

54 Magnesite

Magnesite ($MgCO_3$) is carbonate of magnesium. It is usually found as irregular veins in serpentine and formed by replacement of dolomite and limestone. Calcium and silica are, therefore, the most common impurities observed in magnesite along with Fe_2O_3 and Al_2O_3 . It is a very important mineral for the manufacture of basic refractories, which are largely used in the steel industry. In commerce, the term 'magnesite' refers not only to the mineral, but also to many products, obtained by calcining the natural carbonate; e.g., caustic magnesite (magnesia obtained by calcining crude magnesite at comparatively low temperatures, 700 to 1000°C, and retaining 2 to 7% CO_2 as carbonate) and dead-burnt or refractory magnesite (magnesia obtained by calcining magnesite at high temperatures, 1500 to 1800°C, usually containing less than 0.5% CO_2). Pure magnesite calcined at still higher temperatures (1600 - 1800°C) to expel carbon dioxide completely is termed as 'periclase' (MgO) in the trade.

RESOURCES

The total reserves/resources of magnesite as per UNFC system as on 1.4.2005 are about 338 million tonnes of which reserves and remaining resources are 76 million tonnes and 262 million tonnes, respectively. Substantial quantities of resources are established in Uttarakhand (68%), followed by Rajasthan (16%) and Tamil Nadu (13%). Resources are also located in Andhra Pradesh, Himachal Pradesh, Jammu & Kashmir, Karnataka and Kerala.

Occurrences of magnesite in Tamil Nadu are low in lime and high in silica whereas those of Uttarakhand are high in lime and low in silica. The gradewise and statewise reserves and resources of magnesite are given in Table - 1.

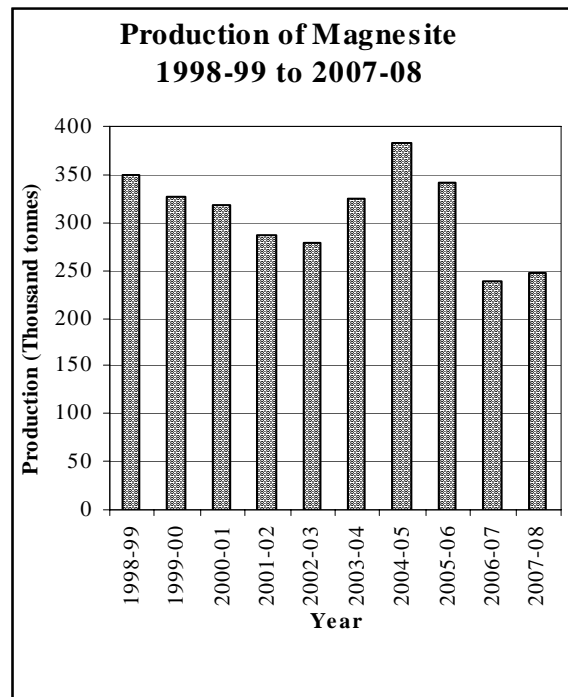
PRODUCTION, STOCKS & PRICES

Production of magnesite in 2007-08 at 248 thousand tonnes increased by 4% as compared to that in the previous year. There were 9 reporting mines in 2007-08 and 12 in the previous year. Five principal producers accounted for 93% of the total output during 2007-08. About 68% of the total production of magnesite was contributed by public sector during 2007-08 as against 65% in the preceding year.

Tamil Nadu continued to be the leading producing state with a share of 72% of total output during the year, followed by Uttarakhand with 26%. Remaining 2% was contributed by Karnataka (Tables - 2 to 4).

Mine-head stocks at the end of the year were 116 thousand tonnes as against 185 thousand tonnes at the beginning of the year (Table - 5).

The average daily employment of labour during the year was 880 as against 1,285 in the previous year. Prices of magnesite are given in Table - 6.



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**Table - 1 : Reserves/Resources of Magnesite as on 1.4.2005
(By Grades/States)**

(In '000 tonnes)

