Problems faced by low carbon ferroalloy industry in India

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ABSTRACT

Production of Low Carbon Ferro alloys by Thermit process started in India in an organised manner around 20 years back under the sponsorship of Iron & Steel control and the able technical guidance of the National Metallurgical Laboratory, Jamshedpur. But unfortunately, the promise, which was envisaged at the beginning, has remained largely unfulfilled till today. The passage of this industry all these years since its inception has been chequered and the industry is under severe strain now. An attempt has been made in this paper to enumerate some of the problems that are facing the low carbon ferro alloy industry. Possible solutions for some of the problems have also been suggested for the survival of this industry.

Introduction

In India today there is a large installed capacity for production of different low carbon ferroalloys by thermit process both in the organized and small scale sectors. But the utilisation of the plant capacity is only 20-25%. This figure alone presents a very dismal picture. In the table below certain available domestic production figures are presented of a few items produced in the country from which it may be seen how the demand has dropped over the last few years.

TABLE

Item	Production in M/Ts				
	77-78	80-81	81-82	82-83	83-84 (April to June)
Ferrotitanium	—	330	112	81	24
Ferro-molybdenum	322	167	171	116.21	21
Ferrotungsten	—	—	21	10.2	2
Ferrocolumbium	—	—	—	38	5
Ferrovanadinm	—	—	104	83	11

('—' denotes not available)

The factors responsible for this state of affairs, are :

The government's policy of allowing imports of finished ferroalloys inspite of a large unutilized installed capacity in the country. This is againstits declared policy to encourage maximum utilization of the country's available production resources. We are now equipped to produce most of the essential low Carbon ferroalloys catering to the needs of the users in the country. The government's policy of allowing imports of different alloy steels and special steel in production of which the ferroalloys are used As is well known, during 1982—the year of productivity large scale imports of alloy and special steels took place, causing irreparable damage to the indigenous

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alloy steel producers. As a result, all the producers had to cut back their production ranging between 30—50%. This had a direct adverse impact on the consumption of different low carbon ferroalloys in the country.

The government belatedly realised the damage to the industry caused by such large scale import, and took corrective measures first by marginally increasing the customs duty and then by restricting imports of alloy and special steels by bringing the same under Appendix 6. (Ferrovanadium also has been brought under the same Appendix). However the impact of these measures has not yet been felt in a big way by the low Carbon ferroalloy industry. Unless the demand from the consuming industries revives, the prospects for the low Carbon ferroalloy industry appear very bleak indeed.

Preference of the Indian buyers to opt for imported finished goods, which usually cost them less. Particularly those goods, for production of which raw materials have to be imported, cost them substantially less, if imported. That is why imported ferromolybdenum, ferrocolumbium, ferrotungsten etc. are in demand, being cheaper than the indigenously produced ones. The government's customs duty pattern is also responsible for this apart from anything else. The rates of duties imposed on the ores are higher than the ones imposed on the finished alloys.

But it can be shown that there is precious foreign exchange saving if indigenous production is encouraged, even by importing the ores required, rather than allowing import of the finished alloys concerned. An example of this is given here :—

Cost of 1000 kgs. ferrocolumbium containinig 50% i. e. 500 kgs. columbium when imported, will cost @ $ 14 per kg., $ 7000, whereas 1500 kgs. (approx) pyrochlore containing 50% i. e. 750 kgs. columbium pentoxide required for production of 1000 kgs. ferrocolumbium containinig 50% columbium, when imported, will cost @ $ 7.95 per kg. of columbium pentoxide $ 5962.5. So, there is a saving in $ to the extent of approx. 1000 per 1000 kgs. of ferrocolumbium.

Fluctuation in the prices of the costly and imported raw materials like molybdic oxide, wolframite ore etc. in the international market make the business very unsure, speculative and competitive.

It is very difficult to maintain a price pattern of the finished products as the costs of the same are directly related to those of the imported ores. It is our misfortune that for the costly products, we have to depend mainly on the imported ores, there being hardly any indigenous availability of the same.

There is no source yet of very good quality pyrochlore, the basic raw material requiring production of ferrocolumbium. Even in the international market, the main producing nations like Brazil & Nigeria having stopped its export. Inspite of this fact, we are in a position to meet the very stringent specifications laid down by the principal consumers like TISCO & the SAIL plants.

Some consumers of ferroalloys have started production of the items themselves for their captive consumption.

The government, should not allow this in view of a large production capacity of low Carbon ferroalloys units remaining unutilized.

High and soaring price of aluminium over the years, the same being an essential raw material in the thermit process.

Direct use of molybdic oxide in the steel bath in place of ferromolybdenum may be mentioned. Many consumers resorted to this practice when price of the item had gone very high a few years back. We have reports that the % recovery of molybdenum in this practice is not as high as being achieved by using ferromolybdenum in the bath. The direct use of molybdic oxide may still

come out to be cheaper to the consumers, but the loss of molybdenum, which is not being recovered, results in wastage of valuable foreign exchange.

