74 Talc, Soapstone and Steatite

Talc is a hydrous magnesium silicate. In trade, talc often includes: (i) the mineral talc in the form of flakes and fibres; (ii) steatite, the massive compact cryptocrystalline variety of high-grade talc; and (iii) soapstone, the massive talcose rock containing variable talc (usually 50%), soft and soapy to feel. Commercial talc may contain other minerals like quartz, calcite, dolomite, magnesite, serpentine, chlorite, tremolite and anthophyllite as impurities. The properties that give talc a wide variety of uses and markets are its extreme softness and smoothness, good lustre and sheen, high slip and lubricating property, low moisture content, ability to absorb oil and grease, chemical inertness, high fusion point, low electrical and heat conductivity, high dielectric strength, good retention for filler purposes, whiteness, good hiding power as pigment and high specific heat. In addition, it has the advantage of being relatively abundant. It can be easily mined and prepared for market. Rajasthan is the hub of talc activity in India.

RESOURCES

As per the UNFC system the total reserves/ resources of talc/steatite/soapstone as on 1.4.2005 are estimated at 312 million tonnes of which reserves and remaining resources are 115 million tonnes and 197 million tonnes, respectively. Substantial quantities of resources are established in Rajasthan (50%) and Uttarakhand (32%). The remaining 18% resources are in Andhra Pradesh, Bihar, Chhattisgarh, Gujarat, Jharkhand, Karnataka, Kerala, Maharashtra, Madhya Pradesh, Odisha, Sikkim and Tamil Nadu. By grades, cosmetic grade accounts for about 26% share in total resources followed by paper and textiles (21%) and insecticides (14%). Resources of ceramic and paint grades are negligible. Others, Unclassified and Not- known grades account for about 38% resources (Table-1).

EXPLORATION & DEVELOPMENT

In 2009-10 DMM, West Bengal carried out mapping over 10 sq km area around GOK Karmi area of Darjeeling & 18 samples have been taken for talc. Similarly, DMG, Rajathan carried out mapping in 2 sq km area around Berla - Gothri Tehsil Rajgarh and Lare Mangarh of Alwar district. DDT grade soapstone has been discovered. Reserve estimate in both the cases have not been done.

PRODUCTION, STOCKS & PRICES

The production of talc/soapstone/steatite in 2009-10 at 835 thousand tonnes decreased by about 6% as compared to that in the previous year due to less demand.

There were 120 reporting mines in 2009-10 as against 135 in the previous year. Nineteen principal producers accounted for nearly 69% of the total production during 2009-10. In both the years entire production of steatite was reported by private sector mines. About 83% of the total production in 2009-10 was contributed by 37 mines, each producing over 5,000 tonnes annually, whereas 15% of the total output was reported by 53 mines, each producing 1,001 to 5,000 tonnes. The remaining about 2% of the production was shared by 35 mines, each with an annual output below 1,000 tonnes.

About 78% of the production in 2009-10 was of grade other than insecticide and the remaining was of insecticide/DDT grade.

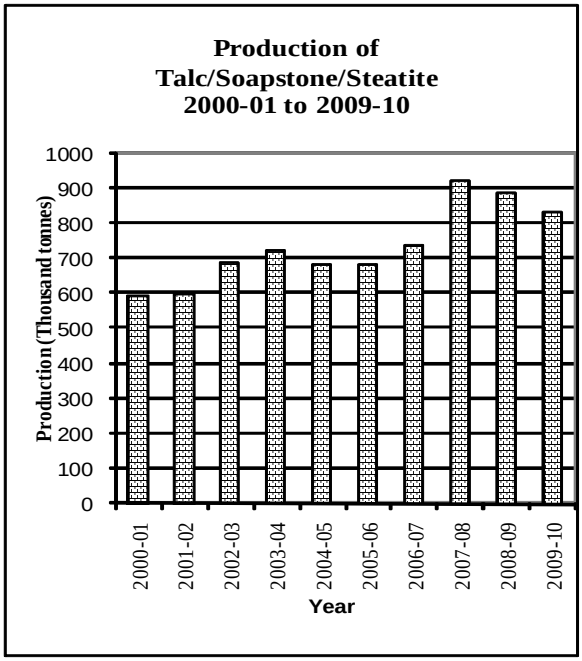

Table – 1 : Reserves/Resources of Talc/Steatite/Soapstone as on 1.4.2005 (By Grades/States)

(In '000 tonnes)

