

## **DETAILED PROFILE OF KEY MINERALS OF ANDHRA PRADESH**

### **I. GRAPHITE**

Graphite is a soft crystalline form of carbon. It is used in the manufacture of crucibles, lubricants, paints, pencil lead, foundry facings, dynamos, brushes and electrodes and dry batteries. Its properties such as thermal conductivity and chemical inertness make graphite suitable in many industries. Graphite plates are also used in the nuclear reactors.

Graphite occurs as pockets, lenses, veins and disseminations more commonly with graphite schist/gneiss and less commonly with quartzite of the Khondalite Group. Graphite associated with schists is generally amorphous whereas that associated with pegmatites and quartz veins is flaky.

Graphite is reported from several places for more than 300 km between Khammam and Srikakulam districts. Prominent occurrences are at Burugubanda, Tapasikonda and Marrikonda in East Godavari, Reddi Boddair in West Godavari and Kuppumetta Kokkirapalli in Visakhapatnam District. The graphite is generally amorphous with low fixed carbon (F.C) content.

#### **East Godavari District**

Graphite occurrences are reported from Marripalem, Ramavaram, Puligogulapadu, Lingapuram, Burugubanda, Erramatla, Etipalli, Tapasikonda, Marrikonda, Gangavaram, Pullangi, Chodavaram, Namagiri Narendrapatnam, Pibbada, Marriveda, Sitapalle, Paidiputtapadu, Potaram, Komavaram, Goparam, Ulla, Velagaopalle, Kulakarayi, Nepakota and Kakaragudem areas. In all these areas, graphite occurs as specks, streaks, veins and lenses in graphite schist/gneiss. In Burugubanda area, a reserve of 94,500 tonnes of graphite with 12% F.C was estimated up to 30 m depth. Here, wolframite associated with quartzofeldspathic veins occurs with graphite.

Similarly about 15,000 tonnes of graphite with 15% F.C were estimated at Tapasikonda and 22,500 tonnes of graphite with 8% F.C at Marrikonda. The work was carried out by GSI and also NMDC.

#### **Srikakulam District**

Graphite occurs at Dolembas, Kesari, Kondamosuru, Kotarakonta, Tamulavalsa, Totadikonda, Daddalapadu, Rampalle, Alluri, Panasavalsa, Pagam Sanneri, Satapi, Landiguda, Kamavalasa, Pasappadu, Nandakonda, Sivalingapuram, Tyedam, Nullapalem, Kudikaru, Kohodara, Ramabhadrapuram, Boradikonda, Kalgottu, Chinnamergangi and Sarrevalasakonda. The graphite occurs as small lenses in the garnet-sillimanite gneiss mica-schist and calc granulite. The graphite band at Kondamosuru is about 200 m long and 2.43 m wide and it was estimated to contain a reserve of about 37,000 tonnes of crude graphite up to 30 m depth with 14% F.C. The data is from the records of GSI and NMDC.

#### **Visakhapatnam and Vizianagaram Districts**

Graphite is reported from Lankapalem, Mandagor, Marupalle, Tadepala, Endapalle, Padalapalem, Sivalingapuram, Paidikonda, Matchakonda, Venuvilas, Kuppumetta, Gotiwad, Kakaragudem and Kokkirapalle. The graphite forms a constituent of garnet-sillimanite gneiss and occurs as veins and lenses parallel to the foliation. The graphite is flaky and is generally admixed with clay. In Kuppumetta, a reserve of 48,000 tonnes of graphite with 10 to 20% F.C. was estimated. A total reserve of 44,000 tonnes of graphite with 2 to 5% F.C is expected at Kokkirapalle.

### **West Godavari District**

At Reddi Bodair, graphite occurs at the contact of the garnet-sillimanite gneiss and pegmatite as thin veinlets extending over a strike length of about 200m with 2 m to 6 m width. A reserve of 17,600 tonnes of graphite with an average 20% F.C. was estimated in this area. Other notable areas in this district are Chintakonda, Antarvedigudem and Koyyalagudem.