

## **ABOUT C-MET....**

Centre for Materials for Electronics Technology (C-MET) has been set up as a registered Scientific Society in March 1990 under Department of Information Technology (formerly Department of Electronics) as a unique concept for development of viable technologies in the area of materials mainly for electronics. C-MET functions as an autonomous scientific society and is operating with its laboratories at Pune, Hyderabad and Thrissur. C-MET team consists of 43 S&T officers, 29 S&T assistants and 40 administrative and other staff.

Besides augmenting core competence, C-MET envisions attainment of self sufficiency in the sphere of Electronic materials, components and devices to cater to India's strategic and industrial- applications, exploiting indigenous resources of raw materials. R&D activities in C-MET at present include development of thick film materials, polymers for electronics, specialty chemicals and glasses, ultra high purity and refractory metals, semiconductors, electronic ceramics and fine powder processing. C-MET undertakes joint R&D, sponsored research, technology transfer and consultancy projects and provides technical services.

The objectives of C-MET are:

- To establish the technology up to pilot scale for a range of electronic materials transfer the same to industry for commercialization.
- To establish relevant characterization facilities.
- To undertake applied research activities in the area of its operation.
- To establish national data base on Electronics Materials.

C-MET has set up its vision , mission and strategy to achieve its objectives.

### **C-MET's VISION**

C-MET will become a premier R&D organization known all over the world for its knowledge base, innovations and expertise in Electronic Materials.

### **C-MET's MISSION**

The Mission of C-MET is “To develop knowledge base in electronics materials and their processing technology for Indian industries and to become a source of critical electronic materials, know-how and technical services for the industry and other sectors of economy”

### **C-MET's STRATEGY**

In order to achieve “**Excellence or Relevance**” for the projects, following strategy has been adopted :

- Increase R&D Competence through
  - 4 Core & Grant-in-aid Projects from Govt Funding Agencies
  - 4 International Collaboration
- Meet Strategic Sector Needs of Electronic Materials for ISRO, DAE and DRDO
- Consultancy & Joint Projects with Industry for
  - 4 Troubleshooting of Production Line

- 4 Yield & Quality Improvement for Competitive Advantage
- 4 New Product Development on Shop Floor
- Provide Specialised Technical Services to Industry & Govt Sector for
  - 4 Material Characterization & Testing
  - 4 Techno-economic Surveys

## **THE LABORATORIES AND CORE COMPETENCE**

C-MET's activity on electronic materials is divided over three laboratories at Pune, Hyderabad and Thrissur with the laboratory at Pune coordinating the total effort. Each of these laboratories has its own area of specialization and both the infrastructure and manpower. This approach has proven successful in creating core competence for each laboratory and expertise was developed accordingly.

- **Pune Laboratory**  
Materials for Electronic Packaging, Speciality Polymers, Nano-materials
- **Hyderabad Laboratory**  
Ultra Pure Metals and Alloys, Tantalum and Refractory Metals, Compound Semiconductors and Special Materials and Products
- **Thrissur Laboratory**  
Dielectric and Multilayer Ceramics, Materials for Electronic Packaging, Actuators and Sensors, Nanomaterials

## **R&D ON NANO-SCIENCE AND NANO-TECHNOLOGY AT C-MET**

C-MET, undertook ambitious R&D on nanomaterials for electronics application in 2002 and has made tremendous progress in a short span of 8 years. Several scientists of the organization underwent training in India as well as abroad to meet the recent challenges and set-up programme that would cater to the Nation in the area of nano-science and nano-technology. In fact, the first small programme on light emission from quantum dots was supported by the Department of Science and Technology (DST, Govt. of India, New Delhi) and the small as the *nano* is, made it big in subsequent years in terms of programme and budget support. DST went on to support the phase-III on quantum dots research as well and C-MET established the light emission from CdS/CdSe quantum dots and magic number nanocrystals for white light emitting devices. The nanotechnology initiative taken by Department of Information Technology (Govt. of India, New Delhi), then supported several major programmes at C-MET to develop the processes for a range of nano-materials such as noble metal, transition metal, semiconductors etc. under two major categories viz; large scale preparation by solution chemistry routes including those from organometallic precursors and the production of 250 gm /hours of nano-powders of metal nitrides, oxides and noble metals by transferred arc plasma method. Many more projects, such as nano-crystalline glasses for remote sensing camera, semiconductors nano-powders for solar cells and nano-particles/polymer composites for optical waveguide and NLO applications have then become a reality at C-MET. Today, C-MET is well placed amongst many R&D laboratory in the country to offer solutions/ laboratory scale processes and trouble shooting in the R&D of nano-materials.