Many producers in the small scale sector are bringing a bad repute to the whole low Carbon ferroalloy industry by their failure to supply quality material to the consumers. As the technology of low Carbon ferroalloy production is quite sophisticated, apart from the intricate testing methods of different finished alloys and raw materials the small scale producers are naturally handicapped as the proper facilities are not available with them.

Absence of any up-todate literature and information about the progresses made in this field in the advanced countries. There are only a few reference books one can get in the market. The information available is not adequate. Lack of R & D work in this production line i. e. production by thermit process.

Thus, for the survival of this industry in India, a number of things have to be done. The most important of these are ;—

a) Endeavour to use economically on a commercial basis whatever raw materials are indigenously available. Sincere work has to be done in that direction.

A more serious effort by the government in unearthing the valuable mineral deposits in the country, unexplored as yet, is called for. A special programme to explore deposits of different minerals, required by the industry but not yet unearthed, should be taken up.

b) Restriction or preferably a total ban, by the government on the imports of the ferroalloys, alloy & special steels, which can be produced in this country, bringing the items under Appendix 4. The country is now technically equipped to produce most of these items as per her need. This will be the most important step towards augmenting indigenous production to take care of domestic consumption. In this connection, it may be mentioned here that it is the government's policy to encourage import substitution for saving valuable foreign exchange. But when is comes to practice, we get a different picture.

c) The government should increase the rates of customs duty on the finished ferroalloys, which are now allowed to be imported, till the time an imposition of complete ban is deemed fit by it. Particularly, the rates of customs duty on those ferroalloys, for production of which ores are imported, are to be enhanced in such a manner that the same are appreciably higher than the ones charged on the ores. This step may discourage import of finished alloys.

d) With the diversification of the mini steel plants into alloy and special steel plants, the capacity of the industry (alloys & special steels) has increased substantially. Moreover, TISCO, under its modernisation programme, has started production of alloy and special steels from 1983-84, which envisages a production of an additional 2 lakh tonnes to be achieved in the next few years. A few other units also have undertaken modernisation / expansion programmes. This will increase the capacity further.

The demand for different low Carbon ferroalloys will also go up as a result. The government should encourage indigenous production as far as practicable to meet this additional requirement.

e) The government should allow imports of the raw materials (e. g. molybdic oxide) needed for production of certain ferroalloys, only by the producers of such ferroalloys.

f) Some source of good pyrochlore has to be located. As columbium micro-alloyed steels (HSLA) are rapidly gaining application in different fields viz. construction, oil industry (for making pipelines), automobile industry etc., ferrocolumbium is fast becoming a very important item.

g) The consumers should make purchases, wherever possible, from the well-established producers in the organized sector for quality assurance. If necessary, the consumers may insist on ISI certification mark as an additional guarantee so far as quality is concerned.

h) Up-to-date literature and information on the advancement in this field in the developed countries have to be made available through the help of the government, different associations in the metallurgical discipline and National Laboratories like NML. The government may provide opportunities to the technical people in this line for training abroad, say in a country like the USSR, which is very advanced in production of low Carbon ferroalloys. These will help speed up the R & D work, which so far has been very inadequate.

i) Efforts are to be made to produce some new items by thermit process catering to the needs of the indigenous consumers. This will also help utilization of the spare capacity of many producers in this field.

j) Prossibility of export of certain low carbon ferroalloys like ferrovanadium may be given due consideration. With the availability of vanadium sludge from different aluminium plants (existing & new) and large deposits of vanadium bearing titaniferrous magnetites, vanadium pentoxide (basic raw material for ferrovanadium production) may be produced in a large quantity. So, raw material will not be a problem in this case. This will help utilization of the spare production capacity in the country, apart from opening up more employment opportunity, as the thermit industry is labour-oriented.

k) As low carbon ferroalloy industry is a strategic one catering to the needs of the defence factories, nuclear plants, aeronautical and automobile industries, an all-round effort to revive this industry is called for.

An attempt has been made above to acquaint the audience-readers with the different problems facing the low carbon ferro alloy industry — some possible solutions have also been suggested.

The passage of this industry through all these years since its inception has been chequered. It is under severe strain now. Some serious work is necessary before it can see the better days.

Lastly a point is made to the fact that the steel, alloy steel and special steel industries are the backbone of any nation and are identifiable with the progress it makes. The above industries and ferroalloy industry are complementary to each other. Thus, this industry is to be given the necessary support it needs by all concerned.

References

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Acknowledgment

Help & guidance form the above references and from K. S. Mehta, Director and H. R. Mehta of Bharat Pulverising Mills Pvt. Ltd., are gratefully acknowledged.