as on 1.04.2010 are estimated at 0.53 million tonnes.*

Table – 8 : World Production of Mica (By Principal Countries)

(In '000 tonnes)

Country	2012	2013	2014
World: Total	**333**	**351**	**343**
Argentina	6	6[e]	6[e]
Brazil	5	10	10[e]
Canada[e]	22	22	16
China[e]	149	161	159
Finland	12	11	12
France[e] @	18	20	20
Iran	7	6	6[e]
Korea, Rep of #	26	25	24
Madagascar	12	10	12[e]
Malaysia #	4	4	6
Russia[e]	9	9	9
Spain @	4	3	4
Taiwan	7	9	5
USA @*	48	48	50
Other countries	4	7	4

Source: *World Mineral Production, 2010-14.*
 # Mainly sericite.
@ Including mica recovered from mica schists and/or kaolin beneficiation.
** Sold or used by producers.*

FOREIGN TRADE

Exports of mica in 2014-15 was reported to be 1,40,960 tonnes as against the meagre production of 636 tonnes of crude mica. Reasons for such a huge difference in the quantity of exports and production may be attributed to the old stocks (minehead or otherwise) which are not reported.

Exports

Exports of mica (total) increased to 1,40,960 tonnes in 2014-15 from 1,27,882 tonnes in the previous year. Almost all the exports were in the form of mica (unmanufactured) at 1,40,310 tonnes (which comprised blocks at 2,178 tonnes, splittings at 10,730 tonnes, powder at 90,312 tonnes, and waste & scrap at 37,089 tonnes). The exports of mica (worked) were 650 tonnes in 2014-15 [which comprised washers & discs 81 tonnes, sheets & strips 58 tonnes, micanite & other built up mica 15 tonnes, mica worked (others) 495 tonnes] . Besides, 1 tonne each of condenser films and plates , cuts, NES were also exported. In 2014-15, exports were mainly to China (63%), Saudi Arabia (6%), Japan and Belgium (5% each) and USA (4%) (Tables - 9 to 21).

Imports

Imports of mica (total) increased slightly to 2,240 tonnes in 2014-15 from 2,049 tonnes in the previous year. Out of the total imports in 2014-15, imports of mica (unmanufactured) were at 967 tonnes (comprising powder 298 tonnes, splittings 597 tonnes and waste & scrap 69 tonnes). Besides, nominal quantity of block mica was also imported. Imports of 1,273 tonnes of mica (worked) included a very small quantity i.e. 3 tonnes of condenser films, plates, cuts, NES ; 369 tonnes of sheets & strips, 884 tonnes mica worked (others) besides 17 tonnes of washers & discs. In 2014-15, imports were mainly from China (56%), Austria (6%) and Malaysia & Switzerland (4% each) (Tables- 22 to 33).

Table – 9 : Exports of Mica : Total (By Countries)

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**127882**	**3759755**	**140960**	**4258585**
China	79392	1889012	88171	2129792
Japan	6264	400158	6679	401781
USA	3600	220385	5524	310166
Belgium	3277	77728	7344	207465
France	2149	128036	3153	182949
Saudi Arabia	5608	38198	8264	134747
Mexico	59	97920	72	127638
Russia	1464	113226	604	69130
UK	1282	49655	596	64864
Germany	3219	65438	3000	62667
Other countries	21568	679999	17553	567386

Table – 10 : Exports of Mica (Unmanufactured) : Total (By Countries)

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**127233**	**3058559**	**140310**	**3416003**
China	79366	1826632	88146	2058007
Japan	6185	271895	6625	299395
USA	3522	148716	5494	213563
Belgium	3277	77728	7344	207272
France	2143	117210	3145	166600
Russia	1371	89717	565	49038
Germany	3217	44040	3000	45857
Korea, Rep. of	1758	53111	1292	41903
Saudi Arabia	5595	28963	8140	36249
Netherlands	4423	133399	1140	30829
Other countries	16376	267148	15419	267290

Table – 11 : Exports of Mica (Blocks) (By Countries)

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**2055**	**181694**	**2178**	**200401**
China	447	66440	437	73846
Japan	884	69356	841	70921
Czech Republic	100	4679	299	15204
Russia	330	20029	105	14771
Brazil	66	2409	198	7189
Korea, Rep. of	60	2304	180	7153
Germany	++	49	1	3027
USA	18	883	79	1799
Netherlands	++	804	++	1422
Sweden	1	2248	++	1030
Other countries	149	12493	38	4039

Table – 12 : Exports of Mica (Splittings) (By Countries)

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**4269**	**192636**	**10730**	**340648**
China	3335	105166	8764	221865
Japan	133	7998	445	31591
Romania	150	8039	450	22769
Russia	24	17080	70	18857
Germany	339	5904	775	13047
USA	220	22599	76	10730
Kazakhstan	13	4636	22	9141
Slovak Rep.	4	4442	5	5062
Hong Kong	11	9652	2	2969
Kuwait	3	1580	53	1573
Other countries	37	5540	68	3054

Table – 13 : Exports of Mica (Powder) (By Countries)

