



Indian Minerals Yearbook 2013

(Part- III : Mineral Reviews)

52nd Edition

MICA

(ADVANCE RELEASE)

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

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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 and Rajasthan. Occurrences of mica pegmatites are also reported from Gujarat, Haryana, Karnataka, Kerala, Odisha, Tamil Nadu and West Bengal.

As per UNFC, the total resources of mica in the country as on 1.4.2010 are estimated

at 532,237 tonnes out of which 190,741 tonnes are placed under reserves category and 341,496 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 balance (less than 1%) in Jharkhand (Table - 1).

PRODUCTION, STOCKS & PRICES

Mica (Crude)

The production of mica (crude) at 1,255 tonnes in 2012-13 decreased by about 34% as compared to the preceding year. There were 32 reporting mines of mica during the year as against 35 in the previous year.

Three mines, each producing above 100 tonnes annually accounted for 49% of the total output and ten mica mines and one quartz mine producing 20 tonnes to 100 tonnes annually contributed about 49 percent. The remaining 2% was the contribution of 19 mica mines and one felspar mine, 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 71% of the total output. Andhra Pradesh continued to be the leading producing state contributing 94% of the total production and remaining six percent was reported from Rajasthan.

The mine-head stocks of mica (crude) were 223 tonnes at the end of year as against 478 tonnes in the beginning of the year 2012-13.

The average daily labour employed in mica mines during 2012-13 was 381 as against 389 in the previous year.

**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 Grade													
Unclassified	169840721	15268960	5631767	190741448	21427000	11317310	118867638	52723690	42504035	94427443	228415	341495531	532236979
By States													
Andhra Pradesh	162325190	15247003	2789885	180362078	7794000	5101000	-	3750000	5502145	18277005	-	40424150	220786228
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

Figures rounded off.

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Mica (Waste and Scrap)

The production of mica (waste and scrap) at 14,669 tonnes in 2012-13 increased by 3% compared to the previous year. Andhra Pradesh continued to be the leading producing state with contribution of 47%, followed by Rajasthan 26%, Bihar 18% and Jharkhand 9 percent (Tables - 2 to 6).

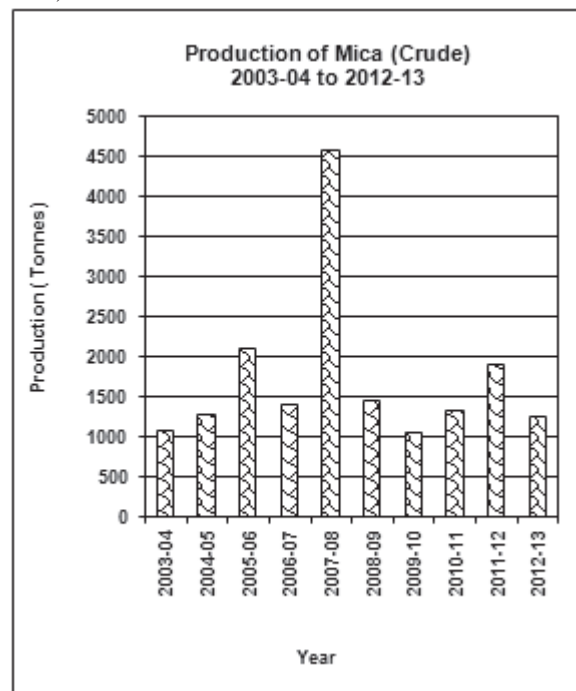


Table – 2 : Principal Producers of Mica, 2012-13

Name & address of producer	Location of mine	
	State	District
Dwarakananad M. Reddy, & Others, 1-C, Vaibhav Enclave, Manguta layout, Nellore-524 003 Andhra Pradesh.	Andhra Pradesh	Nellore
Mahanta Mica Mines, Door No. 8, Plot No.7, Ist Main Road, Kasturba Nagar, Chennai, Tamil Nadu.	Andhra Pradesh	Nellore
Meenakshi Sundaram, Mica Mines (P) Ltd., 61, Spurtank Road, Chetpet, Chennai - 600 031, Tamil Nadu	Andhra Pradesh	Nellore
Seetharama Mining Co., Post Kalichedu- 524 409 Distt.Nellore, Andhra Pradesh.	Andhra Pradesh	Nellore
Yasodha Krishna Mica Mining Co., DN16/3/805, Rammurthi Nagar - 524 003, Distt.Nellore, Andhra Pradesh.	Andhra Pradesh	Nellore

Table – 3 : Production of Mica (Crude and Waste & Scrap), 2010-11 to 2012-13 (By States)