Grade/State	Reserves				Remaining resources								
	Proved STD111	Probable		Total (A)	Feasibility STD211	Pre-feasibility		Measured STD331	Indicated STD332	Inferred STD333	Reconnaissance STD334	Total (B)	Total resources (A+B)
		STD121	STD122			STD221	STD222						
All India : Total	**65013**	**8573**	**41940**	**115526**	**6184**	**47823**	**20524**	**142**	**6704**	**115230**	**202**	**196809**	**312335**
By Grades													
Paper & Textile	24523	1169	13924	39616	6048	262	5833	105	239	13213	197	25898	65514
Cosmetic	19839	1141	9635	30615	14	41773	930	-	-	7936	-	50652	81266
Insecticide	10536	2028	10021	22584	41	1839	7340	29	207	11868	-	21325	43909
Ceramic	-	-	-	-	-	-	-	-	-	36	-	36	36
Paint	707	88	345	1141	-	-	-	-	-	267	-	267	1407
Others	1290	3570	2754	7615	-	60	129	-	100	2175	-	2465	10080
Unclassified	6815	526	4633	11974	81	3805	6177	-	5388	66761	-	82212	94186
Not-known	1303	51	628	1982	-	84	115	8	770	12974	5	13955	15937
By States													
Andhra Pradesh	3134	131	2082	5346	-	-	-	13	143	3615	-	3771	9117
Bihar	62	-	2	63	-	-	-	-	-	1	-	1	65
Chhattisgarh	22	-	8	30	-	-	-	-	70	8	-	78	108
Gujarat	8	1	8	16	-	18	8	-	-	4	-	29	45
Jharkhand	4	5	22	31	1	-	54	2	4	250	-	311	341
Karnataka	97	-	82	179	20	135	344	-	30	1213	-	1742	1921
Kerala	-	-	-	-	-	-	-	-	-	14390	-	14390	14390
Madhya Pradesh	4	65	402	471	-	276	522	-	1679	6086	-	8563	9034
Maharashtra	-	-	-	-	-	-	-	-	2565	14262	-	16827	16827
Odisha	137	95	129	361	-	2	73	-	-	268	-	343	704
Rajasthan	22631	3206	17908	43745	175	46407	16422	23	689	49724	5	113445	157190
Sikkim	-	-	60	60	-	-	-	-	-	-	-	-	60
Tamil Nadu	194	210	1618	2023	-	-	181	-	-	524	-	705	2727
Uttarakhand	38720	4861	19621	63202	5987	985	2921	105	1524	24884	197	36604	99806

Figures rounded off.

Rajasthan, the major producing State accounted for as much as 75% of the total production in 2009-10. Among the other states, the share of Uttarakhand was 16% and that of Andhra Pradesh was 9% and very nominal production was also reported from Odisha, Bihar, Chhattishgarh, Gujarat and Tamil Nadu (Tables - 2 to 5).

Mine-head stocks at the end of the year were 500 thousand tonnes as against 792 thousand tonnes at the beginning of the year (Table-6).

The average daily employment of the labour was 3243 in 2008-09 as against 4018 in the previous year. Domestic prices of talc/steatite / soapstone are furnished in the General Review on Prices.

Table – 2 : Principal Producers of Steatite 2009-10

Name & address of producers	Location of mine	
	State	District
Associated Soapstone Distributing Co. (P) Ltd., 24, Akashwani Marg, P.B.No. 3 Udaipur- 313 003, Rajasthan.	Rajasthan	Udaipur
Udaipur Mineral Development Syndicate (P) Ltd Golcha Trade Centre (GTC), 4th Floor Ajmeri Gate, MI Road, Jaipur – 302 001, Rajasthan.	Rajasthan	Bhilwara
Nalwaya Mineral Industries (P) Ltd., 7/A, Bapu Bazar, Udaipur - 313 001, Rajasthan.	Rajasthan	Dungarpur Udaipur
Katiyar Mining & Industries Corpn, 117/L/215,Naveen Nagar, Kakadeo Kanpur – 208 025, Uttar Pradesh.	Uttarakhand	Bageshwar
Parwatiya Mines, Rampur Road, Haldwani, Dist. Nainital, Uttarakhand.	Uttarakhand	Bageshwar
Jai Polymers Co. (P) Ltd., Chirwa Ghat, Amberi Udaipur, Rajasthan.	Rajasthan	Udaipur
Mahaveer Trading Co., E – 263, Mewar Industrial Area, Madri,Udaipur – 313 001, Rajasthan.	Rajasthan	Udaipur
S. K. Golcha Golcha Minerals Pvt. Limited,P.B. No.5, Opposite Rly.Crossing, Chittorgarh Road, Bhilwara - 311 001, Rajasthan.	Rajasthan	Bhilwara
Nandini Mineral Industries, 18-211,Banaganapalli Road, P.O. Bethamcherla – 518 599, Dist. Kurnool Andhra Pradesh.	Andhra Pradesh	Kurnool

(Contd.)

