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## **Types and genesis of the BIF-hosted high-grade iron ores in China**

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BIF-hosted high-grade iron ores in China are divided into three types: Large-scale massive magnetite ores related to the Neoproterozoic Algoma-type BIFs in the Anshan-Benxi area, Liaoning Province; Large-scale massive and banded hematite ores related to the Neoproterozoic BIFs in the Shilu iron deposit, Hainan Province; Small-scale porous hematite ores with residual massive or banded texture that related to the Paleoproterozoic Superior-type BIFs in the Yuanjiacun iron deposit, Shanxi Province. The ca. 1.85Ga desilicification process by hypogene alkaline-rich hydrothermal fluids were possibly responsible for the formation of high-grade massive magnetite ores of the Gongchangling iron deposit in the Anshan-Benxi area, with distinctive garnet-dominated wall-rock alteration. The ca. 2.5Ga or 2.1Ga iron activation–reprecipitation process by migmatitic-hydrothermal fluids generated the high-grade massive magnetite ores of the Qidashan-Wangjiapuzi, Nanfen and Waitoushan iron deposits in the Anshan-Benxi area, with wall-rock alteration of chloritization, biotitization and sericitization. Genesis of high-grade massive hematite ores of the Shilu iron deposit are similar to the desilicification process but controlled by more oxidized hydrothermal fluid. All of the high-grade magnetite- and hematite-ores are structure-controlled and are the products of replacement of protore by hydrothermal fluid. The genesis of the porous hematite ores is interpreted as dissolution and getting out of carbonate minerals of the Superior-type BIFs, leaving high-grade porous hematite in situ.