State/Grade	Reserves			Remaining resources						Total Resources (A+B)		
	Proved STD111	Probable		Total (A)	Feasibility STD221	Pre- feasibility STD222	Measured STD331	Indicated STD332	Inferred STD333		Reconnaissance STD334	Total (B)
		STD121	STD122									
All India : Total	20863	10197	45073	76133	1363	15	59010	59752	141564	45	261749	337882
By Grades												
High grade	6	2169	2	2177	-	-	2	-	25	-	27	2204
Medium grade	11623	5432	4873	21928	27	12	4	99	7514	-	7656	29584
Beneficial/Low	3818	84	1970	5872	-	3	648	28318	108230	-	137199	143071
High & medium mixed	6	6	785	797	-	-	-	-	50	-	50	847
Medium & low mixed	3753	429	29237	33419	-	-	58271	31106	9149	-	98526	131945
High,medium & low mixed	-	2077	5335	7412	-	-	60	10	10248	-	10318	17730
Others	1656	-	2866	4522	1336	-	24	-	3096	-	4456	8978
Unclassified	-	-	-	-	-	-	-	-	83	-	83	83
Not-known	-	-	6	6	-	-	-	219	3170	45	3434	3440
By States												
Andhra Pradesh	-	-	-	-	-	-	-	-	80	-	80	80
Himachal Pradesh	-	-	-	-	-	-	-	100	198	-	298	298
Jammu & Kashmir	-	2813	-	2813	-	-	-	-	150	45	195	3008
Karnataka	243	6	777	1026	-	-	88	10	2734	-	2832	3858
Kerala	-	-	-	-	-	-	2	-	38	-	40	40
Rajasthan	1081	84	2118	3283	1336	3	-	149	49033	-	50521	53804
Tamil Nadu	12055	6692	9682	28429	27	12	17	737	16294	-	17087	45516
Uttarakhand	7483	602	32497	40582	-	-	58902	58756	73037	-	190695	231277

Figures rounded off.

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**Table – 2 : Principal Producers of Magnesite
2007-08**

Name & address of producer	Location of mine	
	State	District
Tamil Nadu Magnesite Ltd, 5153, Omalur Main Road, Jagir Ammapalayam, Salem-636 302, Tamil Nadu.	Tamil Nadu	Salem
Almora Magnesite Ltd, Metela, P.O. Billori-263 630, Distt. Bageshwar, Uttarakhand.	Uttarakhand	Bageshwar
S. Sunder Rajan, Gori medu, Periagolapatti Post-Kannankurchi-636 008 Salem, Tamil Nadu.	Tamil Nadu	Salem
Dalmia Maganesite Corporation Ltd, Post:- Salem-636 012 Tamil Nadu.	Tamil Nadu	Salem
Srimati K.M. Kamla 107, State Bank Colony,Phase III, Post-Salem-636 004 Tamil Nadu.	Tamil Nadu	Salem

**Table – 3 : Production of Magnestie, 2005-06 to 2007-08
(By States)**

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

State	2005-06		2006-07		2007-08 (p)	
	Quantity	Value	Quantity	Value	Quantity	Value
India	340674	385770	238981	341740	247527	369866
Karnataka	8277	13620	10966	14389	4602	7714
Rajasthan	-	-	352	411	-	-
Tamil Nadu	275897	325150	170781	271899	179095	301549
Uttarakhand	56500	47000	56882	55041	63830	60603

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**Table – 4 : Production of Magnesite, 2006-07 and 2007-08
(By Sectors/States/Districts)**

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

State/District	2006-07			2007-08 (p)		
	No. of mines	Quantity	Value	No. of mines	Quantity	Value
India	12	238981	341740	9	247527	369866
Public sector	4	155949	243958	4	167300	266634
Private sector	8	83032	97782	5	80227	103232
Karnataka	3	10966	14389	2	4602	7714
Mysore	3	10966	14389	2	4602	7714
Rajasthan	1	352	411	-	-	-
Pali	1	352	411	-	-	-
Tamil Nadu	6	170781	271899	5	179095	301549
Namakkal	1	628	202	1	593	191
Salem	5	170153	271697	4	178502	301358
Uttarakhand	2	56882	55041	2	63830	60603
Bageshwar	1	50596	49635	1	50571	49355
Pithoragarh	1	6286	5406	1	13079	11248

**Table – 5 : Mine-head Stocks of Magnesite, 2007-08(p)
(By States)**

(In tonnes)

State	At the beginning of the year	At the end of the year
India	185050	115949
Karnataka	27249	3659
Rajasthan	3650	3638
Tamil Nadu	154051	-
Uttarakhand	-	45

**Table - 6 : Prices of Magnesite, 2005-06 to 2007-08
(Domestic Markets)**

(In Rs. per tonne)