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**80946**	**1781538**	**90312**	**2023889**
China	43155	1024258	49756	1203227
Belgium	2613	51083	6786	186885
Japan	4248	157102	4722	172896
USA	3138	119513	4145	153113
Korea, Rep. of	1588	48096	1013	31713
Saudi Arabia	4351	23593	6847	29689
Netherlands	4423	132440	1140	29407
Germany	2525	32460	2139	27662
France	375	18126	459	21312
Norway	192	4181	911	17123
Other countries	14338	170686	12394	150862

Table – 14 : Exports of Mica (Waste & Scrap) (By Countries)

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**39866**	**880245**	**37089**	**847571**
China	32429	630768	29189	559069
France	1768	98766	2686	145026
USA	146	5721	1194	47921
Japan	920	37439	617	23987
Belgium	664	26645	558	20387
Russia	846	27338	275	9413
Czech Republic	100	3300	248	8901
Saudi Arabia	1244	5370	1293	6559
Egypt	292	4516	288	5140
Romania	225	11607	77	3962
Other countries	1232	28775	664	17206

Table – 15 : Exports of Mica (Worked) : Total (By Countries)

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**649**	**701196**	**650**	**842582**
Mexico	59	97860	71	127275
Japan	79	128262	54	102386
Saudi Arabia	13	9235	124	98498
USA	78	71670	30	96603
China	26	62380	25	71785
UK	20	32654	50	58186
Turkey	55	52772	48	40938
Netherlands	29	29311	29	26989
Russia	93	23509	39	20092
Hong Kong	12	15911	15	17562
Other countries	185	177632	165	182268

Table – 16 : Exports of Mica (Condenser Films) (By Countries)

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**97**	**22446**	**1**	**3494**
Russia	4	20896	1	3367
Thailand	-	-	++	93
Italy	-	-	++	34
Other countries	93	1550	-	-

Table – 17 : Exports of Mica (Cond. Films, Plates, Cuts NES) (By Countries)

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**1**	**9777**	**1**	**12193**
Russia	1	3724	1	4540
USA	-	3067	++	3758
Germany	-	441	++	1044
Netherlands	-	435	++	914
Korea, Rep. of	-	-	++	847
Thailand	-	-	++	464
Malaysia	-	-	++	176
UK	-	-	++	172
Poland	-	203	++	105
Spain	-	-	++	72
Other countries	-	1907	++	100

Table – 18 : Exports of Mica (Washers & Discs) (By Countries)

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**65**	**118451**	**81**	**153514**
Mexico	59	97142	70	127156
USA	2	10213	3	9715
Japan	4	6429	3	6109
France	++	559	++	4948
UK	++	709	1	1600
Malaysia	-	-	4	1253
Denmark	++	305	++	647
Germany	++	1360	++	447
Canada	-	-	++	340
China	-	-	++	290
Other countries	++	1734	++	919

Table – 19 : Exports of Mica (Sheets & Strips) (By Countries)

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**72**	**84532**	**58**	**75599**
Japan	55	32743	38	21822
UK	6	18906	4	14363
USA	3	9085	2	8376
Korea, Rep. of	1	4204	2	8049
Poland	++	730	++	3723
Canada	++	3956	++	3057
Korea, Dem. Peoples' Rep. of	2	2012	2	1996
China	++	1120	++	1716
Chinese Taipei/Taiwan	++	805	3	1610
Hong Kong	2	1646	1	1071
Other countries	3	9325	6	9816

Table – 20: Exports of Micanite & Other Built-Up Mica (By Countries)

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**5**	**6660**	**15**	**6072**
Egypt	-	-	1	1986
Georgia	++	217	11	1264
USA	++	35	1	893
South Africa	1	544	1	689
UK	++	271	++	556
Brazil	1	1678	1	349
Morocco	-	-	++	252
Chile	++	203	++	45
Malaysia	++	100	++	37
Other countries	3	3612	++	1

Table – 21 : Exports of Mica Worked (Others) (By Countries)

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**506**	**481776**	**495**	**595204**
Saudi Arabia	13	9210	124	98426
Japan	20	88761	13	74455
USA	73	49269	24	73861
China	26	59843	25	69779
UK	14	12769	45	41405
Turkey	55	52772	48	40938
Netherlands	29	28581	29	26072
Hong Kong	9	13290	14	16451
Russia	92	19785	38	15552
Germany	2	18676	-	14776
Other countries	173	128820	135	123489

Table – 22 : Imports of Mica : Total (By Countries)

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**2049**	**563468**	**2240**	**703135**
China	1004	210753	1261	245723
Austria	149	152624	135	177407
Switzerland	89	83827	83	101233
Malaysia	73	26669	98	31395
UK	12	13449	24	28612
Japan	17	5808	44	28605
Germany	20	7161	34	28257
USA	32	16592	33	14097
Brazil	8	7702	10	13310
Korea, Rep. of	7	8346	7	6808
Other countries	638	30537	511	27688

Table – 23 : Imports of Mica (Unmanufactured) : Total (By Countries)