Table - 2 (Concld.)

Name & address of producers	Location of mine	
	State	District
Smt. Khimuti Devi, Vill- Artola, P.O.- Panuaneanuala, Dist. Almora - 263 631, Uttarakhand.	Uttarakhand	Almora
Resurgere Mines & Minerals India Ltd, 156, Maker Chamber III, Nariman Point, Mumbai – 21.	Rajasthan	Udaipur
Khaitan Business Corporation, Old Bus stand, Nathdwara, P.O.- Nathdwara, Dist. Rajasmand - 323 301, Rajasthan.	Rajasthan	Rajasamand
B. Venkateswaralu, P. O. Bethamcherla-518 599, Dist. Kurnool, Andhra Pradesh.	Andhra Pradesh	Kurnool
Krishna Miners & Traders 3/B Industrial Estate, Pratapnagar, Udaipur - 313 005, Rajasthan.	Rajasthan	Udaipur
Darshansingh Parihar, Parihar Furniture, Near SBI, Bageshwar, Uttarakhand.	Uttarakhand	Bageshwar
Sher Singh Dhapola, Dhapola Bhawan, Near Bus Stand, Bageshwar, Uttarakhand.	Uttarakhand	Bageshwar
Ratanlal Deedwaniya, C/o Deedwaniya & Sons, D-4, Nagori garden, Dist. Bhilwara, Rajasthan.	Rajasthan	Bhilwara
Smt B. Laxmi Devamma C/O Madhusudan Murti, At. Dhone, P.O. Peapally - 518 221, Dist. Kurnool, Andhara Pradesh.	Andhra Pradesh	Kurnool
J. C. Tiwari, Tirupati Minerals, Malli Bamori, Haldwani, P.O – Haldwani, Dist. Nainital, Uttarakhand.	Uttarakhand	Bageshwar

Table – 3 : Production of Talc/ Steatite/Soapstone, 2007-08 to 2009-10
(By States)

(Qty. in tonnes; value in Rs. '000)

State	2007-08		2008-09		2009-10 (P)	
	Quantity	Value	Quantity	Value	Quantity	Value
India	**922505**	**593311**	**888470**	**598246**	**835119**	**527387**
Andhra Pradesh	88483	22965	81914	23224	72787	21132
Bihar	1576	249	1410	179	2052	262
Chhattisgarh	441	157	476	48	80	8
Gujarat	541	81	122	18	2291	232
Karnataka	305	34	–	–	–	–
Madhya Pradesh	130	14	–	–	–	–
Odisha	1399	162	4	++	–	–
Rajasthan	633485	444230	653258	459351	622389	400708
Tamil Nadu	2280	388	–	–	630	126
Uttarakhand	193865	125031	151286	115426	134890	104919

Table – 5 : Production of Talc/ Steatite/Soapstone, 2008-09&2009-10 (P)
(By Frequency Groups)

(Qty. in tonnes)

Production group	No. of mines		Production for the group		Percentage in total production		Cumulative percentage	
	2008-09	2009-10	2008-09	2009-10	2008-09	2009-10	2008-09	2009-10
All Groups	**135(6)**	**120(5)**	**888470**	**835119**	**100.00**	**100.00**	**–**	**–**
Up to 500	40(3)	20(1)	49734	2785	5.60	0.33	5.60	0.33
501 to 1000	14	14	9906	10516	1.11	1.26	6.71	1.59
1001 to 2000	17	17(2)	25139	22897	2.83	2.74	9.54	4.33
2001 to 5000	32(1)	33(1)	104556	104155	11.77	12.47	21.31	16.80
5001 to 10000	15(2)	18	99440	115920	11.19	13.88	32.50	30.68
10001 to 25000	11	12(1)	175705	188881	19.78	22.62	52.28	53.30
25001 & Above	6	6	423990	389965	47.72	46.70	100.00	100.00

Figures in parentheses indicate the number of associated mines.