Grade	Market	2005-06	2006-07	2007-08 (p)
Lump (-) 6% SiO ₂	Ex-mine Salem (Tamil Nadu)	1200	1200	1200
Medium (-) 8% SiO ₂	Ex-mine Salem (Tamil Nadu)	920	920	920
Smalls (-) 8% SiO ₂	Ex-mine Salem (Tamil Nadu)	630	630	630
Sub-Grade (+) 8% SiO ₂	Ex-mine Salem (Tamil Nadu)	715	715	715
Less than 1.00% SiO ₂	Ex-mine MML (Karnataka)	2800	3480	4430
Between 1.00% to 2.99% SiO ₂	Ex-mine MML (Karnataka)	1600	1980	2530
Between 3.00% to 3.99% SiO ₂	Ex-mine MML (Karnataka)	1400	1740	2180
Between 4.00% to 5.99% SiO ₂	Ex-mine MML (Karnataka)	1200	1500	2070
Above 6%	Ex-mine MML (Karnataka)	750	780	1150
ROM Titaniferous	Ex-mine MML (Karnataka)	550	550	610
10-30 mm	Ex-mine MML (Karnataka)	700	700	700

MINING AND MARKETING

Magnesite is being worked by opencast method by developing benches up to 7.5 m height and width up to 45.50 m. In Salem area (Tamil Nadu), magnesite is found chiefly as encrustations, veins and stringers in ultrabasic rocks like dunite and peridotite. Stringers and veins occurring irregularly in fractures of rocks giving rise to different patterns, such as, cross-veins, stockworks and ladder veins are broken and magnesite is sorted out. Major magnesite producing mines in Salem area belong to Tamil Nadu Magnesite Ltd (a State Government Undertaking), Dalmia Magnesite Corporation (a private sector enterprise) and Burn Standard Company (a Central Government Undertaking). These mines, by and large, are mechanised and use compressors, wagon drills, jack hammers, power shovels, loaders, dumpers, dozers and pumps. Normally, Ammonium Nitrate and Diesel Oil Mixture (ANFO) with about 15% of high explosives as booster is used for blasting. The powder factor may go up to 10. The blasted rock or run-of-mine material containing 25 to 30% magnesite in situ is subjected to manual sorting.

The hand-picked crude magnesite is further subjected to sorting and dressing in the dressing yard. Magnesite lumps which are not considered fit for dressing (containing 10 to 20% silica) constitute 2 to 6% of the run-of-mine. These lumps are hand-picked and stacked separately as rejects. The remaining material is further dressed to obtain usable magnesite containing less than 3% silica. The usable magnesite hardly constitutes 4 to 8% of blasted rocks even though run-of-mine contains 20 to 30% magnesite. Magnesite mine in Karnataka is worked by Tata Steel. In Uttarakhand, Almora Magnesite Ltd and Magnesite & Minerals Ltd are the important producers having mines in Bageshwar and Pithoragarh districts, respectively.

Magnesite is marketed generally after calcination; that is, after converting it into lightly calcined or caustic magnesite by heating the mineral to 800° to 1000°C and dead-burnt variety to 1800°C.

USES AND SPECIFICATIONS

The major proportion (about 98%) of magnesite mined is used for conversion in calcined form which finds many applications. The other industries where raw magnesite is used are mosaic tiles, electrodes, chemicals and manufacture of magnesium metal. Magnesite is also used in fertilizers and by food processing industry. Raw magnesite is dead-burnt for making basic refractory bricks, basic refractory mortars, ramming mass, tar/pitch impregnated magnesite, magnesia-carbon bricks, slide-gate plates and other refractories. Caustic calcined magnesite is used for manufacturing sorel cement (magnesium oxychloride), castable refractories and extraction of magnesium metal. It is also the source material for manufacture of magnesium compounds like magnesium sulphate (Epsom salt) and other salts used in paper and pharmaceutical industries. In paper industry, magnesium bisulphate produced from magnesite was used as cooking liquor for preparing pulp. It is also used in textile rubber, glass, ceramic, etc. industries and as animal feed stuff. Fused magnesia finds application as insulating material in tubular heating elements in electrical industry and refractory brick linings in steel furnaces.

Refractory Industry

In India, about 96% consumption is accounted by refractory industry. In the manufacture of refractories, deleterious constituents are SiO_2 , CaO , Fe_2O_3 and Al_2O_3 . The permissible limits for these constituents are governed by its end use. The refractory bricks are made from dead-burnt magnesite by judicious blending of different types of raw magnesite before dead-burning or of different qualities of dead-burnt magnesite prior to brick making.

Indian steel plants use domestic dead-burnt magnesite (DBM) bricks containing up to 5% silica and 2.5% maximum CaO . By and large, Indian refractory makers prefer magnesite for making high grade DBM containing MgO 45.5% (min), SiO_2 2.5% (max) and CaO 1.5% (max).