(Qty in tonnes; value in ₹'000)

State	2010-11		2011-12		2012-13(P)	
	Quantity	Value	Quantity	Value	Quantity	Value
Mica (Crude)						
India	1333	44505	1899	68670	1255	39628
Andhra Pradesh	1317	44124	1784	61967	1176	37649
Jharkhand	-	-	1	3870	-	-
Rajasthan	16	381	114	2833	79	1979
Mica (Waste & Scrap)						
India	7311	-	14186	-	14669	-
Andhra Pradesh	4648	-	7313	-	6944	-
Bihar	1459	-	4632	-	2535	-
Jharkhand	-	-	-	-	1312	-
Rajasthan	1204	-	2241	-	3878	-

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**Table – 4 : Production of Mica (Crude and Waste & Scrap), 2011-12 and 2012-13
(By Sectors/States/Districts)**

(Qty in tonnes; value in ₹'000)

State/District	2011-12			2012-13(P)		
	No. of mines	Quantity	Value	No. of mines	Quantity	Value
Mica (Crude)						
India	35(16)	1899	68670	32(29)	1255	39628
Private Sector	35(16)	1899	68670	32(29)	1255	39628
Andhra Pradesh	29(2)	1784	61967	27(4)	1176	37649
Khammam #	1	-	-	-	-	-
Nellore	28(2)	1784	61967	27(4)	1176	37649
Bihar#	1	-	-	1	-	-
Nawada#	1	-	-	1	-	-
Jharkhand	(1)	1	3870	(2) #	-	-
Giridih	(1)	1	3870	(1) #	-	-
Hazaribagh	-	-	-	(1) #	-	-
Rajasthan	5(13)	114	2833	4(23)	79	1979
Ajmer	1(9)	114	2833	1(17)	79	1979
Bhilwara#	3(3)	-	-	2(5)	-	-
Rajsamand#	1	-	-	1	-	-
Tonk#	(1)	-	-	(1)	-	-
Mica (Waste & Scrap)						
India	*	14186	-	*	14669	-
Private Sector	*	14186	-	*	14669	-
Andhra Pradesh	*	7313	-	*	6944	-
Khammam	*	193	-	*	-	-
Nellore	*	7120	-	*	6944	-
Bihar	*	4632	-	*	2535	-
Nawada	*	4632	-	*	2535	-
Jharkhand	*	-	-	*	1312	-
Giridih	*	-	-	*	656	-
Hazaribagh	*	-	-	*	656	-
Rajasthan	*	2241	-	*	3878	-
Ajmer	*	111	-	*	1560	-
Bhilwara	*	2130	-	*	2318	-
Tonk	*	++	-	*	++	-

* Mines covered under mica (crude).

Production of mica (waste & scrap)/feldspar/quartz only.

Figures in parentheses indicate associated mines. or only labour reported.

**Table – 5 : Production of Mica (Crude), 2011-12 and 2012-13(P)
(By Frequency Groups)**

(Qty in tonnes)

Production group	No. of mines		Production for the group		Percentage in total production		Cumulative percentage	
	2011-12	2012-13	2011-12	2012-13	2011-12	2012-13	2011-12	2012-13
All Groups	35(2)	32(2)	1899	1255	100.00	100.00	-	-
Up to 2	15(2)	14(1)	3	++	0.14	0.01	0.14	0.01
2 to 4	3	2	7	5	0.37	0.45	0.51	0.46
4 to 6	1	2	5	10	0.26	0.78	0.77	1.24
6 to 8	1	-	7	-	0.39	-	1.16	1.24
8 to 20	1	1	16	14	0.87	1.09	2.03	2.33
20 to 30	2	2	44	50	2.30	3.98	4.33	6.31
30 to 40	-	1	-	31	-	2.47	4.33	8.78
40 to 100	5	7(1)	347	536	18.28	42.68	22.61	51.46
100 and above	7	3	1470	609	77.39	48.54	100.00	100.00

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**Table – 6 : Mine-head Stocks of Mica (Crude), 2012-13(P)
(By States)**

(In tonnes)

State	At the beginning of the year	At the end of the year
India	478	223
Andhra Pradesh	466	223
Jharkhand	++	-
Rajasthan	12	-

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 is 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.

There has been change in tunnel method of mining in some of the mines by changing into open quarries in recent years. The old method was tunneling, but now some of the old mines have been made 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. It has been 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 as there is no adequate coverage 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, which in turn, is used 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 to manufacture 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

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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 have gained extensive use 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. 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,

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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 2525 are allowed without restrictions.