Table – 4 : Production of Talc/Steatite/Soapstone, 2008-09 & 2009-10 (By Sector/States/Districts/Grades)

(Qty. in tonnes; value in Rs. '000)

State/District	2008-09					2009-10(P)				
	No.of mines	Quantity			Value	No.of mines	Quantity			Value
		Insecticide/ DDT	Other than Insecticide	Total			Insecticide/ DDT	Other than Insecticide	Total	
India	**135(6)**	**163902**	**724568**	**888470**	**598246**	**120(5)**	**183893**	**651226**	**835119**	**527387**
Private Sector	135(6)	163902	724568	888470	598246	120(5)	183893	651226	835119	527387
AndhraPradesh	**33(5)**	**59604**	**22310**	**81914**	**23224**	**28(3)**	**51812**	**20975**	**72787**	**21132**
Anantapur	5(2)	20	5192	5212	3712	4(1)	–	6158	6158	4569
Kurnool	28(3)	59584	17118	76702	19512	24(2)	51812	14817	66629	16563
Bihar	**1**	**1410**	**–**	**1410**	**179**	**1**	**2052**	**–**	**2052**	**262**
Munger	1	1410	–	1410	179	1	2052	–	2052	262
Chhattisgarh	**1**	**476**	**–**	**476**	**48**	**1**	**80**	**–**	**80**	**8**
Kanker	1	476	–	476	48	1	80	–	80	8
Gujarat	**1**	**122**	**–**	**122**	**18**	**1**	**2291**	**–**	**2291**	**232**
Sabarkantha	1	122	–	122	18	1	2291	–	2291	232
Odisha	**1**	**4**	**–**	**4**	**++**	**–**	**–**	**–**	**–**	**–**
Sambalpur	1	4	–	4	++	–	–	–	–	–
Rajasthan	**68(1)**	**59881**	**593377**	**653258**	**459351**	**58(1)**	**109746**	**512643**	**622389**	**400708**
Banswara	1	3514	–	3514	351	1	4957	–	4957	529
Bhilwara	10(1)	14265	242197	256462	172084	8(1)	45926	143006	188932	107316
Dausa	1	1076	–	1076	269	1	752	–	752	150
Dungarpur	7	7442	42433	49875	27723	7	11410	38122	49532	20402
Jaipur	–	–	–	–	–	1	285	6026	6311	3042
Karauli	2	–	1720	1720	1521	2	333	3112	3445	3504
Rajsamand	7	7685	6477	14162	4658	7	4003	11415	15418	5781
Udaipur	40	25899	300550	326449	252745	31	42080	310962	353042	259984
Tamil Nadu	**–**	**–**	**–**	**–**	**–**	**1**	**630**	**–**	**630**	**126**
Coimbatore	–	–	–	–	–	1	630	–	630	126
Uttarakhand	30	42405	108881	151286	115426	30	17282	117608	134890	104919
Bageshwar	25	40355	104119	144474	112600	25	13382	114678	128060	102388
Pithoragarh	5	2050	4762	6812	2826	5	3900	2930	6830	2531

Figures in parentheses indicate no. of associated mines with limestone, clay (others), quartz, asbestos, kaoline and dolomite.

Table – 6 : Mine-head Stocks of Talc/ Steatite/Soapstone, 2009-10 (P)
(By States/Grades)

(In tonnes)

State	At the beginning of the year			At the end of the year		
	Insecticide/ DDT	Other than Insecticide	Total	Insecticide/ DDT	Other than Insecticide	Total
India	**412978**	**379095**	**792073**	**114863**	**384975**	**499838**
Andhra Pradesh	10869	2802	13671	10708	2461	13169
Bihar	36	–	36	35	–	35
Chhatisgarh	302	–	302	76	–	76
Gujarat	42	–	42	46	–	46
Odisha	1994	72	2066	1396	15	1411
Rajasthan	390697	352829	743526	100097	361938	462035
Tamil Nadu	–	–	–	55	–	55
Uttarakhand	9038	23392	32430	2450	20561	23011

MINING, MARKETING & TRANSPORT

The deposits of talc are worked both by opencast and underground methods of mining. In India, almost all the mines are worked by opencast method except a few mines in Rajasthan and Andhra Pradesh where underground method of mining is followed.

In opencast method, the overburden, being hard, is removed by drilling and blasting and the mineral, being soft, is mined with the help of pickaxes/crowbars and transported to the stacking places manually. In some opencast pits in Rajasthan, mechanical excavators are in use. Benches are formed along the strike on the hanging wall and footwall sides to work the deposit at depth. Most soapstone mines are worked manually. Some mines are semi-mechanised and a few are mechanised. In manually worked opencast mines, drilling is sometimes done by compressor-jackhammer unit. In semi-mechanised mines, drilling and face transport are by mechanical means but face loading, sorting, etc. are carried out manually. In a few mines, small capacity shovel and matching dumpers are deployed for handling waste. In most opencast mines, loading is done manually. In some larger mines, loading and transport are done by shovel and dumper combination. In few mines, hand trimming is practised on the surface. Mechanical haulage transports the material through the incline.

