

ABSTRACT

The present disclosure relates to a supported catalyst, a preparation method therefor, and an application thereof. The supported catalyst of the present disclosure comprises a support and a metal active component supported on the support, wherein the metal active component is at least one selected from the group consisting of a Group VIB metal element and a Group VIII metal element; wherein the support contains at least one of heat-resistant inorganic oxides and molecular sieves; wherein the support includes an internal channel penetrating the support, wherein the ratio of the cross-section area of the channel to the cross-section area of the support is 0.05-3:100; and wherein the difference R between the water absorption rate and the BET pore volume of the support is not less than 0.2 mL/g. The supported catalyst of the present disclosure can be used as a hydrogenation catalyst. When used in the hydrocracking of hydrocarbon oils, it can achieve high catalytic activity and high yield of jet fuels at the same time. The supported catalyst of the present disclosure can also be used as a Fischer-Tropsch synthesis catalyst. When used in Fischer-Tropsch synthesis, the catalyst shows advantages of high strength and high activity efficiency. The supported catalyst of the present disclosure achieves a higher radial crushing strength without sacrificing the catalytic activity. Therefore, the supported catalyst of the present disclosure is particularly suitable for use in fixed-bed reactors.

Fig. 1