THE SUPER-LARGE SN-POLYMETALLIC DEPOSITS HOSTED IN DEVONIAN BLACK SHALE SERIES IN DACHANG ORE FIELD, SOUTH CHINA

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The Dachang ore field is famous for its huge metal reserves (705x104t), including Sn, Zn, Pb, Sb, Cd, In, Ag etc.and complex mineral compositions.The Tongkeng-Changpo and Longtoushan deposits are super-large and account for about 80% of the total reserves of this ore field. For Tongkeng-Changpo deposit, No.92 and No.91 ore bodies are the most important, which are distributed conformable in black chert (sometimes intercalated with marl-shale) of Frasian(D31lj) and Famenian (D32w2) Epoches. In Longtoushan deposit, ore body No.100 is the largest, which occurred in vein forms across the reef limestone of Eifelian (D21n) Epoch. Ores are massive, banded, laminated, disseminated, and composed of cassiterite, pyrite, pyrrhotite, sphalerite, arsenopyrite, jamesonite, adularia, tourmaline, quartz, calcite etc. Black chert has¦Ä30SiNDS-28 value of +0.2 - +0.3¡ë, indicating a sedimentary origin. The ratio of SiO2/ Al2O3 is 3.5 for marle-shale and 69 for chert, indicating a hydrothermal or biogenic input in addition to the detrital source for the latter. Average¡ÆREE(ppm)are: 125 for shale, 131 for marl-shale, 25 for chert. Average Ce anom and ¦ÄCe of these rocks is -0.12 and 0.86, idicating the environment is nearby oxidation-reduction boundary.Chondrite normalized REE pattern of these rocks yield rightward declined curves with small negative Eu and positive Gd anomalies. These rocks are rich in Te, Se, Cd , In (several to thousands times higher than crustal value). According to detailed study, the Tongkeng-Changpo deposit is sedimentary- reworking and the Longtoushan deposit is epigenetic in origin.