In underground mining in Rajasthan and Andhra Pradesh, the deposit is reached from the surface through shafts or inclines depending upon the topography and the configuration of the deposit. Generally, inclines of 1.8 m x 1.8 m and 2 m x 2 m in section are developed from the surface through the soapstone mineralisation along the dip. Levels of 1.8 m x 1.8 m or 2 m x 2 m in cross-section are driven along the body at vertical intervals of 15 to 25 m. For developments, holes are drilled with compressed-air operated jackhammers. Holes in soapstone are blasted with special gelatine using ordinary detonators and safety fuses. For transportation and hoisting from underground, tipping tubs and skip hoists are used.

Talc stacked at the mine site or in stacking yard is processed by hand sorting to remove impurities like calcite, dolomite, iron oxide and quartzite. After removal of impurities grading is done visually on the basis of its whiteness. Sometimes, talc is washed to remove fine dust and

impurities. It is graded into Grade 'A', Grade 'B', Grade 'C' and Grade 'D'.

Grade A

It is known as the first quality material. The colour of the mineral is pure white to slightly green. The whiteness is in the range from 90 to 95%. It is used in producing pharmaceuticals and cosmetics.

Grade B

It is known as the second quality material. The colour is pale-greenish to white. The whiteness is in the range from 85 to 90%. It is used in producing superior-grade paper, textile and ceramics.

Grade C

It is known as the third quality material. The colour is light greenish-grey. Whiteness is in the range from 78 to 85%. It is used in paper (inferior grade), paint, rubber, plastic and detergent industries.

Grade D

It is known as the fourth quality or DDT grade. The material having whiteness of 78% or below is generally classified under this grade. The colour of the material is dark greenish-grey to reddish-green. The DDT grade material is considered to be of a very poor quality. Gradewise whiteness & their specification consuming industries are given in Table-7.

Table – 7 : Gradewise Consuming Industries of Talc

Grade	Whiteness Percentage	Industry
Grade - A	90 to 95%	i) Pharmaceutical ii) Cosmetic
Grade - B	85 to 90%	i) Superior grade paper ii) Textile iii) Ceramic
Grade - C	78 to 85%	i) Paper inferior grade ii) Paint iii) Rubber iv) Plastic v) Detergent
Grade - D	78% or below	DDT

Since the industry is demanding fine powder, the technology is advancing in this direction. The pulverisers/hammer mills developed and manufactured in India are capable of giving up to 700 mesh powder. The world market prefers fine powder which can be produced by adopting new processing techniques like micronizing and sterilisation of the product.

Talc is crushed and ground by hammer mills and roller mills into powder; at the same time talc particles size is analysed by classifier. After pulverising/processing, the material is packed in 25 kg, 50 kg, 500 kg and 1,000 kg HDPE bags for internal use and laminated bags for export purpose. The pulverised talc from the processing plants and unprocessed talc from the mines are despatched through trucks and railway wagons to various consuming centres. The important loading stations for talc in the country are Maharana Pratap Nagar(Udaipur) and Kachhola in Rajasthan and Tanakpur in Uttarakhand. For exports, nearest ports are Kandla or Mumbai.

USES & SPECIFICATIONS

Talc, in pulverised form, is mostly used as a filler in paper, textile, rubber, insecticides and fertilizer industries. Pure talc after calcining, called 'Lava', is used in the manufacture of low-loss ceramic materials essential for radio, radar, television, etc. In roofing products, such as tar, paper, asphalt shingles and roll roofing, talc acts as a fire retardant and increases weather resistance. Body and face powders (talcum powder) are prepared from the finest quality talc after adding deodorant and perfumes. Massive steatite when cut into panels is used for switchboards and acidproof tabletops in laboratory, laundry and kitchen sinks, in tubs and tanks as well as for lining alkali tanks in paper industry. Due to its high melting point (1630^0C), soapstone can be used in refractories and fire places. It is also quite useful in sculpturing.

Indian talc, especially mined in Rajasthan and Andhra Pradesh, is comparable with the best quality available in other countries. Indian talc is considered to be the second best in the world next to 'Italian talc'. In the world market, talc, free from grit, having high whiteness and high degree of

soapy feeling is very much sought after in cosmetic, filler and weighing applications. Talc having more than 92% brightness, less than 1% Fe_2O_3 and less than 1.5% $CaCO_3$ is preferred for exports.