WORLD REVIEW

Very large reserves of mica (Natural), sheet are located mainly in India and Moderate reserve of Mica located at Russia. The data on world reserves of mica (natural), sheet are given in Table - 7.

The world output of mica was 317 thousand tonnes in 2012. China and USA were the leading producers of mica, followed by Republic of Korea, France, Canada and Finland (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, 2014.

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

(In '000 tonnes)			
Country	2010	2011	2012
World: Total	308	311	317
Argentina	10	10	10 ^e
Canada ^e	15	17	16
China ^e	126	132	149
Finland	14	13	12
France ^e @	19	19	18
Iran	3	3 ^e	3 ^e
Korea, Rep of #	36	31	26
Malaysia #	5	4	4
Russia ^e	9	9	9
Spain @	4	4	4
USA @*	53	50	44 ^e
Other countries	14	19	22

Source: World Mineral Production, 2008-12.

Mainly sericite.

@ Including mica recovered from mica schists and/or kaolin beneficiation.

* Sold or used by producers.

FOREIGN TRADE**Exports**

Exports of mica (total) decreased marginally to 127,629 tonnes in 2012-13 from 131,777 tonnes in the previous year. Almost all the exports were in the form of mica (unmanufactured) at 126,773 tonnes (comprising blocks 2,559 tonnes, splittings 1,559 tonnes, powder 91,185 tonnes, and waste & scrap 31,468 tonnes). The exports of mica (worked) were 856 tonnes (comprising washers & discs 90 tonnes, sheets & strips 39 tonnes, micanite & other built up mica 15 tonnes, other worked mica 705 tonnes and very small quantity of mica bricks). Besides, nominal quantities of condenser films, plates, cuts, NES were also exported. In 2012-13, exports were mainly to China (54%), Japan (6%), USA (4%), Netherlands and Belgium (3 %each) (Tables - 9 to 22).

Imports

Imports of mica (total) decreased slightly to 2,283 tonnes in 2012-13 from 2,458 tonnes in the previous year. Out of the total imports in 2012-13, imports of mica (unmanufactured) were 873 tonnes (comprising powder-324 tonnes, splittings 146 tonnes and waste & scrap 298 tonnes). Besides, nominal quantity of block mica was also imported. The 1,410 tonnes imports were of mica (worked) which included condenser films, plates, cuts, NES 9 tonnes, sheets & strips 261 tonnes, micanite and other built up mica 2 tonnes and other worked mica 1126 tonnes, besides 12 tonnes of washers & discs (Tables - 23 to 34).

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

Country	2011-12		2012-13	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	131777	2887096	127629	3459967
China	71309	1268034	68865	1520159
Japan	5849	324428	7129	411079
USA	6244	217533	4509	244118
Mexico	53	34052	71	139745
France	2221	91267	2661	130206
Netherlands	704	48007	4426	129568
Belgium	10226	230352	4367	100819
Russia	1022	55492	973	71645
Germany	3790	65317	2360	60355
Korea, Rep. of	919	38524	1509	59779
Other countries	29440	514090	30759	592494

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

Country	2011-12		2012-13	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	131108	2377259	126773	2759729
China	71271	1228986	68735	1470380
Japan	5580	199856	7044	303004
USA	6193	122951	4383	159850
France	2219	86888	2657	124909
Netherlands	652	19220	4403	107076
Belgium	10225	229522	4358	96955
Russia	1020	45822	938	54487
Korea, Rep. of	902	23343	1506	43653
Bangladesh	1843	7506	7751	41972
Germany	3782	51707	2353	37908
Other countries	27421	361458	22645	319535

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

Country	2011-12		2012-13	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	2246	107093	1559	112393
Kazakhstan	43	14404	76	25391
China	286	12048	169	17240
USA	172	11073	139	15600
Russia	47	22196	89	11647
Germany	259	9891	93	9499
Japan	29	6605	256	9266
Netherlands	++	211	559	8383
Latvia	-	-	24	7014
Slovakia	41	1723	2	2008
Kuwait	3	1113	81	1842
Other countries	1366	27829	71	4503

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

Country	2011-12		2012-13	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	4168	118371	2559	198721
Japan	997	58668	1774	119336
China	417	43951	187	39631
Korea, Rep. of	44	2451	332	11985
Russia	3	3491	134	11156
UK	3	1268	6	5890
Czech Republic	9	641	77	2874
Slovakia	1199	830	11	1688
Egypt	-	-	1	1068
Sweden	++	93	++	898
Korea, Dem. Rep. of	4	117	1	816
Other countries	1492	6861	36	3379

