Nanostructured Iron/Carbon for Scavenging Oxygen

Abstract

The invention is directed to a nanostructured composite material comprising a mixture of at least one metal particle such as iron and a carbon material from biomass such as D-glucose, D-glucosamine hydrochloride or a-cyclodextrin. The invention is also directed to a composition comprising the composite material comprising the composite material and an inorganic salt, and a method for synthesizing the composite material comprising immersing the carbon material into a solution of metal ions, drying the impregnated carbon particle and subjecting the impregnated carbon particle to a carbothermal reduction process. The nanostructured composite material is useful as an oxygen scavenging layer in a multi-layer film which comprises the oxygen scavenging layer and an oxygen barrier layer that retards the permeation of oxygen from an external environment.

(No suitable figure)