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CHROMITE DEPOSITS IN JHARKHAND

Small deposits of chromite ore are confined to the southern part of Singhbhum district presently in Jharkhand. Such deposits are exposed around Jojohatu, Hatmagariya, Keshargariya, Roroburu, Chitungburu, Kimsiburu, Kittaburu. Small occurrences of chromite are also found at Kusmita, Gurgaon, Tonto and Janoa-Ranjrakocha areas. The deposits are rather small, scattered, and the grade is generally inferior (30-40% Cr₂O₃).

I) Jojohatu – Roroburu Belt

Jojohatu lies about 25 km to the west of Chaibasa, the district headquarters of West Singhbhum. These occurrences are located in Anjadbera and Sahadeva Reserve forest area.

Geological set up-

In the chromiferous ultramafic body of Jojohatu, three blocks identified as potential, namely at Kimsiburu, Kittaburu and Roroburu-Chitungburu are disposed from north to south having a cumulative length of 8 km with a surface width of 3 km. In this belt, the ultramafic rocks hosting chromite are intrusive into the rocks of the Iron Ore Super Group represented by the Chaibasa Group. The Chaibasa Group of rocks comprise phyllites, chlorite schist, feldspathic quartz schist and quartzite. These rocks are folded and show a gentle plunge towards the north. The chromiferous ultramafic rocks have intruded along the axes of these folds. Gabbro, dolerite and quartz veins are the later intrusives into these rocks. Due to widespread steatitisation and serpentinisation of the ultramafic rocks, the nature of the original mineral constituents has been almost completely obliterated. Due to extensive serpentinisation, the original mineral constituents of the ultrabasic rocks are altered to a large extent. The contact of ultramafic the host Iron Ore Group rocks, is marked by gradual steatitisation leading to development of talc schist.

The tentative stratigraphic sequence of the rocks found in the area is as follows :

| | |
|---|---|
| | Laterite |
| | Quartz veins |
| | Gabbro |
| | Granophyre |
| Ultramafic rocks (Intrusives) | Dunite-peridotite-pyroxenite, largely serpentinised and chromiferous |
| Iron Ore Supergroup Chaibasa Group - | Shale, phyllite, slate, quartzite, hematite quartzite, dolomitic limestone and altered basic lava. |

Mode of occurrence and controls of mineralisation

There are several zones of shearing in the ultramafic rocks, along which chromite lodes are associated, thus showing an overall structural control for the chromite mineralisation in the area. These lodes occur as segregations, veins and lenses and are traceable for some distance as at Roro, Chitung, Karkatakuti and Southern Kimsiburu. Concentration of chromite is also seen as irregular bands, stringers, pods or disseminations and also as sacks. Thin bands and veins thin or pinch out because of faults.

The chromite deposits at Roro, is confined to a shear zone which has been overfolded with a gentle plunge towards the south. On the western slope of Karkatakuti, at Tattibera, chromite mineralisation is confined to a shear zone along the axis of a plunging anticline which has been cross folded, explaining the arcuate disposition of the mineralised zone. Deposits of Chitung hill, Kittaburu, Kimsiburu follow the same pattern. At Jumblili, 1 km NE of Jojohatu a vein of chromite is associated with a shear zone trending in N 40° W-S 40° E direction. Chromite mineralisation is mainly in the form of magmatic segregation and veins. Some eluvial placers as chromite rich talus are also reported.

Four mineralised bodies were identified by pitting and trenching. The dimension of ore bodies are as follows:

- (a) At Jumblili, a thin chromite vein occurring in a sheared and altered ultrabasic rock was traced for over 300 m with the thickness varying from 22 cm to 26 cm.
- (b) The Tilaisud deposit appears to be the continuation of the Roro chromite lode, which after being affected by a fault at Bechambara takes a turn and runs towards Tilaisud.
- (c) In Barbasa – Karkatakuti area, a mineralised shear zone containing pods and lenses of chromite was found on the western slope of the Karkatakuti hill. These lenses can be traced over a stretch of 150 m and have a maximum width of 23 cm.
- (d) In the pit at Rutapi, massive chromite in a serpentine matrix occurs in talcose phyllites. This vein-like body has a variable thickness and is irregular in disposition.

Kimsiburu Ore Body

The chromite mineralisation is associated with lenticular concordant bodies of serpentinised ultramafic rocks intrusive into the phyllites of Iron Ore Group and later folded along NW-SE axis. The ore body is pockety in nature and it pinches off both along the strike and dip. Chromite is coarsely crystalline with interstitial serpentine and often interbanded with serpentine.

a) Ranjrakocha-Janoa Ore body

Three chromite lodes have been found in Rakingora hill to the north of Ranjrakocha village. These lodes can be traced for a distance varying from 100 m to about 0.5 km. The thickness of chromite veins and lenses vary from 20 cm to 25 cm. About 150 m west of the Rakingora occurrence, another mineralised shear zone contains a chromite vein of about 20 cm thickness. The vein is acutely folded and is traced for about 150 m. Another prospecting pit in the area north of Janoa revealed a 20 cm thick chromite vein. The early formed euhedral chromite occurs within both olivine and enstatite and is economically unimportant.

b) Bichaburu – Kusmita – Gurgaon Area

The rocks of the area have been affected by three generations of folding. The ultramafics and the associated chromite have been emplaced as small detached bodies along the axis of F2 folds in NNW-SSE direction. The lenses and veins of chromite are aligned along the crest of these folds. These veins pinch off both along the strike and dip. The mineralisation appears to be along NNW-SSE direction controlled by shears. Chromite seem to be an early magmatic differentiate from same magma.

c) Tonto area

The ore bodies in the area are in the form of veins, lenses and sacs with maximum thickness of 20 to 25 cm. The area is highly disturbed and the ore bodies are found to be discontinuous. The lenses and sacs tend to pinch out frequently both along the strike and dip. The grade of chromite ore in Tonto area is poor and can be used only by blending with some better grade ore.