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

Country	2011-12		2012-13	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	81151	1401193	91185	1699852
China	34648	629266	45546	979701
Japan	3836	113320	4100	142795
USA	5354	98771	3242	117869
Netherlands	652	19010	3844	98692
Belgium	9355	202476	3223	57985
Bangladesh	766	4718	7709	41883
Korea, Rep. of	707	17933	1008	27727
Saudi Arabia	7425	26994	6474	26679
Germany	3207	32969	1901	21315
UK	999	8339	2072	20760
Other countries	14202	247397	12066	164446

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

Country	2011-12		2012-13	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	43503	749864	31468	738679
China	35880	543070	22833	433810
France	2159	85239	2523	119551
Belgium	870	27046	1111	38130
Japan	718	21262	914	31607
USA	643	12259	1000	25617
Czech Republic	482	13962	821	24402
Romania	170	4715	575	23546
Russia	725	17718	617	18853
Germany	286	8240	359	6760
Korea, Rep. of	150	2601	166	3942
Other countries	1420	13752	549	12461

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

Country	2011-12		2012-13	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	669	509837	856	700238
Mexico	35	33788	71	139745
Japan	269	124572	85	108075
USA	51	94583	126	84268
Turkey	12	7635	82	58717
China	38	39048	130	49778
UK	48	35244	65	32946
Netherlands	52	28786	23	22493
Germany	8	13610	7	22447
Hong Kong	35	26343	25	20594
Latvia	++	146	37	18239
Other countries	121	106082	205	142936

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

Country	2011-12		2012-13	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	40	738	2	10084
Russia	++	87	2	10084
Other countries	40	651	-	-

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

Country	2011-12		2012-13	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	5	18066	7	13997
China	++	76	5	5394
Japan	1	10454	1	3222
Russia	-	-	++	1192
USA	2	5851	1	931
Netherlands	-	-	++	930
Sweden	-	-	++	636
Myanmar	-	-	++	417
Korea, Rep. of	++	144	++	259
France	-	-	++	174
Other countries	2	1541	++	842

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

Country	2011-12		2012-13	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	64	57821	90	174460
Mexico	35	33780	71	139665
USA	5	10087	11	22203
Japan	8	6018	4	6572
Germany	2	1370	1	2857
UK	++	642	++	694
Myanmar	-	-	1	588
Canada	-	-	++	369
France	++	202	++	265
Bulgaria	-	-	1	260
South Africa	++	60	++	164
Other countries	14	5662	1	823

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

Country	2011-12		2012-13	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	93	89832	39	60813
Japan	28	21546	21	18608
UK	9	17135	6	13962
USA	7	10259	2	6059
China	8	8485	2	4430
Canada	6	2344	++	3440
Korea, Rep. of	9	5656	1	3083
Germany	1	1589	++	1555
Hong Kong	9	6280	2	1251
Chinese Taipei/ Taiwan	6	2656	1	1123
Iran	++	190	1	1048
Other countries	10	13692	3	6254

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

Country	2011-12		2012-13	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	10	4087	15	9978
Hong Kong	1	592	3	1955
South Africa	2	386	3	1722
Egypt	1	122	2	1696
Brazil	1	710	1	1155
Malaysia	1	486	2	908
USA	++	3	1	674
Denmark	-	-	++	282
Georgia	++	499	++	246
Thailand	1	267	1	224
Venezuela	3	732	1	219
Other countries	++	290	1	897

**Table – 21 : Exports of Mica (Bricks)
(By Countries)**

Country	2011-12		2012-13	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	5	426	-	-
Korea, Rep. of	1	177	-	-
UAE	++	144	-	-
Japan	4	105	-	-
Other countries	-	-	-	-

**Table – 22 : Exports of Mica Worked (Others)
(By Countries)**

Country	2011-12		2012-13	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	492	339605	705	440990
Japan	228	86448	59	79674
Turkey	12	7635	82	58717
USA	37	68383	111	54401
China	30	30487	123	39939
Netherlands	52	28786	23	21562
Latvia	++	135	37	18239
UK	39	17391	59	18184
Germany	5	10548	6	17937
Hong Kong	23	17897	20	17388
Russia	2	9005	35	15796
Other countries	64	62890	150	99153

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

Country	2011-12		2012-13	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	2458	599808	2283	557140
China	849	119271	1029	176312
Switzerland	269	157473	132	109303
Austria	180	110788	101	87868
Japan	81	25869	56	47639
Malaysia	84	23173	52	25793
UK	40	19296	36	21639
USA	173	16390	36	13245
Sri Lanka	180	3468	367	12200
Germany	110	42558	27	10631
Brazil	25	18773	8	7279
Other countries	467	62749	439	45231