The BIS has prescribed the IS specification (14303-1995, Reaffirmed 1999) for magnesite for use in refractory industry. The said specification has laid down five grades of magnesite as follows:

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S. No.	Constituent	Requirements, Percent				
		Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
i)	MgO, min	45.00	43.00	42.50	45.00	43.00
ii)	CaO, max	0.75	0.75	0.75	2.00	2.00
iii)	Al ₂ O ₃ , max	0.50	0.50	0.50	0.50	0.50
iv)	Fe ₂ O ₃ , max	0.50	0.50	0.50	2.50	2.00
v)	SiO ₂ , max	2.00	3.00	4.00	1.00	2.00
vi)	Size*	25-75 mm	25-75 mm	25-75 mm	50-100 mm	50-100 mm

* Unless and otherwise agreed to.

Chemical Industry

The BIS specification (IS : 3607-1979, First Revision, Reaffirmed 2003) has prescribed the following specifications for magnesite for use in chemical industry:

S.No.	Characteristic	Requirement
i)	Loss on ignition, percent by mass, min	48.0
ii)	Silica (as SiO ₂), percent by mass, max	2.0
iii)	Alumina (as Al ₂ O ₃), percent by mass, max	0.3
iv)	Iron oxide (Fe ₂ O ₃), percent by mass, max	0.4
v)	Magnesium (as MgO), percent by mass, min	45.0
vi)	Calcium (as CaO), percent by mass, max	1.0

CONSUMPTION

Consumption of magnesite increased to 255 thousand tonnes in 2007-08 against 244 thousand tonnes in 2006-07 because of higher consumption reported by refractory industry. Almost 97% consumption was reported for refractory purposes (including iron and steel plants). Chemical industry consumed magnesite for producing magnesium sulphate. Magnesite consumption pattern by industries is shown in Table - 7.

Table - 7 : Reported Consumption¹ of Magnesite, 2005-06 to 2007-08 (By Industries)

Industry	(In tonnes)		
	2005-06(R)	2006-07	2007-08 (p)
All Industries	219400	243900	254600
Alloy steel (as refractory)	1200 (2)	1200 (2)	1200 (2)
Ferro-alloys	2300 (7)	2600 (7)	2500 (7)
Foundry (as refractory)	900 (5)	900 (5)	900 (5)
Paper	1800 (1)	1800 (1)	1800 (1)
Refractory 2/ (including Iron & steel)	212900 (33)	237100 (34)	247900 (35)
Others (abrasive, asbestos products, chemicals, glass and rubber).	300(9)	300(9)	300 (9)

Figures rounded off. Data collected on non-statutory basis.

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

1/ :Includes consumption of imported magnesite and magnesite equivalent to dead-burnt magnesite .

2/ :Besides, imported sea water magnesia which was 4,500 tonnes in 2005-06 and 5,000 tonnes each during 2006-07 and 2007-08, was also consumed in refractory industry.

INDUSTRY

Dead-burnt Magnesite (DBM)

When the raw magnesite is calcined between 1660-1800° C, carbon dioxide is expelled completely and a dense product 'dead-burnt magnesite' is obtained. Dead-burnt magnesite refers to the magnesite that is unreactive i.e., 'dead' because it has been calcined at a temperature high enough to enable it to be used in brick making or monolithic hearths without undue difficulty arising out of hydration or shrinkage.

Caustic magnesia

Low calcined magnesite, also known as caustic magnesia, is obtained by calcining magnesite in a shaft or rotary kiln between 800 and 1000° C. Because of incomplete dissociation, it still contains 8 to 10% carbon dioxide as carbonate. Low calcined magnesia when mixed with water forms a feebly plastic paste. Industries like paper, rubber, ceramic, asbestos products, glass, etc. use caustic magnesia.

Fused magnesia

Fused magnesia is produced by the fusion of the high-grade magnesite in Higgin's or electric arc tilt furnaces between 2500 and 3000° C. It is resistant to the action of molten metals, basic slags and fluxes, and high temperatures. It is used in the form of moulded vessels and as compressed material for covering resistant elements of the furnaces used in the melting of lead, tin, etc.

There were fourteen major plants manufacturing dead-burnt magnesite and six plants producing lightly-calcined magnesite, two magnesium metal extracting plants, one pilot plant and one plant of seawater magnesia (Tables - 8 and 9). By-product magnesium carbonate and other magnesium salts were also produced during salt manufacture from seawater. Tamil Nadu Magnesite Ltd, (Tanmag) is one of the largest producers producing DBM in a rotary kiln, sintered at 1750° C. In addition, it has five oil fired vertical shaft kilns which heat magnesite to 1000-1100° C for caustic calcined grades.

