
Abstract

The directory of about 550 Phanerozoic ooidal ironstone occurrences, deposits and districts around the world is stated in 366 brief stratigraphic and petrologic records. A table of the countries by geologic periods and a figure of the number of ironstones by periods are also given.

The Phanerozoic ooidal ironstones have more than 5 % of ferruginous ooids and more than 15 % of iron. The multicoated ooids are spherical, ellipsoidal, or rarely spastolithic. In composition they are mainly berthierine or chamosite and hematite or goethite, with usually lesser amounts of kaolinite, illite, Ca-phosphate, siderite, ankerite, or calcite. Locally nontronite as well as pyrite, magnetite, or stilpnomelane may be present.

The Phanerozoic range of ironstones is from Middle Cambrian to the Present, with many of them in the Ordovician and Devonian and in the Jurassic and Cretaceous. Fewer ironstones occur in Silurian and Early Cenozoic, and still fewer in the Cambrian, Carboniferous, Permian, Triassic, and Late Cenozoic.

Ooidal ironstones developed in anorogenic or diminished orogenic episodes. Most of them were shallow marine or deltaic deposits. Very few were lacustrine or alluvial. Many of the marine ironstones are above small siliciclastic or siliciclastic-carbonate coarsening upward sequences, either at the end of regressive episodes or at the beginning of transgressive ones. Some small sequences are linked to Milankovitch patterns.

Reviewers Note

The ooidal ironstones represent very special sediments from the sedimentological and also economical viewpoints. All their occurrences have many features in common but many of them also possess some specific characteristics. In this paper the catalogue of all the major occurrences of sedimentary ooidal ironstones is presented with important data on the age, underlying and overlying sediments, composition, possible origin and economic importance. The summarization of data shows that the distribution of ironstones through the geological history is very irregular and indicates several "ironstone epochs". This directory is published by two experts on the genesis and composition of sedimentary ironstones and thus it can serve as a valuable collection of data for all the geologists.

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