

Sedimentary characteristics and origin of oil shale in DaLianhe Formation of Eocene in Dalianhe area, Heilongjiang Province, China

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The Dalianhe coalmine lies in the northeast of Yishu Graben, which is a small rift basin in Heilongjiang province of China. Oil shale occurs in Eocene Dalianhe Formation. There are three sedimentary facies and eight sedimentary subfacies in the basin, defined by analyzing paleotectonic features, lithologic features and sedimentary environment: fan delta facies, lacustrine facies and turbidite facies. Lacustrine bog and semi-deep and deep lacustrine facies are the most advantageous facies belt of oil shale. From bottom to top, oil shale shows two kinds of forms, that is, the middle and lower oil shale occurs alternatively with coal, and the thickness is commonly 0.2-2.5m; the upper oil shale is the roof of the coal, and the thickness is more than 70m. Oil shale can be divided into lacustrine bog and deep lacustrine types. The genetic type of bottom oil shale, which occurs alternatively with coal, is lacustrine bog type, and its oil yield is commonly more than 10% (in weight). The genetic type of top oil shale, which is the roof of coal, is deep lacustrine type, and its oil yield is between 3.5% and 5% (in weight). Therefore, the important influence factor of oil yield grade is the environment difference of oil shale in DaLianhe Formation.