



CHAPTER-V

5.0 USE OF MINERAL AND MINERAL REJECT

- a) Describe briefly the requirement of end-use industry specifically in terms of physical and chemical composition

M/s Essar Steel India Ltd is one of India's leading integrated steel producers with an annual production capability of 10 million tonnes supported by a 20 million tonne pellet facility. The manufacturing operations comprise iron ore beneficiation, pellet making, iron making, steel making, and downstream facilities, including a cold rolling mill, a galvanizing and pre-coated facility, a steel-processing facility, an extra-wide plate mill and pipe mills with coating facilities. For end use iron ore will be processed through different intermediate industries like beneficiation, pelletisation etc.

Iron ore beneficiation facility

M/s Essar Steel India Ltd has a 12 MTPA plant at Dabuna, Joda (Odisha), which is strategically established to leverage the rich iron ore deposits of the state. The beneficiated ore is transported in slurry form to company's pellet plant at Paradip through 253km slurry pipe from Dabuna to Paradip.

Pelletisation

Essar Steel India Limited is having a pellet plant of 6.0 Million ton per annum capacity at Paradip and the second module of 6.0 MTPA is under commissioning stage a 6.0 MTPA pellet plant at Paradip to provide vital raw material to the steel plant at Hazira (Gujarat). The requirement of pellet plant as per physical and chemical specification is as follows:

Sl. No	Constituents	Grade
1	Fe	+64%
2	SiO ₂	2.5% (max)
3	Al ₂ O ₃	2% (max)
4	Al ₂ O ₃ + SiO ₂	3-4.5%
5	Al ₂ O ₃ / SiO ₂	1.5-3%
6	CaO + MgO	2% (max)
7	P	0.05 (max)
8	S	0.02-0.03%
9	Cu	0.01-0.04%
10	Size	-150mm

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(b) Give brief requirement of intermediate industries involved in up-gradation of mineral before its end-use.

The intermediate industries involved in the up-gradation of mineral before its end use is crushing and screening unit, wet beneficiation plant, etc. ROM iron ore will be crushed and screened in the M.L area to cater to the need of the plant in respect of quality and size. Further as a part of the up-gradation of low grade ore it has been planned to install a beneficiation plant of 6.0MTPA capacity per annum and it will be in operation from 4th year onwards. The details of beneficiation plant have been explained in CH-VI

c) Give detail requirements for other industries, captive consumption, export, associated industrial use etc.

The iron ore produced from the lease area will be used for the captive purpose only. The other associated industries involved are beneficiation plant and palletisation plant.

d) Indicate precise physical and chemical specification stipulated by buyers

Not Applicable

e) Give details of processes adopted to upgrade the ROM to suit the user requirements.

It has been ascertained that ROM produced from the mines will pass through two streams namely unit 1 & Unit 2. Unit one will have only screening facility. The -10mm obtained from unit 1 which does not need any up gradation is directly sent for grinding. The +10m from unit 1 and rom having grade of +58 to – 64 Fe will pass though Unit which has crushing facility. The +5 to -18mm produced from the crusher i.e. lumpy ore will be directly sent to the plant and the -10mm faction will be subjected to beneficiation as per the requirement.

The details of mineral processing/beneficiation have explained in chapter-VI