Sea water Magnesia (SWM)

Sea water or lake biterms is an alternative source to obtain magnesia by chemical reaction. The main raw materials required other than sea water are dolomite or limestone, fresh water and sulphuric acid. The magnesia content of sea water is about 0.2% and even by enrichment with dolomite, around 300 kilograms sea water needs to be processed to obtain a kilogram magnesia. The sea water magnesia can be used to manufacture dead-burnt magnesite, caustic magnesia and the magnesium compounds.

Birla Periclase, Visakhapatnam, Andhra Pradesh, had commenced commercial production of sea water magnesia in February 1998. The installed capacity of the plant was 50,000 tonnes per annum. For the extraction of sea water magnesia, high purity limestone is needed. The plant had suspended production operations since December 1998.

Marine By-products

Carbonates, chlorides and sulphates of magnesium are obtained as by-products in the production of common salt by solar evaporation. Salt Commissioner, Jaipur, reported 11,204 tonnes production of magnesium chloride in 2007-08. The production is normally reported from the salt pans in Tuticorin, Tamil Nadu and Jamnagar-Gandhidham, Gujarat.

Magnesium Metal

India's primary magnesium metal production capacity is estimated at 900 tpy, as on 31.12.2005. Tamil Nadu Magnesium & Marine Chemical Ltd (TMML), Salem, Tamil Nadu, has suspended production since 1992. Southern Magnesium & Chemical Ltd is likely to be the sole producer in India with 600 tpy capacity. India's production of primary magnesium metal was estimated at 200 tonnes per annum during the years 2005 to 2007.

TRADE POLICY

As per the amended Foreign Trade Policy (FTP) 2004-2009, as effective from 1.4.2008, exports and imports of all grades and varieties of magnesite under heading no.2519 are allowed freely.

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Table - 8 : Dead-Burnt Magnesite (DBM) , Lightly Calcined Magnesite, etc. Manufacturing Plants

Name of the plant	Location	Installed capacity (tpy)
Tamil Nadu Magnesite Ltd.	Salem, Tamil Nadu	30000 (DBM) 20,000 (calcined magnesite)
Ramakrishna Magnesite Mines	-do-	3000 (calcined magnesite)
Burn Standard Co. Ltd.	-do-	54000 (DBM) 18000 (calcined magnesite)
Dalmia Magnesite Corporation	-do-	125000 (DBM)
Salem Refractories	-do-	18000 (DBM)
Badrinath Refractory	-do-	900 (DBM) 2000 (calcined magnesite)
Khaitan Hostambe Spinel	-do-	30000 (DBM) 10000 (magnesite chrome clinker)
Ponkumar Magnesite Ltd.	-do-	26500 (DBM)
Tamil Nadu Products Ltd.	-do-	3000 (calcined magnesite)
Tata Refractories Ltd.	-do-	25000 (DBM) 2000 (calcined magnesite)
Orissa Industries Ltd.	Barang, Sundergarh, Orissa	5000 (DBM)
-do-	Chandak, Pithoragarh, Uttarakhand	45000 (DBM)
Almora Magnesite Ltd.	Haldwani, Bageshwar, Uttarakhand	30,000 (DBM, calcined semicalcined magnesite)
Magnesite & Minerals Ltd.	Pithoragarh, Uttarakhand	45000 (DBM)
Himalayan Magnesite Ltd.	-do-	20000 (DBM) 3000 (calcined magnesite)
J & K Minerals Ltd.	Chipprian, Panthal, Udhampur, Jammu & Kashmir	30000 (DBM) 75000 (sized magnesite)
Hansaflon Plastochem Ltd.	NA	1500 (Fused magnesia)
Birla Periclase (Presently closed)	Visakhapatnam Andhra Pradesh	50000 (seawater magnesia)

Table - 9 : Magnesium Metal Extracting Pilot Plants

Name of plant	Location	Pilot/Metal extracting plant
Central Electro-Chemical Research Institute (CECRI)	Karaikudi, Tamil Nadu.	Pilot plant
Southern Magnesium & Chemical Ltd,	Rajahmundry, Andhra Pradesh	Metal extracting plant
Tamil Nadu Magnesium & Marine Chemicals Ltd.	Tamil Nadu	-do-

WORLD REVIEW

The world reserve base of magnesite was estimated at around 3,600 million tonnes, excluding large resources of magnesium-bearing substitutes, such as, dolomite, brucite and olivine. Further, magnesium compounds could be recovered economically from well & lake brines and from sea water. The later, which contains 0.13% magnesium by weight, was a major source of metal and compounds. The world resources of magnesite are given in Table -10.

The world production of magnesite was estimated at 23.5 million tonnes in 2007. China continued to be the leading producer, accounting for about 58% production, followed by Russia (11%), Turkey (9%), and Dem. People's Rep. of Korea (4%). The world production of magnesite is given in Table -11.