Soapstone powder is also used as parting agent in foundry industry. Parting agents are used for easy release of moulds and cores from pattern equipment and core boxes. BIS specification IS 8250-1988 (as amended in July 1995 and reaffirmed, 2003) prescribes use of off-white or cream-coloured material having a very smooth and slippery feel, passing completely through 75 micron IS-sieve. The material shall be predominantly magnesium silicate and chemical composition as agreed to between buyer and purchaser compatible with naturally occurring soap stone. In paint industry, foliated, fibrous or lamellar material of 300 mesh and free from silica is used. Specifications of steatite (as French chalk) used in paper, textile, pyrotechnic and rubber industries as per IS : 380-1978 (Second Revision, Reaffirmed 2003) are furnished in Table - 8. Specifications as per IS : 10429-1982 (Reaffirmed 2001) for ceramic industry and actual user specifications for insecticide industry are furnished in Table-9. BIS has prescribed specifications for use of talc in cosmetic industry vide IS: 1462-1985(Third Revision, reaffirmed 2001). The international specifications of talc for use in ceramic, cosmetic and paint industries are given in Table - 10.

Table – 8 : Specifications of Steatite (French Chalk, Technical for Use in Paper, Textile, Pyrotechnics and Rubber Industries) (IS: 380-1978, Second Revision, Reaffirmed 2003)

Parameter	Paper	Textile	Pyrotechnics	Rubber
Loss on ignition	4% (max)	4% (max)	4% (max)	4% (max)
Matter insoluble in HCl	95% (min)	95% (min)	95% (min)	95% (min)
Grit, percentage by mass, max	0.02	0.02	0.02	–
Chlorides (NaCI)	0.5% (max)	0.5% (max)	0.5% (max)	0.5% (max)
Iron (as Fe_2O_3) percentage by mass, max	0.3	0.3	0.3	–
pH8.5 (max)	8.5 (max) (of 10% solution)	8.5 (max) (of 10% solution)	8.5 (max) (of 10% solution)	(of 10% solution)
Whiteness, reflectance to blue light of wavelength 5040 A^0 (percent, min)	80	80	80	–
Relative density	2.7-2.9 (at 27°C)	2.7-2.9 (at 27°C)	2.7-2.9 (at 27°C)	2.7-2.9 (at 27^0C)
Remarks	–	–	–	*

* *Material required for preservation of rubber goods shall contain not more than 0.05%, by mass, of copper or manganese or their compound in terms of respective compounds.*

Table – 9 : Specifications of Steatite for Use in Insecticide and Ceramic Industries

Parameter	Insecticide (User)	Ceramics (IS:10429-1982)	
		Grade-I	Grade-II
Loss on ignition (% by mass, max)	7% (max)	5.5%	6.5%
Moisture and other volatile matter	1% (max)	1% (max)	1% (max)
Silica (as SiO_2) % by mass, min	–	60	56
Alumina (as Al_2O_3) % by mass, max	–	1.5	2.5
Iron oxide (as Fe_2O_3) % by mass, max	1-1.5	1.0	1.5
Calcium oxide (as CaO) % by mass, max	–	1.0	3.5
Magnesia (as MgO) % by mass, min	–	30	28
Alkali (as $Na_2O + K_2O$) % by mass, max	–	0.4	0.5
pH	6-7	–	–
Fineness	300 mesh	–	–
Size grading			
Material passing through 75 microns IS sieve, % by mass, min	–	99	99
Material passing through 45 microns IS sieve, % by mass, min.	–	80	80
Specific gravity	–	2.7 to 2.8	2.7 to 2.8
Fusibility (Orton Standard Pyrometric Cone)	–	18 to 23 (1522-1605°C)	16 to 18 (1491-1522°C)
Linear shrinkage (fired) % by length, max	–	12	–
Water absorption % by mass, max	–	0.1	–

Grade-I : Suitable for ceramic insulator industry & Grade II: Suitable for ceramic pottery industry.

Table – 10 : International Specifications for Talc

Parameter	Ceramic	Cosmetic	Paint*
MgO	30% (min)	–	88% (Mg and Ca silicates)
SiO_2	60%	0.1-1.0%	–
CaO	1% (max)	–	–
Al_2O_3	4% (max)	–	–
Fe_2O_3	1.5% (max)	–	–
Alkali	0.4% (max)	–	–
Size	-325 mesh (95%)	-200 mesh	-325 mesh
Acid soluble	6	–	–
Water soluble	–	0.1 (max)	1
Loss on ignition	–	6	7
Brightness	–	–	Over 90

** Moisture 1%.*

CONSUMPTION

Talc is used mostly in pulverised form as a filler and extender in various industries. The non-pulverised talc is used in refractory, etc. Total reported consumption of talc/steatite/soapstone in the organised sector was at 371 thousand tonnes and in 2008-09 and 375 thousand tonnes in 2009-10. About 59% consumption in 2009-10, was in paper industry, followed by paint (20%), pesticide (11%), ceramic (6%) and cosmetic (3%) industries. Nominal consumption was shared by fertilizer, paint, rubber, textile, chemicals and other industries. Consumption of talc/steatite/ soapstone during 2007-08 to 2009-10 is given in Table-11.

