Chromite deposits of the Ukrainian Shield

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The Ukrainian Shield is underlain by 136,500 km^2 of Precambrian rocks and subdivided into three blocks: Western, Central and Eastern separated from each other by north-to-south trending faults of the Golovanev and Orehov-Pavlograd suture zones. Chromite deposits are known within the Golovanev suture zone, which separates the Western and Central blocks. These deposits are associated with Early Proterozoic ultramafic complexes (Kapitanov, Lipovenki and nine others) of presumably ophiolitic nature.

The chromite ores of the Lipovenki deposit are represented by massive (ore bodies up to 20 m across), nodular and schlieren chromitites associated with serpentinized dunite-harzburgite. Sulphide-poor nodular and schlieren chromitites contain platinum-group minerals (PGM) including laurite (RuS_2), irarsite (IrAsS), Pt-Fe alloys and unidentified Rh-bearing phases. Massive chromitites lack sulphide mineralization and show cataclastic structures and cracks similar to those encountered in ophiolitic complexes.

The chromite ores of the Kapitanov deposit are associated with a layered cumulate rock sequence and include massive and disseminated varieties enriched in Al. The chromite ores contain base-metal sulphides (millerite, NiS), arsenides (nickeline, NiAs) and sulphoarsenides (gersdorffite, NiAsS). They also carry PGM represented by ruarsite (RuAsS), anduoite ($RuAs_2$), laurite (RuS_2) and Pd-Sb and Pd-As phases. The chromite chemistry of Ukrainian deposits is comparable to typical ophiolitic complexes.