

Indian Market for Atomic Spectroscopy

- Dr. Kapil Khullar

Introduction

The spectroscopy techniques- both absorption (AAS) and emission (ICP) are traditionally used in India since decades. There is established market for these products for various applications like environment, food, agriculture, pharmaceutical, metallurgy, petrochemical and healthcare. All major international manufactures have been present in India either directly or through distributors. The growth in the atomic spectroscopy market in India led to couple of local manufactures to produce flame AA systems way back in early nineties. The necessary legislations for analysis of trace elements in various samples like drinking water, food and pharmaceuticals are in place and are upgraded time to time by Government of India. The objective of this article is to highlight the current market scenario and the growth opportunities for AAS, ICP, and ICPMS products.

Market Size and Growth Projections

There has been a rapid growth of Atomic Spectroscopy market in India in last 3 to 4 years. The current estimate of the market size is in the range of US\$ 13-15 million for the year 2007. The table 1 shows the market size for AA, ICP, and ICPMS in terms of both volume as well as number of units.

Product	Volume in Million US\$	No. of Units
AAS	8.0-9.0 M	225-250
ICP	3.5 – 4.0 M	45-50
ICPMS	1.5 – 2.0 M	12-15

Table 1: Market size of AA, ICP, and ICPMS

There is no survey or report published on the above data and is purely on the estimates based on field market analysis. The market for AA and ICP has started picking up at a faster rate

Market Dynamics in India

- ⇒ The current estimate of the market size for spectroscopy in India is in the range of \$ 13-15 million for 2007.
- ⇒ The growth projection for AA and ICP is in the range of 15% CAGR for next three years.
- ⇒ The ICPMS market is expected to grow at a rate of 20% for next three years.
- ⇒ Indian market scenario for atomic spectroscopy is very positive and offers tremendous opportunities for its growth in next 3-5 years.

from year 2003-04 onwards (Fig.1 and Fig.2). According to estimates, around 1100 AA units were sold from year 1996 to 2002 (7 years), whereas around 800 units sold from year 2003 to 2006 (4 years). Similarly for ICP, around 110 units were sold from year 1996 to 2002 (7 years), whereas around 140 units sold from year 2003 to 2006 (4 years). The growth has been faster for ICP compare to AA. The growth projection for AA and ICP is in the range of 15% CAGR for next three years.

With regard to ICPMS product line, there was no established market prior to year 2003. It is only in recent years that its numbers are increasing. Its growth can be attributed to primarily two reasons – firstly the technique is now accepted in India for the routine analysis in quality control environment and secondly it has become more affordable. The ICPMS market is expected to grow at a rate of 20% for next three years.

Major Markets and Growth Drivers

The market segmentation for atomic spectroscopy products is indicated in Fig.3. New legislations in environmental, food, pharmaceutical industry with respect to analysis of toxic

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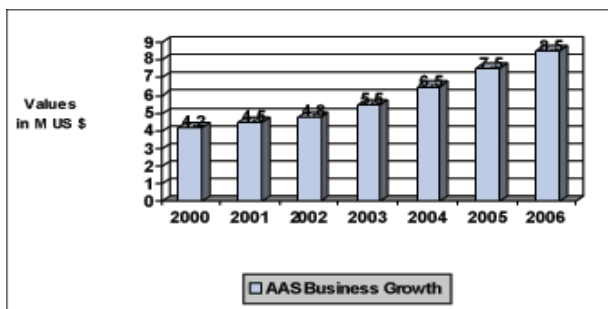


Fig.1: AAS Business Growth

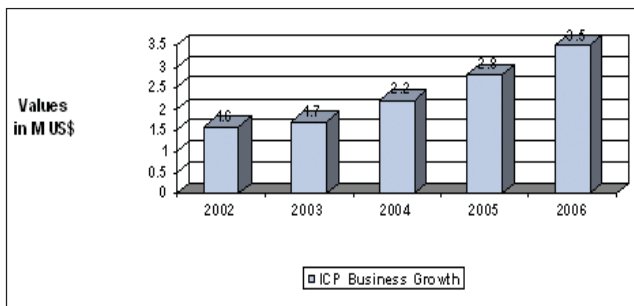


Fig.2: ICP Business Growth

elements is driving the growth of AA, ICP, and ICPMS in these markets. In addition there is an increase in funding to the research institutes and universities from the government.

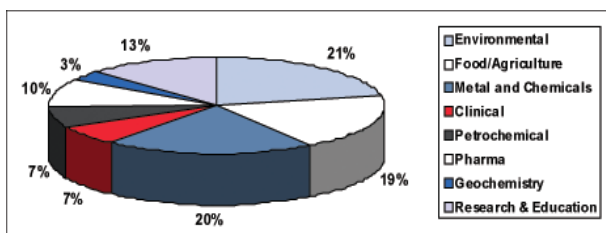


Fig.3: Atomic Spectroscopy Markets

Indian Environmental Market

The regulation and monitoring of the environment is set by the Central Pollution Control Board (CPCB), ministry of environment and forest, Government of India. (<http://www.cpcb.nic.in>).

As per the policy decision of the Government of India, the CPCB has delegated its powers and functions under the Water (Prevention and Control of Pollution) Act, 1974, the Water (Prevention and Control of Pollution) Cess Act, 1977 and the Air (Prevention and Control of Pollution) Act, 1981 with respect to Union Territories to respective local administrations. CPCB along with its counterparts State Pollution Control Boards (SPCBs) are responsible for implementation of legislations relating to prevention and control of environmental pollution. The agency which is responsible for drinking water regulations is Bureau of Indian Standards (BIS) (<http://www.bis.org.in>).

There are about 100 laboratories of central and state pollution control boards all over India. Most of these labs have basic facilities like flame AAS, UV-Vis, and GC. Normally one central lab (in each of 28 states in India) is equipped with Graphite Furnace AAS. The government has started modernization of laboratories from 1996.

The BIS has 8 laboratories all over India. The BIS does not have enough infrastructure to monitor the regulations. So it has notified various contract laboratories. In 2006 union budget government allocated US\$ 47M to start water testing facilities at district levels. In the coming years more investment is expected from the government.

There are about 100-125 contract labs in India in the field of environmental analysis. But with the increase in consumer awareness and growing environment concerns as a result of industrialization, more and more contract labs are coming up. Many international companies like SGS, ITS, TUV etc. are expanding their presence in India.

The big industries like petrochemicals, metal, and power companies have their on labs to check the effluents from ETP plants.

Agriculture, Food and Pharmaceutical Markets

After environment market, other markets, which plays significant contribution to the growth of atomic spectroscopy products are agriculture, food, and pharmaceutical markets. Agriculture and food accounts for approximately 20% of the market share whereas pharmaceutical makes another 10%. Requirement in agriculture market is driven by increase in government spending. The main requirement of agriculture market is soil studies to evaluate micro nutrients profile. In the case of food and pharmaceuticals, the export requirement of toxic element analysis is the key driver for AA and ICP growth.

Major Players – International and Domestic

Leading international companies like Thermo Fisher, Perkin Elmer, and Varian, have their direct presence in India whereas other companies such as Leeman Labs, Shimadzu, Analytik Jena, Spectro etc. operate through their local distributor. Apart from all the international players, there are couple of local companies like ECIL and Chemito, who manufacture AAS. The local companies are mainly in the Flame AA segment. There is no local company making ICP or ICPMS.

Conclusion :

Overall India market scenario for atomic spectroscopy is very positive and offers tremendous opportunities for its growth in next 3-5 years. ■