POLICY

The Export-Import Policy incorporated in the Foreign Trade Policy, 2009-14 allows imports and exports of talc freely without restrictions under heading no.2526.

Table – 11 : Reported Consumption of Talc/ Steatite/Soapstone, 2007-08 to 2009-10 (By Industries)

(In tonnes)

Industry	2007-08	2008-09(R)	2009-10(p)
All Industries	**344400**	**370800**	**375000**
Ceramic	16900(23)	17700(23)	24100(24)
Cosmetic	11600(16)	11600(16)	11600 (16)
Paint	65100(31)	74100 (31)	74300 (31)
Paper	207300(47)	223900(48)	221400(48)
Pesticide	42000 (17)	42000 (17)	42100 (17
Rubber	800 (27)	800 (27)	800 (27)
Others (abrasive, chemical, electrical, fertilizer, foundry, pharmaceutical, refractory, textile and vanaspati)	700 (32)	700 (32)	700 (32)

Figures rounded off.
Data collected on non-statutory basis.
Figures in parentheses denote the number of units in organised sector reporting includes actual reported consumption and or estimates made whenever required consumption.
Plastic industry also consumes talc for which data is not available.

WORLD REVIEW

The world reserves of talc and pyrophyllite are quite large and sufficient to meet the world demand. The world reserves of talc(alongwith pyrophyllite) are given in Table -12. Reserves of talc are not available separately.

The world production of talc is estimated at 5.9 million tonnes in 2009. Principal producing countries were China (39%), followed by India (14%), Finland (8%), France and Brazil (7% each) (Table -13).

Table – 12 : World Reserves of Talc and Pyrophyllite (By Principal Countries)

(In '000 tonnes)

Country	Reserves
World : Total (rounded)	**Large**
Brazil	180000
China	Large
Finland	Large
India	4000
Japan	100000
Korea, Rep. of	14000
USA*	140000
Other countries	Large

** Excludes pyrophyllite.*
***Source:** Mineral Commodity Summaries, 2010.*

Table – 13 : Production of Talc (By Principal Countries)

(In '000 tonnes)

Country	2007	2008	2009
World :Total	**6211**	**6199**	**5972**
Australia	121(e)	130(e)	92(e)
Austria	153	155	111
Brazil	401	405(e)	400(e)
China	2000(e)	2000(e)	2300
Finland	536	528	500(e)
France	420(e)	420	420(e)
India*	923	832	820
Italy	118	110(e)	110(e)
Korea, Dem. P.R. of	50(e)	50(e)	50(e)
Mexico	32	16	33
Russia	150(e)	150(e)	150(e)
Spain	78	59	47
USA	769	706	527(e)
Other countries	460	638	412

***Source:** World Mineral Production, 2005-2009.*
@ Including talc, agalmatolite and pyrophyllite.
** India's production of talc/ steatite/ soapstone during 2007-08, 2008-09 and 2009-10 was 923 thousand tonnes, 888 thousand tonnes and 835 thousand tonnes, respectively.*

FOREIGN TRADE

Exports

Exports of steatite decreased to 87,870 tonnes in 2009-10 from 99,520 tonnes in the previous year. Out of total steatite exported in 2009-10, steatite blocks constituted 4,602 tonnes, steatite lumps 7,915 tonnes and steatite powder & others 75,353 tonnes. Steatite in different forms was exported mainly to Thailand (11%), Spain (9%), UAE (8%), Nepal and Malaysia (7% each) and Japan (5%), (Tables - 14 to 17).

Imports

Imports of steatite decreased to 2,605 tonnes in 2009-10 from 5,218 tonnes in the previous year. Out of total steatite imported in 2009-10, steatite lumps were 180 tonnes and steatite powder & others 2,371 tonnes and steatite blocks 54 tonnes. Steatite in different forms was imported mainly from Pakistan (42%), China (19%), Norway (9%), Japan (7%) and France (4%) (Tables 18 to 21).