Over 98% raw ore producers convert it to magnesia for commercial application, mainly in refractory industry (75%) based on both the sintered and fused forms generally called DBM and electrofused magnesia (EFM), respectively, for lining furnaces used in steel production, non-ferrous metals, cement, glass, ceramic and petrochemicals. The remaining 25% magnesia output is used in agriculture, insulation and for environmental purposes. EFM market is mainly in refractory and electrical industries. China accounts for around 80% world EFM production. Caustic-calcined magnesia (CCM) obtained from sea water and brines is used mainly for agricultural applications, construction and paper processing. Major producers of CCM are China, Greece, Spain, Austria, Slovakia and Brazil. Primary producers of magnesium metal and alloys were China, Canada, Russia and USA. The consuming market segments are aluminium alloying, die-casting and desulphurization.

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**Table - 10 : World Resources of Magnesite
(By Principal Countries)**

(In '000 tonnes of magnesium content)

Country	Reserve base
World : Total (rounded)	3600000
Australia	120000
Austria	20000
Brazil	65000
China	860000
Greece	30000
India*	55000
Korea, North	750000
Russia	730000
Slovakia	320000
Spain	30000
Turkey	160000
USA	15000
Other countries	440000

Source: Mineral Commodity Summaries, 2008.

*As per UNFC system, as on 1.4.2005, the total resources of magnesite are estimated at 338 million tonnes.

**Table - 11 : World Production of Magnesite
(By Principal Countries)**

(In '000 tonnes)

Country	2005	2006	2007
World : Total	26100	23900	23500
Australia	632	482	344 ^e
Austria	694	769	812
Brazil	387	383	399
China	15440	13640	13600 ^e
Greece	471	463	351
India*	341	242	238
Korea, Dem.P.R. of	1000 ^e	1000 ^e	1000 ^e
Russia	2600 ^e	2600 ^e	2600 ^e
Slovakia	920	941	957
Spain	556	521	464
Turkey	2372	2088	2100 ^e
Other Countries	687	771	635

Source : World Mineral Production, 2003-07.

* India's production of magnesite in 2005-06, 2006-07 and 2007-08 was 340.7 thousand tonnes, 239.0 thousand tonnes and 247.5 thousand tonnes, respectively.

FOREIGN TRADE

Exports

The exports of magnesite decreased to 8,697 tonnes in 2007-08 from 12,677 tonnes in the previous year. Out of total exports in 2007-08, those of fused magnesia were 2,373 tonnes, non-calcined magnesite 904 tonnes, calcined magnesite 222 tonnes, other magnesite 1,618 tonnes and magnesium oxide 3,580 tonnes. There were no exports of Deadburnt Magnesite. Exports were mainly to Netherlands (40%) Saudi Arabia (12%), Djibouti (7%) and UAE (5%). Exports of magnesium & scrap increased to 119 tonnes in 2007-08 from 45 tonnes in the previous year. Exports were mainly to Spain, Singapore, USA, UK and China (Tables - 12 to 19).

Imports

Imports of magnesite decreased to 76,287 tonnes in 2007-08 from 92,126 tonnes in the previous year. Out of total imports in 2007-08, those of fused magnesia were 21,432 tonnes, non-calcined magnesite 3,157 tonnes, calcined magnesite 6,666 tonnes, dead-burnt magnesia 36,520 tonnes, other magnesite 5,963 tonnes and magnesium oxide 2,549 tonnes. Imports were mainly from China (61%) followed by Ireland (18%), Japan (9%) and Australia (7%). Imports of magnesium & scrap increased to 8,372 tonnes in 2007-08 from 6,975 tonnes in the previous year. Imports were mainly from China (Tables - 20 to 27).

**Table - 12 : Exports of Magnesite : Total
(By Countries)**

Country	2006-07		2007-08	
	Qty (t)	Value (Rs. '000)	Qty (t)	Value (Rs. '000)
All Countries	12677	88425	8697	79220
Netherlands	4100	37804	3488	32026
Saudi Arabia	1924	11810	1045	11002
Djibouti	277	2569	650	5625
U A E	54	437	442	3983
Egypt	144	1745	360	2448
Indonesia	217	698	337	2269
Syria	146	1400	169	1809
Sudan	314	2027	135	1323
Spain	2640	11866	90	414
Kenya	516	2746	46	305
Other countries	2345	15323	1935	18016

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**Table 13 - : Exports of Magnesia (Fused)
(By Countries)**

