ABSTRACT

A hydrotreating catalyst having both a high desulfurization activity and a denitrogenation activity and a method of hydrotreating a hydrocarbon oil using the same is provided.

A hydrotreatment catalyst comprising a silica-alumina carrier loaded with at least one hydrogenation-active component; wherein (1) the silica content is in the range of 2 to 40% by weight based on the total weight of the carrier; and (2) in the spectrum obtained by nuclear magnetic resonance analysis (^{29}Si-NMR), (i) the area of the peak at -80ppm is 10% or more of the combined area of all the peaks; and (ii) the combined area of peaks at -80ppm, -86ppm and -92ppm is 20% or more of the combined area of all peaks; a hydrotreating catalyst comprising a silica-alumina carrier containing a specific amount of a third component loaded with at lest one hydrogenation-active metal component and having a specific pore structure; and a method of hydrotreating a hydrocarbon oil comprising contacting a hydrocarbon oil with hydrogen in the presence of said hydrotreating catalyst.