

Classification, Mineralization and Prospection of Chinese Realgar/Orpiment Deposits

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Chinese realgar/orpiment resources are considerably rich, ranking first in the world. The deposits are generally restricted to platform margins and orogenic belts, and the hosting strata age from Archean era down to Mesozoic era but Cambrian and Ordovician eras are the most important of all. The deposits formed as usual at relatively low temperatures of 100~200°C, controlled by both the lithology and the structures of ore-hosting rocks.

According to their mineralizing processes, geological occurrences, tectonic and geochemical environments, the deposits may be classified into three types including stratabound, hot-water sedimentary and hydrothermal. Three types can be further distinguished into seven subtypes such as Xiaguan, Shuiluo, Jiepaiyu, Songpan, Shixia, Wangzhuang and Ningshan.

Coming to a stratabound model, realgar/orpiment deposits are concentrated to large basins in the insides of old continental plates, genetically connected immediately with the circulation of meteoric water in folds and faults and the hot-water systems in confined beds. Deposits of a hot-water sedimentary model rest in collision orogenic belts or on margins of old continents, controlled by geothermal systems of intermediate-deep solutions circulating in fracture zones. The realgar/orpiment deposit labeled with a hydrothermal model are frequently confined to continental margins, continental rifts and collision orogenic belts, governed by geothermal systems associated with later hypabyssal magmatic events.