Country	2006-07		2007-08	
	Qty (t)	Value (Rs.'000)	Qty (t)	Value (Rs.'000)
All Countries	3852	26787	2373	21719
Netherlands	1080	9490	2170	19873
Bangladesh	-	-	66	755
Germany	80	736	54	614
Djibouti	96	808	-	-
France	336	1952	-	-
Kenya	514	2704	-	-
New Zealand	192	1060	-	-
Saudi Arabia	184	1896	-	-
South Africa	360	2256	-	-
Spain	720	3939	-	-
Other countries	290	1946	83	477

**Table - 14 : Exports of Magnesite (Not
Calcined)
(By Countries)**

Country	2006-07		2007-08	
	Qty (t)	Value (Rs.'000)	Qty (t)	Value (Rs.'000)
All Countries	453	2732	904	7059
Philippines	-	-	72	2544
Netherlands	-	-	180	1667
Indonesia	-	-	88	717
Nepal	10	41	127	580
Sri Lanka	270	726	147	390
Bangladesh	-	-	209	370
Ghana	96	1017	24	315
China	-	-	45	311
Nigeria	1	115	5	86
Sudan	48	562	-	-
Other countries	28	271	7	79

**Table - 15 : Exports of Magnesite (Calcined)
(By Countries)**

Country	2006-07		2007-08	
	Qty (t)	Value (Rs.'000)	Qty (t)	Value (Rs.'000)
All Countries	515	5122	222	968
Djibouti	27	179	134	588
Sudan	66	895	54	199
Cameroon	50	566	9	105
Bangladesh	-	-	25	76
Egypt	50	703	-	-
Kenya	2	42	-	-
Netherlands	240	2316	-	-
Saudi Arabia	80	421	-	-

**Table - 16 : Exports of Magnesite :
Dead-Burnt Magnesia
(By Countries)**

Country	2006-07		2007-08	
	Qty (t)	Value (Rs. '000)	Qty (t)	Value (Rs. '000)
All Countries	25	101	-	-
Saudi Arabia	25	101	-	-

**Table - 17 : Exports of Magnesium Oxide
(By Countries)**

Country	2006-07		2007-08	
	Qty (t)	Value (Rs.'000)	Qty (t)	Value (Rs.'000)
All Countries	2268	15465	3580	35557
Saudi Arabia	1625	9339	874	10097
Netherlands	260	2169	638	5945
Djibouti	40	405	333	3413
U A E	29	237	318	3125
Bhutan	-	-	124	2348
Oman	-	-	125	1585
Egypt	94	1042	285	1470
Indonesia	-	-	231	1459
Iran	-	-	100	1272
Syria	52	589	75	832
Other countries	168	1684	477	4011

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**Table - 18 : Exports of Magnesite (Other)
(By Countries)**

Country	2006-07		2007-08	
	Qty (t)	Value (Rs. '000)	Qty (t)	Value (Rs. '000)
All Countries	5564	38218	1618	13917
Netherlands	2520	23829	500	4541
Djibouti	114	1177	183	1624
Egypt	-	-	75	978
Syria	94	811	94	977
Germany	-	-	95	972
Saudi Arabia	10	53	169	875
U A E	-	-	120	806
Sudan	200	570	27	509
Spain	1920	7927	90	414
USA	98	800	-	-
Other countries	608	3051	265	2221

**Table - 20 : Imports of Magnesite : Total
(By Countries)**

Country	2006-07		2007-08	
	Qty (t)	Value (Rs. '000)	Qty (t)	Value (Rs. '000)
All Countries	92126	1569109	76287	1378749
China	67512	929385	46849	655922
Ireland	14231	362755	13403	342977
Japan	4230	116443	6904	173254
Australia	1586	26080	5219	93943
Netherlands	1386	39933	1000	29500
USA	1606	45860	534	22676
Slovak Rep.	615	9657	1263	21547
Israel	206	10313	137	6922
Germany	232	12131	58	6888
UK	129	7810	97	5508
Other countries	393	8742	823	19612

**Table - 19 : Exports of Magnesium & Scrap
(By Countries)**

Country	2006-07		2007-08	
	Qty (t)	Value (Rs. '000)	Qty (t)	Value (Rs. '000)
All Countries	45	8365	119	28567
China	-	-	15	7629
USA	1	1510	18	6986
Singapore	-	-	19	4194
Spain	-	-	20	3027
UK	3	166	17	2285
Brazil	-	-	10	1854
Nepal	6	595	6	425
Chinese Taipei/Taiwan	5	839	++	337
Kenya	8	1225	2	308
Italy	6	998	-	-
Other countries	16	3032	12	1522