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**883**	**36515**	**967**	**38596**
China	210	7554	402	11010
Madagascar	224	5938	210	5424
Japan	14	2333	24	4091
Germany	10	920	17	3931
USA	16	4804	16	3249
Canada	3	401	50	3121
Sri Lanka	303	7550	89	2091
Malaysia	48	1043	65	1564
Russia	-	-	54	1083
France	4	452	6	1022
Other countries	51	5520	34	2010

Table – 24 : Imports of Mica (Blocks) (By Countries)

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**60**	**3378**	**3**	**520**
Madagascar	58	1981	3	437
UK	-	-	++	66
China	1	101	++	17
Other countries	1	1296	-	-

Table – 25 : Imports of Mica (Splittings) (By Countries)

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**316**	**8953**	**597**	**13218**
China	143	4249	296	5864
Madagascar	86	2343	183	4510
Russia	-	-	54	1083
Sri Lanka	87	2294	45	1070
Singapore	-	-	17	540
Korea, Rep. of	++	39	2	151
Other countries	++	28	-	-

Table – 26 : Imports of Mica (Powder) (By Countries)

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**209**	**17024**	**298**	**23158**
China	65	3139	106	5129
Japan	13	2109	24	4091
Germany	10	920	16	3749
USA	15	3508	16	3244
Canada	3	401	50	3121
Malaysia	48	1043	65	1549
France	4	452	6	1022
Spain	++	237	8	525
Norway	19	2255	3	375
Denmark	11	783	3	167
Other countries	21	2177	1	186

Table – 27 : Imports of Mica (Waste & Scrap) (By Countries)

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**298**	**7160**	**69**	**1700**
Sri Lanka	216	5256	44	1021
Madagascar	80	1615	24	478
Germany	-	-	1	181
Malaysia	-	-	++	15
USA	-	-	++	5
Other countries	2	289	-	-

Table – 28 : Imports of Mica (Worked) : Total (By Countries)

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**1166**	**526953**	**1273**	**664539**
China	794	203198	859	234713
Austria	149	152624	135	177407
Switzerland	89	83827	83	101233
Malaysia	25	25626	33	29830
UK	10	12797	24	28546
Japan	3	3476	20	24514
Germany	10	6241	17	24326
Brazil	8	7702	10	13310
USA	16	11787	17	10849
Korea, Rep. of	7	8275	4	6602
Other countries	55	11400	71	13209

Table – 29 : Imports of Mica (Condenser Films, Plates, Cuts, NES) (By Countries)

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**14**	**14620**	**3**	**3273**
Switzerland	9	10884	2	2053
Brazil	-	-	++	609
Malaysia	1	281	1	507
France	++	383	++	84
China	1	1152	++	12
Czech Republic	-	-	++	7
Other countries	3	1920	-	-

Table – 30 : Imports of Mica (Washers & Discs) (By Countries)

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**17**	**12756**	**17**	**11968**
USA	14	10176	12	8466
Mexico	++	26	1	729
Germany	++	109	1	597
China	1	317	1	448
Slovak Rep.	++	10	++	294
Italy	++	13	1	292
Finland	-	-	++	225
Canada	-	-	++	186
Czech Republic	-	-	++	185
Japan	-	-	++	156
Other countries	2	2105	1	390

Table – 31 : Imports of Mica (Sheets & Strips) (By Countries)

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**239**	**16770**	**369**	**34820**
China	217	12141	328	28725
UK	2	3973	4	4439
Belgium	-	-	22	897
UAE	20	656	15	503
Malaysia	-	-	++	220
Austria	-	-	++	36

Table – 32 : Imports of Mica Worked (Others) (By Countries)

Country	2013-14		2014-15(P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**896**	**482807**	**884**	**614420**
China	575	189588	530	205503
Austria	147	151433	135	177370
Switzerland	80	72942	81	99180
Malaysia	24	25344	32	29103
Japan	3	3476	20	24358
UK	8	8782	20	24081
Germany	10	6133	16	23697
Brazil	8	7702	10	12621
Korea, Rep. of	6	7356	4	6498
USA	2	1611	5	2383
Other countries	33	8440	31	9626

FUTURE OUTLOOK

There are sufficient resources of mica in the country to meet the domestic demand and export requirement. As per the Report of the Sub Group for the 12th Plan (2012-17), Planning Commission of India, there appears to be good demand for wet ground mica, specially in the manufacture of pearlescent pigments which are increasingly used in the Automotive Industry. The Sub Group has recommended that establishment of wet ground mica plants based on imported know-how in the country needs to be encouraged. The quality of Indian ground mica powder, though is acceptable to foreign buyers, it would be beneficial if the material produced is free from iron and if there is maintenance of consistency in the mesh size of the powder. The Sub Group has underlined the need for efforts in this direction. It has also opined that process know-how for recovery of substantial concentration of lithium, rubidium and cesium values contained in some of the mica deposits in the country needs to be developed.

For boosting exports, it would be necessary for Indian Mica Industry to manufacture and export fabricated & value-added mica-based products, such as, mica paper, micanite sheets and mica-based paper.