CHAPTER VIII

LIMESTONE AS INDUSTRIAL RAW MATERIAL

Limestones of Grades-Super, I and II, have a high status as a raw material in metallurgical, chemical, glass, paper, and other industries. The quantitative requirement of limestones for the various important industries individually, along with their grades are given below:

TABLE NO.68

Sr. No.	Industrial product (Per Tonne)	Requirement of limestone (In tonnes)	Grade
1	2	3	4
1	Iron and Steel		Grade-I (As a flux)
	(a) Pig iron	0.5	
	(b) Pig iron to steel	0.05	
	for steel	0.55	
	In blast furnace	0.2 dolomite is added.	
2.	Calcium carbide	1.6	Grade-Super

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Sr. No.	Industrial Product (Per Tonne)	Requirement of limestone (In tonnes)	Grade
1	2	3	4
3.	Soda Ash (Ammonia Soda Process)	1.6	Grade-I
4.	Bleaching powder	0.9	Grade-Super
5.	Glass	0.25	
	(a) Optical & Colourless		Grade-Super
	(b) Glass - Class I & II		Grade-I
	(c) Glass - Class III, bottle and sheet glass		Grade-III
	(Classes of glass are as per ASTM)		
6.	Paper	0.5 (0.3 tonne lime)	Grade-Super (Whiting is used)
7.	Quick lime (for water softening)	1.6	Grade-I
8.	Other uses like manufacture of paints and crayons, fillers for textiles, rubber, soap, toilet, powders, ceramic mixtures, fertilizers, etc.	0.5 to 1.6 (0.3 to 3 tonnes lime)	Grade-Super (whiting is used)

Limestone is used in various forms in the above industries. For metallurgical purposes, as well as for the manufacture of calcium carbide and soda ash, the rock as such is crushed to suitable size and then used.

For the present, on account of the absence of large scale deposits of iron ore within the State, the question of the utilisation of limestone, in metallurgical industry does not arise. However, the resources of limestones suitable for metallurgical purposes, can always be kept in mind, with a view to feed such requirements of neighbouring States. With the construction of the proposed waterway along Narmada in future, transport of such essential materials will be quite econômical.

In glass industry, limestone of suitable grade is mixed with the raw materials of glass manufacture. Potentialities of developing glass industries in the State (particularly in the Saurashtra area) are quite vast.

In the case of paper, textile and such sundry industrial uses (items 6 and 8 of table No.68), the limestone is first treated to yield 'whiting'. 'Whiting' is a finely pulverized white limestone, chalk, marble or lime. In addition to the above mentioned industrial uses of the whiting, it is also used as a colour wash and is the basis of distempers, calcimines and water paints. In Gujarat, the whiting is obtained by crushing suitable varieties of Miliolitic limestone in the Saurashtra area. Whiting is also manufactured by crushing calcite available as veins in this area.

Whiting requires preferably Grade-Super limestone as raw material; in its absence limestones of Grade-I could be used.

Gujarat's resources of limestone wealth for above mentioned industrial purposes, are also sufficiently large. The author has given below the present state of utilisation of this group of limestones, along with his recommendations for further development.

Mainland Gujarat.

Banaskantha district:

(a) Crystalline limestones (Grades-I and II belonging to Delhi System from Diwania hills and Pasuwal area) can very well be utilised in a wide range of industries, such as metallurgical, chemical, paints, glass, etc. Reserves of 9 m.tonnes of Diwania area as proved so far are not sufficient to support a cement factory unless supplemented by another deposit. Moreover, these limestones being of higher Grade, it is advisable to conserve and utilise them for only those industrial uses which require high grade limestones.

(b) Marble area of Ambaji is very extensive. The waste of marble after taking out blocks and slabs, is large enough to be utilised for making whiting. Also all the marble in the area is not suitable to be taken out as slabs, and such spots are at present abandoned. These also can be utilised in making whiting.

Saurashtra

Miliolite limestones of Saurashtra may find increasing use in metallurgical industry in other parts of the country. With increasing number of steel plants, in the neighbouring States they may find good metallurgical grade limestone in short supply and in that case Gujarat can meet their demand. If necessary, it is worthwhile to beneficiate Grade-II limestones to make them Grade-Super; the cost involved in the case of Miliolites will be very small.

Amreli district:

Miliolite limestones of Grades-I to IV in vast quantities in areas around Jafrabad and Kodinar hold good promise for a wide range of industries. In addition to their present use in cement, sugar and chemical industries, they can easily be utilised for other purposes, viz. paints, fertilizers, glass, etc. The sugar industry in the area near Kodinar is already utilising these limestones.

Bhavnagar district:

Large deposits of limestones of Grades-II and III, can be used for all the above mentioned industries.

There is already a ceramic industry near Palitana. Other industries like chemical, glass, fertilizer (calcium ammonium nitrate) utilising limestone of Grade-II can be established.

Jamnagar district:

This district is much ahead in industrialisation having varied industries viz. woolen and cotton textile mills,, cement and chemical factories, etc.

M/s Dhrangadhra Chemical Co. draw their requirement of limestones from this area as well as from Junagadh district. M/s Tata Chemical Ltd., also get coralline limestone from Okhamandal area.

As the limestones of Grades-Super and I to III are in plenty, there is further scope of developing a number of industries like paints, distempers, glass, etc.

Junagadh district:

Miliolites find considerable use in chemical industries.

M/s Tata Chemicals Ltd. draw their requirement of 1400 tonnes a day from Ranavav area near Porbandar for the manufacture of soda ash, caustic soda, etc. In addition there are other chemical works also. Among them the prominent ones are Saurashtra Chemicals Ltd.(Birla), and Saurashtra Cements and Chemicals Ltd. Ranavav.

The chalk deposits of Ranavav are exploited by a dozen parties. The ex-work cost of finished chalk is around Rs.60/-. The chalk has a great demand as whiting.

Kutch

In the district of Kutch as indicated earlier, limestones of Grades-I and II are in plenty and have remained unexploited so far. There is a great scope for a wide range of industries based on limestones. If basic needs like water supply, communication, etc., are provided, and initial encouragement is extended to certain extent, this mineral wealth will be usefully utilised, and this region on the frontier can prosper and make the same strong.