Table – 14 : Exports of Steatite (By Countries)

Country	2008-09		2009-10	
	Qty (t)	Value (Rs.'000)	Qty (t)	Value (Rs.'000)
All Countries	**99520**	**650768**	**87870**	**618521**
UAE	20816	164074	7389	67897
Malaysia	2934	28159	6208	61432
Thailand	10866	67849	9702	59949
Spain	5481	33206	7753	54422
Japan	8010	59799	4093	29146
Nepal	5846	19879	6274	26400
Philippines	3890	24623	2996	21382
Belgium	2296	18489	2293	19913
Kenya	2099	14821	2261	19716
Saudi Arabia	3276	22261	1987	17680
Other countries	34006	197608	36914	240584

Table –15 : Exports of Steatite Blocks (By Countries)

Country	2008-09		2009-10	
	Qty (t)	Value (Rs.'000)	Qty (t)	Value (Rs.'000)
All Countries	**6418**	**38698**	**4602**	**24355**
Japan	2487	14820	1580	9266
USA	669	5323	416	3881
Nepal	445	1268	976	3312
Netherlands	767	5134	226	3103
Bangladesh	670	1294	585	910
Thailand	100	613	150	877
UAE	241	2415	62	769
Italy	222	997	333	419
Germany	297	2896	71	140
Korea, Rep. of	161	1525	–	–-
Other countries	359	2413	203	1678

Table –16 : Exports of Steatite Lumps (By Countries)

Country	2008-09		2009-10	
	Qty (t)	Value (Rs.'000)	Qty (t)	Value (Rs.'000)
All Countries	**6930**	**32297**	**7915**	**44587**
Spain	3537	18080	5348	32734
Bangladesh	1425	3303	1299	3161
Netherlands	226	1492	231	2632
Belgium	116	1104	107	1622
Turkey	135	969	336	1168
Thailand	40	227	200	1123
Nepal	721	2540	138	389
Oman	297	1554	–	–
Yemen Republic	148	980	–	–
Unspecified	–	–	203	1197
Other countries	285	2048	53	561

Table –17: Exports of Steatite Powder & Others (By Countries)

Country	2008-09		2009-10	
	Qty (t)	Value (Rs.'000)	Qty (t)	Value (Rs.'000)
All Countries	**86172**	**579773**	**75353**	**549579**
UAE	20575	161659	7321	67099
Malaysia	2858	27710	6101	60490
Thailand	10726	67009	9352	57949
Nepal	4680	16071	5160	22699
Spain	1944	15126	2399	21640
Philippines	3890	24623	2996	21382
Kenya	2099	14821	2261	19716
Japan	5498	44595	2491	19497
Belgium	2180	17385	2164	18207
Saudi Arabia	3276	22261	1987	17680
Other countries	28446	168513	33121	223220

Table – 18 : Imports of Steatite (By Countries)

Country	2008-09		2009-10	
	Qty (t)	Value (Rs.'000)	Qty (t)	Value (Rs.'000)
All Countries	**5218**	**91045**	**2605**	**52455**
China	541	21203	504	13064
Japan	2052	26358	185	7942
Pakistan	1744	9712	1091	6591
U S A	267	15751	64	4193
Italy	66	4325	79	3951
France	113	3336	116	3877
Norway	80	1462	236	3604
Belgium	30	1563	47	2532
Singapore	20	1387	20	1453
Korea, Rep. of	135	1893	40	798
Other countries	170	4055	223	4450

Table –19: Imports of Steatite Lumps (By Countries)

Country	2008-09		2009-10	
	Qty (t)	Value (Rs.'000)	Qty (t)	Value (Rs.'000)
All Countries	**216**	**1345**	**180**	**876**
Pakistan	216	1345	108	593
UAE	–	–	27	206
Nepal	–	–	45	77

Table – 20 : Imports of Steatite Powder & Others (By Countries)

Country	2008-09		2009-10	
	Qty (t)	Value (Rs.'000)	Qty (t)	Value (Rs.'000)
All Countries	**5002**	**89700**	**2371**	**51254**
China	541	21203	504	13064
Japan	2052	26358	185	7942
Pakistan	1528	8367	929	5673
USA	267	15751	64	4193
Italy	66	4325	79	3951
France	113	3336	116	3877
Norway	80	1462	236	3604
Belgium	30	1563	47	2532
Singapore	20	1387	20	1453
Korea, Rep. of	135	1893	40	798
Other countries	170	4055	151	4167

Table – 21: Imports of Steatite blocks ((By Countries)

Country	2008-09		2009-10	
	Qty (t)	Value (Rs.'000)	Qty (t)	Value (Rs.'000)
All Countries	**–**	**–**	**54**	**325**
Pakistan	–	–	54	325

FUTURE OUTLOOK

The Indian reserve/Resources estimated of talc is 312 million tonnes. Our domestic production is approximately 8.35 lac tonnes in the year 2009-10. Talc is mainly used in paper, paint, pesticides, ceramics and cosmetis industry. talc/ Steatite is mainly exported to UAE, Thailand, Japan, Nepal, Spain & Malaysia. we have surplus production than our domestic requirment, there fore Indian exporter of talc may try to explore export market in foreign country .