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Ferrite Industry in India. Present Scenario and Future Outlook

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Abstract:-

Present Indian ferrite industry has come long way. Commercial production of ferrites started in 1960's. The production of ferrites in 1990 was about 7000 MT which has grown to about 15000 MT by 1995 indigenously. Indian ferrite industry is now poised for big jump and now getting ready to compete in the world market. The major companies are now proposing for big expansions in their production capacities with a desire to become global player. These plans have got further boost due to new economic reforms initiated by the Govt. of India and helping the industry to increase their share in world ferrite market. The new liberalised policy of Indian Govt. have also attracted many foreign companies to set up their production bases in India. The present paper deals in detail the scenario of the Indian industry, availability of main input raw materials, new Govt. policies, opportunities for new ventures etc.

1. Introduction:

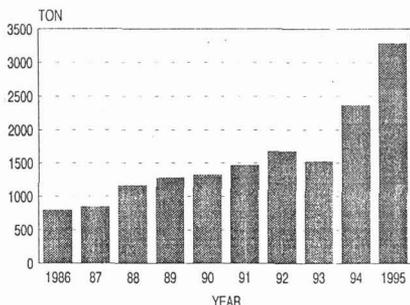
Ferrites have been established as one of the important magnetic material and continue to fulfill the needs of the rapidly growing electronic, automobile, household and other sectors of industry. Broadly, ferrites can be divided into two categories namely, hard and soft ferrites. Indian ferrite industry started about 30 years ago with production of radio ferrites in soft ferrite category by M/s Morris Electronics, Pune. Later on, another company was established under public sector utilising locally developed technology. From the scene of early seventies where only two companies were involved in production of ferrites, India today has about 20 major companies producing soft and hard ferrites. In the following paragraphs a review of the Indian ferrite industry is presented and inherent Indian advantages for the growth of this industry in India is discussed.

2. Production Scenario:

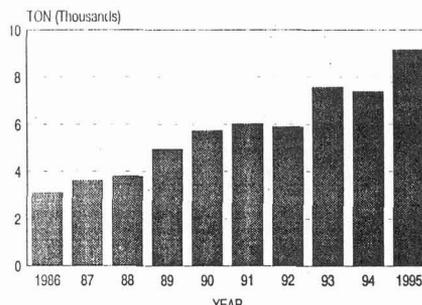
From the time of ICF-5, which was held in India in 1988, ferrite production has increased manyfold. While the production of soft ferrite has increased from 1161 MT in 1988 to 3282 MT in 1995, that of hard ferrite this has increased from 3815 MT to 9156 MT respectively. The growth pattern of Ferrite production for soft and hard categories for the last 10 years is depicted in the following figures.

PRODUCTION GROWTH

SOFT FERRITE



HARD FERRITE

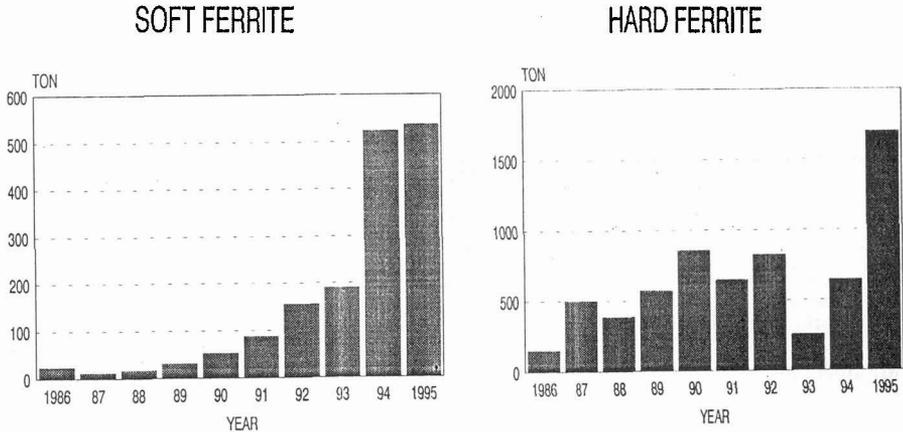


At present, Indian production is meeting almost full demand of hard ferrites except some specific requirements of micromotors and high energy magnets/segments. In the soft ferrite sector, deflection yoke for the CTV and some specific requirements of telecommunications sector are met through imports.

3. Export Scenario:

During 1995, India has exported 540 MT of soft ferrites and 1700 MT of hard ferrites. The export growth of soft & hard ferrites is shown below.

EXPORT GROWTH



Some of manufacturers have been taken lead in exporting ferrite components as well as pre-calcined powder. India today has capacity to manufacture 3,700 MT per year of soft ferrite and about 12,000 MT of hard ferrite material. Many of the international players like, Siemens, Germany; I.C.C, France; Krupp, Germany; Nippon Ferrites, Japan; Hitachi Metals, Japan; Samhwa, Korea; Saikai-Japan; have collaboration with Indian companies.