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Table – 24 : Imports of Mica (Unmanufactured) : Total (By Countries)

Country	2011-12		2012-13	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	894	28004	873	24786
Sri Lanka	180	3468	280	6887
China	278	6582	185	6554
Japan	25	3568	18	2752
USA	144	2151	11	2124
Bangladesh	-	-	300	1405
UK	2	115	11	1005
Denmark	6	253	13	810
Norway	17	724	10	699
Germany	19	344	2	535
Spain	3	692	2	519
Other countries	220	10107	41	1496

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

Country	2011-12		2012-13	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	133	963	105	1081
USA	133	963	++	686
Bangladesh	-	-	100	214
Kenya	-	-	5	181

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

Country	2011-12		2012-13	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	445	14998	146	4719
China	223	4360	133	3940
Japan	17	2270	6	613
Korea, Rep. of	-	-	7	109
Spain	-	-	++	57
Other countries	205	8368	-	-

Table – 27 : Imports of Mica (Powder) (By Countries)

Country	2011-12		2012-13	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	170	9258	324	11947
China	55	2222	52	2614
Japan	8	1299	12	2139
USA	10	1148	11	1439
Bangladesh	-	-	200	1191
UK	-	-	11	1005
Denmark	6	253	13	810
Norway	17	724	10	699
Germany	16	145	2	535
Spain	3	692	2	462
Korea, Rep. of	14	665	1	244
Other countries	41	2110	10	809

Table – 28 : Imports of Mica (Waste & Scrap) (By Countries)

Country	2011-12		2012-13	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	146	2785	298	7039
Sri Lanka	145	2744	280	6887
South Africa	-	-	18	152
Other countries	1	41	-	-

Table – 29 : Imports of Mica (Worked) : Total (By Countries)

Country	2011-12		2012-13	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	1564	571804	1410	532354
China	571	112689	844	169757
Switzerland	269	157473	132	109170
Austria	180	110788	101	87868
Japan	56	22300	38	44887
Malaysia	84	23173	46	25552
UK	38	19181	25	20634
USA	29	14239	25	11120
Germany	91	42213	25	10096
Brazil	25	18773	8	7279
Korea, Rep. of	11	8126	6	5946
Other countries	210	42849	160	40045

**Table – 30 : Imports of Mica
(Condenser Films, Plates, Cuts, NES)
(By Countries)**

Country	2011-12		2012-13	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	121	41233	9	9697
Switzerland	52	24051	8	7251
UK	1	728	1	901
Germany	20	8938	++	671
China	11	2942	++	389
Malaysia	++	22	++	195
Korea, Rep. of	1	1277	++	176
USA	4	831	++	114
Other countries	32	2444	-	-

**Table – 31 : Imports of Mica (Washers & Discs)
(By Countries)**

Country	2011-12		2012-13	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	14	3248	12	4201
USA	1	568	9	3273
China	7	1098	2	423
Japan	-	-	1	265
Sweden	-	-	++	117
Switzerland	++	25	++	89
Italy	-	-	++	17
Germany	2	284	++	9
Mexico	-	-	++	4
Hong Kong	-	-	++	3
France	-	-	++	1
Other countries	4	1273	-	-

**Table – 32 : Imports of Mica (Sheets & Strips)
(By Countries)**

Country	2011-12		2012-13	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	174	23676	261	18429
China	145	6365	249	10040
UK	2	3942	12	8170
Qatar	-	-	++	126
Austria	-	-	++	62
Germany	5	9936	++	30
Other countries	22	3433	++	1

**Table – 33 : Imports of Micanite & Other
Built-up Mica
(By Countries)**

Country	2011-12		2012-13	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	19	2928	2	309
Vietnam	-	-	1	169
China	13	1993	1	140
Other countries	6	935	-	-

**Table – 34 : Imports of Mica Worked (Others)
(By Countries)**

Country	2011-12		2012-13	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	1234	500035	1126	499718
China	394	100083	592	158766
Switzerland	217	133397	124	101830
Austria	180	110788	101	87805
Japan	36	19394	37	44623
Malaysia	84	23151	46	25356
UK	31	13239	12	11562
Germany	64	23055	25	9386
USA	24	12840	16	7733
Brazil	25	18773	8	7279
Korea, Rep. of	10	6849	6	5769
Other countries	169	38466	159	39609

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

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Indian ground mica powder is acceptable to foreign buyers. However, they prefer that the material should be free from iron and consistency in the mesh size in 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 an export fabricated & value-added mica-based products, such as mica paper, micanite sheets and mica-based paper.

