West Kunlun, with a vast territory and terrible natural conditions, has very low degree of geological research. In recent years, with the implement of the survey for the land and resources, a series of lead-zinc deposits (points) and copper mining points, such as Baotashan lead-zinc mine, Duobaoshan lead-zinc mine, East Duobaoshan lead-zinc mine and so on were discovered, which indicated that this area has great metallogenic potential for Pb-Zn and Cu polymetallic deposits.

1 Geological Background

Qiao’er Tianshan-Chalukou region, located in north side of main peak of Karakorum mountains, the northwest of Tibetan plateau, and whose administrative region is managed by Hetian county, Xinjiang Uighur autonomous region. The tectonic setting is combination position of south China plate, Aksai Chin Paleozoic continental marginal basin located in the northern of Qiangtang micro-plate and Karakorum Mesozoic continental marginal basin, which are divided into two parts by Qiao’er Tianshan-Chalukou fault, the northern Tianshuihai micro-plate and the southern Shenxianwan Paleozoic margin depression zone.

This area develops complete strata from Proterozoic group to Cenozoic erathem, and these lead-zinc deposits are concentrated in limestone of Tielongtan Formation (K$_{2}$t) of upper Cretaceous, whose lithology are mainly limestone with limonitization and disintegration. Magmatic rocks are not developed in this area, and most of them are acid granite. Most of metamorphism in this area are dynamic metamorphism. The structures develop well, and the largest-scale fault is northwest striking, the second largest are northeast-striking and north south-striking. Along the two sides of Qiao’er Tianshan-Chalukou fault, the largest lead anomaly belt (anomalous block), the second largest zinc and mercury anomaly belt (anomalous block) and the correspond anomaly of cadmium and antimony are distribute concentrated.

2 Characteristics Contrast of Typical Deposits

According to incomplete statistics, 23 lead-zinc deposits (points) were discovered in this area, and only Baotashan lead-zinc deposit is medium sized, others with lower degree of work, awaiting further exploration. The characteristics contrast of typical deposit in this region are showed in Table 1.

3 Prospecting Criteria

Prospecting criteria for lead-zinc deposits in this region can be proposed as follows:

1) Geochemical indicator: in this region, along the two sides of large fracture belt and secondary faults, distribute Pb,zn,Ag and so on geochemical anomaly, and whose concentration centers are the indicators for lead-zinc deposits.

2) Stratigraphic indicator: the lead-zinc deposits are mainly concentrated in limestone of Tielongtan Formation (K$_{2}$t) of upper Cretaceous, especially the limestone with limonitization and disintegration, and the host rocks are grey and dark gray limestone.

3) Structure indicator: because mineralization zone and ore bodies were discovered in the cataclastic alteration zone of faults, the apparent structure indicator is faulted and shattered zones. The secondary faults which are strike obliquely or parallel to the Qiao’er Tianshan-Chalukoumain fault are favorable for mineralization.
4 Concluding Remarks

The lead-zinc deposits of this area are mainly located in the Qiao’er Tianshan-Chalukou main faultzone, the geochemical anomaly are the concentration center of Pb, Zn, Ag. These deposits are controlled by strata, and mainly concentrated in limestone of Tielongtan Formation of upper Cretaceous. The geological-geochemical conditions are fit for the formation of large-super large lead-zinc deposits, and the main deposit types are MVT-type Pb-Zn deposits whose host rock is carbonate (Jurassic and Cretaceous), and sedimentary-exhalative type deposits (Permian) which are formed in clastic rocks, taking account to tectonic breccia volcanogene hydrothermal copper deposit.

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