4. Demand forecast :

Keeping in view of the high growth rate (20% to 40% p.a.) in the areas of CTV, computer and peripherals, telecommunications and lighting sector and nominal growth (5% to 18%) in the area of audio, B&W TV, automobile and loudspeaker sectors, following demand has been estimated for hard and soft ferrite components:

	1996	1998	2000	2005
Hard	8000	10,000	12,000	30,000 MT
Soft	3400	4,800	7,000	15,000 MT

5. Advantages of producing ferrites in India :

(a) Raw Material Availability :

The ferrite industry can be classified as high capital and energy intensive industry with large variety of products in both hard and soft categories requiring high degree of technology and stringent physical tolerance. The industry requires raw material like Ferric oxide, Oxides of Manganese Zinc oxide, Barium Carbonate and Strontium Carbonate etc., of various specifications. Out of this, Ferric oxide is the major constituent which is consumed almost 80% by weight in all the products. India is bestowed with large resources of this basic and main input material. Bailadilla range in central part of the country, is one of the largest mines of iron ore in India. In this mine huge quantity (approx. 20 million tonnes) of naturally occurring fine particle, high grade iron oxide called 'Bluedust' is available. By subjecting it to physical beneficiation, high grade ferric oxide material (silica content upto 0.2%) is obtained which is suitable for hard ferrite applications as well as for some categories of soft ferrites. In addition, India has started producing high purity Fe_2O_3 through chemical route as well. The details of the present and future production capacities of Iron Oxide are given in the following table:

S.No.	Type of Iron Oxide	Capacity(MT)	
		Present	Future additions
1.	Upgraded Magnetite	1,000	3,000
2.	Upgraded Hematite	10,000	8000-10,000
3.	Spray Roasted Ferric Oxide $SiO_2 > 200$ ppm	500	8000**+13,000**
4.	Spray Roasted Ferric Oxide $SiO_2 < 200$ ppm	10,000	6000*+10,000** 12000**MT

* Under Construction **Under planning

Till recently India was importing all its requirement of oxides of manganese but now one company in the private sector has started production of good quality Mn_2O_4 . Zinc Oxide and Barium Carbonate are available easily in the country. However, to manufacture Strontium Ferrites, Strontium Carbonate is being imported.

b) Research & Development Base:

Contemporary technologies related to ferrites production are already absorbed in the country. There is wide spread infrastructure of various academic institutions and research labs. Core facilities for the characterisation of the materials and for making various measurements related to magnetic properties are available in the following institutions:-

Indian Institute of Technology, Bombay,
National Chemical Laboratory, Poona,
Indian Institute of Science, Bangalore.
National Metallurgical Laboratory, Jamshedpur.
National Mineral Development Corp., Hyderabad.
Indian Institute of Technology, Madras.
Solid State Physics Laboratory, Delhi.

Department of Electronics, (DOE) Govt. of India has played a catalytic role in creating the environment for setting up of industry and R&D base in India. Following is a list of some of the R&D projects successfully completed recently under the sponsorship of DOE:-

Agency	Funded by	Process developed
Solid State Physics Laboratory, Delhi	DOE, DRDO	Microwave ferrites (Lithium & Garnet)
NMDC, Hyderabad	DOE, NMDC	Pilot Plant for beneficiation of Blueclust
CEL, Sahibabad	DOE, CEL	High permeability ferrites $\mu > 7000$.
NMDC, Hyderabad	DOE, NMDC	Research is being done for the development of ferrite powder using indigenous sources of ferric oxide.

c) Liberalised Government Policies :

India has today new industrial policy which is transparent and quick and has eliminated licensing from this sector. The salient features of industrial policy are given below:-

- i) There is no reservation for public sector enterprises and investment by private sector is welcome.
- ii) The industry can be set up anywhere in the country subject to clearance from the point of view of environmental pollution.
- iii) Foreign Direct Investment (FDI) gets automatic permission for foreign equity upto 51%, provided foreign equity covers entire cost of imported capital goods.
- iv) Non-resident Indians get automatic approval upto 100% equity.
- v) Foreign investment of upto 100% is permitted in units set-up solely for exports.
- vi) Various incentives and concessions are available for export-oriented units, like duty free import of raw-materials, components and other inputs as well as capital goods.

6. Future Prospects:

As depicted above, the raw materials required for the production of ferrite in India is now easily available. A good scientific base and infrastructure is already established and trained manpower, which is more economical than many European countries, is available. The incentives provided by the Government for export of ferrites components along with the above mentioned advantages put India into a situation where it can be a major producer and exporter of ferrite products. Indian companies as well as a few multinational companies have recognised these advantages and planning to increase/setup new capacities for the production of ferrites. It is estimated that by the year 2000AD India will have capability to produce 10,000 MT of soft-ferrite and 18,000 MT of hard ferrite and may emerge as an important player in the ferrite sector. After meeting the internal demand, it is estimated that India shall be able to export 6000 MT of Hard Ferrites and about 3000 MT of Soft Ferrites by the turn of this century.