**Table - 21 : Imports of Magnesia (Fused)
(By Countries)**

Country	2006-07		2007-08	
	Qty (t)	Value (Rs. '000)	Qty (t)	Value (Rs. '000)
All Countries	45972	868141	21432	442191
China	35378	604218	15236	296973
Ireland	8147	207475	3640	91867
Japan	614	13829	1878	37897
Australia	442	6943	478	8659
Mexico	20	961	99	4073
Netherlands	-	-	100	2689
South Africa	-	-	1	33
Czech Republic	40	766	-	-
USA	1331	33949	-	-

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**Table - 22 : Imports of Magnesite (Not Calcined)
(By Countries)**

Country	2006-07		2007-08	
	Qty (t)	Value (Rs. '000)	Qty (t)	Value (Rs. '000)
All Countries	877	22951	3157	78836
Ireland			2421	61876
Japan	546	12524	579	12259
Netherlands	104	2766	100	2600
Denmark	-	-	38	1590
UK	22	568	4	247
Nepal	-	-	14	185
Canada	-	-	++	75
China	55	1831	-	-
Germany	146	4803	-	-
Malaysia	4	440	-	-
Other countries	++	19	1	4

**Table - 23 : Imports of Magnesite (Calcined)
(By Countries)**

Country	2006-07		2007-08	
	Qty (t)	Value (Rs. '000)	Qty (t)	Value (Rs. '000)
All Countries	3024	77884	6666	162798
Ireland	2971	76628	6005	154902
China	40	367	476	3936
Slovak Rep.	-	-	144	2570
Japan	13	889	13	817
Germany	-	-	6	345
Pakistan	-	-	22	228

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**Table - 24 : Imports of Magnesite : Dead-Burnt Magnesia
(By Countries)**

Country	2006-07		2007-08	
	Qty (t)	Value (Rs. '000)	Qty (t)	Value (Rs. '000)
All Countries	33473	348887	36520	451400
China	30703	292411	30048	328540
Australia	987	16172	4481	80167
Netherlands	499	16747	754	22945
Slovak Rep.	615	9657	879	14840
Sri Lanka	-	-	127	2118
Hong Kong	-	-	98	1288
Japan	548	13065	11	827
Nepal	100	506	118	617
UK	-	-	4	58
Slovenia	21	329	-	-

**Table - 25 : Imports of Magnesite (Other)
(By Countries)**

Country	2006-07		2007-08	
	Qty (t)	Value (Rs. '000)	Qty (t)	Value (Rs. '000)
All Countries	6325	152675	5963	132247
Japan	2080	45736	3813	81505
Ireland	3113	78652	1337	34332
Australia	155	2915	260	5117
Czech Republic	100	1739	240	4418
China	53	1588	186	3597
Slovak Rep.	-	-	72	1139
Netherlands	770	20025	41	1113
Sweden	-	-	10	459
UK	++	55	1	200
Germany	46	1574	++	35
Other countries	8	391	3	332

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**Table - 26 : Imports of Magnesium Oxide
(By Countries)**

Country	2006-07		2007-08	
	Qty (t)	Value (Rs. '000)	Qty (t)	Value (Rs. '000)
All Countries	2455	98571	2549	111277
Japan	429	30400	610	39949
China	1283	28970	903	22876
USA	274	11859	533	22531
Israel	204	10177	137	6922
Germany	40	5754	52	6508
UK	107	7187	88	5003
Slovak Rep.	-	-	168	2998
France	25	637	11	2470
Korea, Rep.of	13	846	15	771
Greece	19	700	16	522
Other Countries	61	2041	16	727

**Table - 27 : Imports of Magnesium & Scrap
(By Countries)**

Country	2006-07		2007-08	
	Qty (t)	Value (Rs. '000)	Qty (t)	Value (Rs. '000)
All Countries	6975	688700	8372	1064742
China	6585	619792	7795	992670
UK	19	6130	15	21419
Turkey	48	3224	122	14741
Korea, Rep. of	26	2876	80	11708
USA	7	6768	189	7508
Hong Kong	++	1110	40	7374
Austria	10	12632	2	2773
Russia	31	2818	33	1528
Australia	2	9794	-	-
Bulgaria	79	4033	-	-
Other countries	168	19523	96	5021

FUTURE OUTLOOK

As per XI Plan document, the apparent demand of magnesite is estimated to be 745,000 tonnes by 2011-12. However, the production is estimated to be 659,000 tonnes for the same year.

There is gap in demand and domestic supply forecast which is expected to be met by imports in future. Presently also due to cheap imports domestic resources are not exploited optimally. There is need to explore and exploit magnesite for future demand.