

**DESCRIPTIVE MODEL OF ALGOMA Fe**

By William F. Cannon

APPROXIMATE SYNONYM Volcanogenic iron-formation.

DESCRIPTION Beds of banded iron-rich rock typically in volcanic-sedimentary sequences formed in tectonically active oceanic regions. (The grade-tonnage model for Algoma Fe is included under Superior Fe).

GENERAL REFERENCE Goodwin (1973).

GEOLOGICAL ENVIRONMENT

Rock Types Mafic to felsic submarine volcanic rocks and deep-water elastic and volcanoclastic sediments.

Textures Pillowed greenstones, intermediate to felsic tuffs and agglomerates, poorly sorted elastic sediments.

Age Range Mostly Archean.

Depositional Environment Volcano-sedimentary basins (greenstone belts of Precambrian shields) generally with rapid turbidite sedimentation and thick volcanic accumulations.

Tectonic Setting(s) Tectonically active submarine volcanic belts, most commonly preserved in Precambrian shields.

Associated Deposit Types Kuroko massive sulfides and Homestake Au deposits.

DEPOSIT DESCRIPTION

Mineralogy Magnetite, hematite, siderite. Interlayered fine-grained quartz.

Texture/Structure Banded on centimeter scale with chert beds interlayered with Fe-rich beds.

Alteration No syngenetic alteration, but commonly metamorphosed to varying degrees and weathered.

Ore Controls Local controls within general volcano-sedimentary setting are not well established. Sub-basin with low sediment and volcanic input is probably key factor.

Weathering Conversion of iron minerals to Fe-hydroxides; leaching of silica. Intense weathering can form high-grade supergene ores.

Geophysical Signature Magnetic anomalies.

Examples

Vermilion iron-formation, USMN James (1983)